Which New Mac Should You Buy? Page 19

# DECEMBER 1993

THE MACINTOSH® MAGAZINE \$3.95 Canada \$4.95



MORE POWER
AT LOWER PRICES



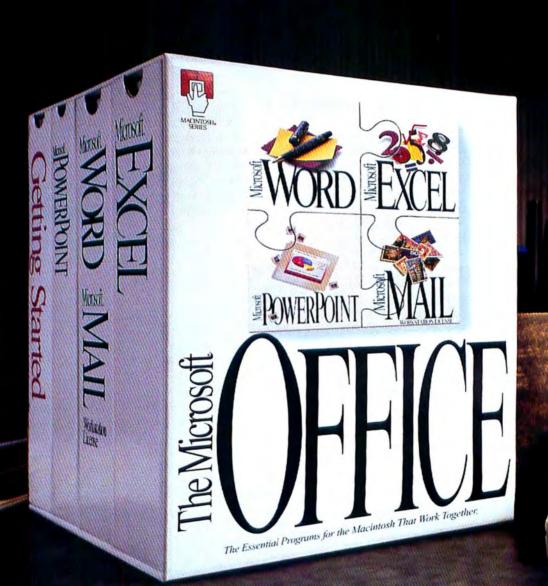
PageMaker 5.0 US. KPress 3.2 AN IN-DEPTH COMPARISON

#### PowerBook Duos 250 and 270c

PLUS 10 DOCKING STATIONS EVALUATED

## Optical Storage

SEPARATELY THEY'RE FIRST-RATE, TOGETHER THEY'RE SECOND TO NONE.



With honors like the MacWorld World Class award, you know there are some top-rated programs in the Microsoft" Office for Macintosh". And we've taken these outstanding designs a step further. Because we've made all these programs perform together like one single unit. Flawlessly.

That's what sets us apart.

Object Linking and Embedding connects your information between programs. Automatically.



Not only are our programs so similar in style and smarts that learning one is a lot like learning them all, but they actually link information together interactively. You don't just paste objects like data, text, graphics or pictures anymore. You embed them. Into one unified working environment.

Making a change to that chart in your monthly sales report is easy as a double click of the mouse.

Bingo. You're in your spreadsheet.

Modify the figures and close the program. You're immediately back to your work in the word processor and everything has been automatically updated. Just like that.

And soon, Visual Editing will let you make those changes even faster. Because programs in the Microsoft Office will literally work within each other. Completely.

Never again leap between your programs to add charts, pictures, facts, figures or anything else. You can simply concentrate on what you're doing, not how to do it.

Our software will also share great programming tools and automate things like reports and order tracking. So skip the monotony of reinventing your own ideas.

If you want programs that bring all your work together, with more great things on the way, look for Microsoft. It's the one.



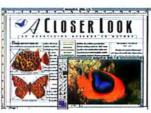


# What's a company like us do

what could Intel, the leading manufacturer of PC microprocessors, have to say to a Macintosh user? Surprisingly,

a lot. Especially if you're one of the growing number of Mac users looking for software compatibility and better price/performance.

At Intel, we know computer users can get pretty attached to their software—you'd prefer to keep using it even if you buy a new PC. That's why we've always made sure our PC processors run yesterday's PC software as well as the latest



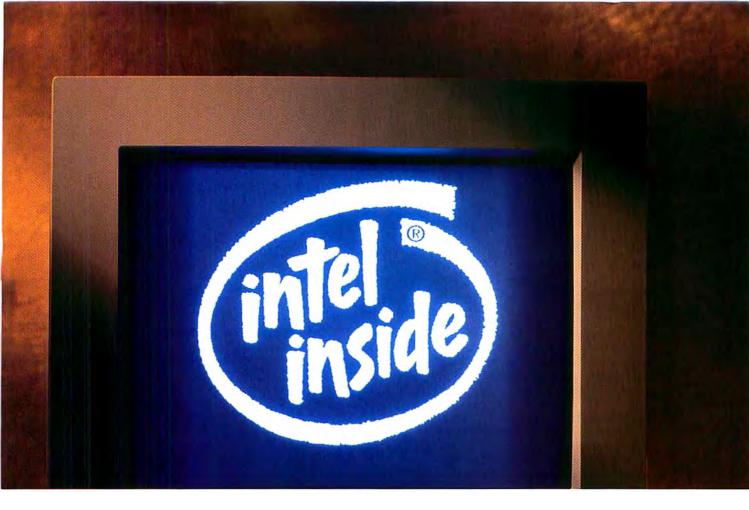
This is a document created on a Macintosh.



This is a document created on an Intel-based PC.

releases. And today, more software developers are writing new programs for Intelbased PCs than any other architecture.

And because every year our processors get faster, your programs will run faster. Thus, an application that runs on our speedy



# ing in a magazine like this?

Intel486<sup>™</sup> DX2 processor will perform even better on our new Pentium<sup>™</sup> processor.

As for price/performance, we can offer you more for your money than Macintosh can.

That's because hundreds of companies worldwide bring you computers based on Intel's processor technology.

Applications	Mac	Intel
Microsoft Office*	•	~
ClarisWorks'		-
QuarkXPress*	•	~
Microsoft Excel*		1
Microsoft Word*	•	-
Adobe Photoshop*		1
Adobe Illustrator		-
Quicken*		1

With an Intel-based PC, you can still run all your favorite Macintosh applications.

Now you may be wondering, how does knowing all this about Intel help you, a Macintosh user? Simple.

The more you know about Intel processors, the more you'll wish we were in your computer instead of just in this magazine.

To learn more about what Intel compatibility and price/performance can mean to you, call 1-800-395-7009, extension 83.



# COMMACWORLD THE MACINTOSH® MAGAZINE DECEMBER 1993

#### **Features**

#### 92 New 040 Macs

shuffles hand wit one—ho

BY CHARLES SEITER Apple shuffles the deck and shows its hand with 040 machines for everyone—home, office, and school.

#### 102 New PowerBook Duos



BY CARY LU A slew of docking stations and two new, active matrix Duos from Apple mean flexible computing solutions have finally arrived.

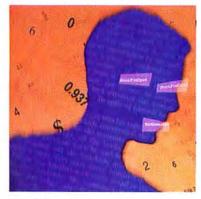
#### 110 Working in Two Worlds

BY GALEN GRUMAN Skirt the pitfalls of Mac-Windows compatibility with these ins and outs to 12 popular programs.

#### 120 Optical Options



BY TIM WARNER Faster speeds and lower prices make opticals a better choice than ever. Macworld Lab tests 44 drives from 128MB to 1.0GB.



Page 148

#### Page 188



#### News

- 33 MacBulletin
- 34 News Apple workgroup printers • AV Mac products • Power-PC coprocessors, and more
- 41 New Products

#### **Opinion**

- 19 State of the Mac

  BY ADRIAN MELLO Grading
  more new Macs.
- 25 Letters
- 211 The Desktop Critic

BY DAVID POGUE Holiday cheer from Santa Pogue.

217 The Iconoclast

BY STEVEN LEVY Will Apple's Duo Docks survive?

221 Conspicuous Consumer

BY DEBORAH BRANSCUM Mailorder guidelines.

332 Wise Guy

BY GUY KAWASAKI Small-scale entrepreneurs can still make it big.

#### 12 How to Contact Macworld



December 1993, Volume 10, Namber 12 — Macworld (ISSN 0741-8647) is published monthly by Masworld Communications, Inc. Editional and Insoneoidens: 503 Second 52, San Francisco, CA-94107, 415741-9675 Subscription orders and inquines should be deeded to 303/447-99300 Subscription rates are \$10 for 12 zoues, \$600 for 24 nozes, and \$500 to 17 nozes, Foreign etchin must be prepaid in U.S. Insone with additional poolage. Aid \$18 per year for portage for Canada and Mexico subscribers. Aid \$60 per year for portage for Canada and Mexico subscribers. Aid \$60 per year for portage for all other countries. Second data postage paid at \$150 per year for portage for all other countries. Second data postage paid at \$150 per year for portage for all other countries. Second data postage paid at \$150 per year for portage for all other countries. Second data postage is all subscribers. Postage for all contributions of the countries. Second data postage is all subscribers of the countries. Second data postage is all subscribers. Postage in Macworld, P.O. Box 54529, Roadder, CO BID27-4529. Printed in the U.S.A.





#### Graphics

130 News The power of Live Picture . Thermal-wax/dye-sub printer-in-one · PixelPaint Pro bounces back, and more

#### 134 **Expert Graphics**

BY CATHY ABES Graphics professionals share their secrets.

#### PageMaker vs. XPress: 136 The Rematch

BY STEVE ROTH With recent PageMaker and QuarkXPress upgrades, which is right for your publishing work? We evaluate the distinctions and subtleties between these DTP giants.

#### At Work

148 News Major revs of Word, Excel • Fair Witness improved · Contact management scheduled for DayMaker, and more

#### 151 **Working Smart**

BY JIM HEID Specialized data processing.

#### 168 **Advances in Text Retrieval**

BY KRISTI COALE Text-archiving-and-retrieval software lets you bid those dusty files and microfiche good-bye.

#### 175 **Quick Tips**

and shortcuts. ON THE COVER Photo by

#### Networks

News Communications prod-188 ucts for the Newton . Dial-up Ethernet routers . Stalking the single serial port solution, and more

#### 191 Cross-Platform File Transfer

BY GALEN GRUMAN With popular applications on both Mac and Windows, what's stopping you from collaborating with PCs? Four solutions help you break the communication barrier.

#### 197 **PowerBook Notes**

BY CARY LU Remote-control computing.

#### **Buyers' Tools**

#### 225 **Editors' Choice**

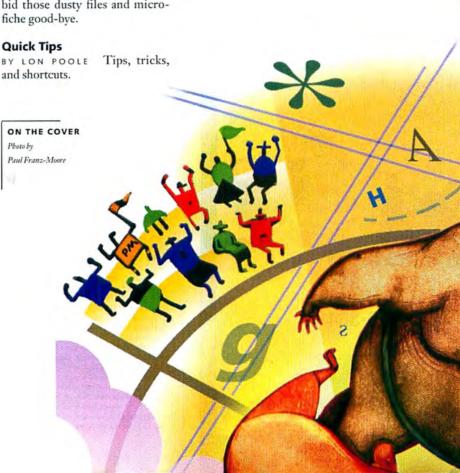
Top picks from our comparative articles.

#### **Star Ratings** 229

More than 350 product-review summaries.

#### 253 Streetwise Shopper

Hardware and software bargains: discounts, bundles, upgrades.



#### Reviews

- 50 Quadra 840AV; AudioVision 14 Display Computer and monitor
- Apple Newton MessagePad Personal digital assistant
- Finale 3.0.1 55 Music-notation program
- 57 Turbo 040 Accelerator card
- Coolscan LS-10e; ScanMaker 35t Film scanners
- Now Compress 1.0 File-compression program
- Icon-It Pro 3.0.6 Tool-bar utility
- MovieMovie Video- and audio-capture board
- **Useful Voice Processor** for Mac 1.1v7 Dictation software
- Power To Go 2.0 PowerBook utility package
- On The Road 1.1 PowerBook utility
- PowerBook 140 F/25 Upgrade Hardware enhancement
- AsantéHub 1012 Networking
- 75 AppleDesign Powered Speakers; AC\$100; AC\$150 Powered speaker sets
- Now Fun Desktop enhancement
- Spectre Supreme Game
- 79 Mr. File 2.0 Finder utility
- Toner Tuner 1.0.3 **Printing utility**
- HyperStudio 1.0 Hypermedia authoring tool
- **MobileWriterPS** Portable PostScript printer
- Office Tracker 1.1 Tracking software
- Hello Music MIDI starter kit
- ultraShield 1.252 Security software
- LightningScan Portable Hand scanner for PowerBook
- Falcon MC 1.0 Jet fighter simulation



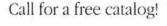
### AnthroCarts!

AnthroCarts will knock your socks off! Imagine how great it'll be when you find the perfect furniture for your equipment — just the right size, tough as nails construction and dozens of accessories.

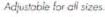
And you'll find our service so real and responsive, you'll get a kick out of ordering direct!



Lifetime Warranty.









Lots of choices.



800-325-3841

3221 NW Yeon St. Portland, OR 97210 Fax: (800)325-0045

GSA contract no. GS-OOF-5040A. Available for OEM applications. Prices from \$159,00 Anthro, AnthroCart and Technology Furniture are registered trademarks of Anthro.

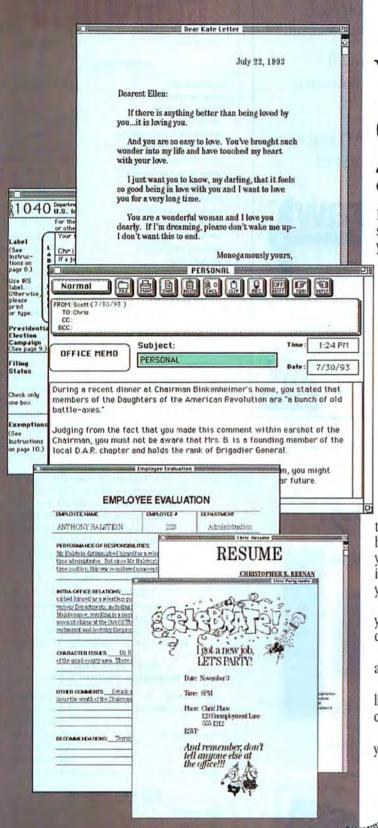
## Macworld

PRESIDENT/CEO AND PUBLISHER
MACWORLD COMMUNICATIONS, INC.
ASSISTANT TO THE PRESIDENT
CHIEF OPERATING OFFICER
MACWORLD MAGAZINE
ASSISTANT TO THE COO
DIRECTOR OF FINANCE
DIRECTOR OF HUMAN RESOURCES
DIRECTOR OF INFORMATION SYSTEMS
CORPORATE BUSINESS MANAGER
ACCOUNTING/OPERATIONS MANAGER
ACCOUNTING/FACILITIES MANAGER
SCHOOL THANKICIAL ANALYST

James E. Martin Leta C. Fisher Colin Crawford Yuen Yeh Vicki Peilen

Shelly Ginenthal Walter J. Clegg Christina W. Spence Pat Murphy Michelle Reyes Madeleine Buckingham

MACWORLD is a publication of International Data Group, the world's largest publisher of computer-related information and the leading global provider of information services on information technology. International Data Group publishes over 194 computer publications in 62 countries. Forty milion people read one or more international Data Group publications each month. International Data Group's publications include: ARGENTINA'S Computerworld Argentina, Infoworld Argentina; ASIA'S Computerworld Hong Kong, PC World Hong Kong, Computerworld Southeast Asia, PC World Singapore, Computerworld Malaysia, PC World Malaysia; AUSTRALIA'S Computerworld Australia, Australian PC World, Australian Macworld, IDG Sources, Reseller, Network World; AUSTRIA'S Computerwelt Oesterreich, PC Test: BRAZIL'S Computerworld, Mundo IBM, Mundo Unix, PC World, Publish; BULGARIA'S Computerworld Bulgaria, Ediworld, PC & Mac World Bulgaria; CANADA'S Direct Access, Graduate Computerworld, InfoCanada, Network World Canada; CHILE'S Computerworld, Informatica; COLOMBIA'S Computerworld Colombia; CZECH REPUBLIC'S Computerworld, Elektronika, PC World: DENMARK'S CAD/CAM WORLD, Communications World, Computerworld Danmark, LOTUS World, Macintosh Produktkatalog, Macworld Danmark, PC World Danmark, PC World Produktguide, Windows World; ECUADOR'S PC World; EGYPT'S Computerworld Middle East, PC World Middle East; FINLAND'S MikroPC, Tietoviikko, Tietoverkko; FRANCE'S Distributique, Golden Mac, InfoPC, Languages & Systems. Le Guide du Monde Informatique, Le Monde Informatique, Telecoms & Reseaux; GERMANY'S Computerwoche. Computerwoche Focus. Computerwoche Extra, Computerwoche Karriere, Information Management, Macwelt, Netzwelt, PC Welt, PC Woche, Publish, Unit; HUNGARY'S Alaplap, Computerworld SZT, PC World: INDIA'S Computers & Communications; ISRAEL'S Computerworld Israel, PC World Israel, ITALY'S Computerworld Italia, Lotus Magazine, Macworld Italia, Networking Italia, PC World Italia: JAPAN'S Computerworld Japan, Macworld Japan, SunWorld Japan, Windows World; KENYA'S East African Computer News; KOREA'S Computerworld Korea, Macworld Korea, PC World Korea; MEXICO'S Compu Edicion, Compu Manufactura, Computacion/Punto de Venta, Computerworld Mexico, MacWorld, Mundo Unix, PC World, Windows; THE NETHERLANDS' Computer! Totaal, LAN Magazine, MacWorld; NEW ZEALAND'S Computer Listings, Computerworld New Zealand, New Zealand PC World; NIGERIA'S PC World Africa; NORWAY'S Computerworld Norge, C/world, Lotusworld Norge, Macworld Norge, Networld, PC World Ekspress, PC World Norge, PC World's Product Guide Publish World, Student Data, Unix World, Windowsworld, IDG Direct Response; PANAMA'S PC World; PERU'S Computerworld Peru. PC World; PEOPLE'S REPUBLIC OF CHINA'S China Computerworld, China Network World, PC World China, IDG Shenzhen's Computer News Digest, Electronics International, IDG HIGH TECH Beijing's New Product World; PHILIPPINES' Computerworld, PC World; POLAND'S Computerworld Poland, PC World/Komputer; PORTU-GAL'S Cerebro/PC World, Correio Informatico/Computerworld, Macin: RUSSIA'S Computerworld-Moscow, Mir-PC, Sety; SLOVE-NIA'S Monitor Magazine; SOUTH AFRICA'S Computing S.A.; SPAIN'S Amiga World, Computerworld Espana, Communicaciones World, Macworld Espana, NextWorld, PC World Espana, Publish, Sunworld; SWEDEN'S Attack, ComputerSweden, Corporate Computing, Lokala Natverk/LAN, Lotus World, MAC&PC, Macworld, Mikrodatom, PC World, Publishing & Design (CAP), DataIngenjoren, Maxi Data, Windows World; SWITZERLAND'S Computerworld Schweiz, Macworld Schweiz, PC & Workstation; TAIWAN'S Computerworld Taiwan, Global Computer Express, PC World Taiwan; THAILAND'S Thai Computerworld: TURKEY'S Computerworld Monitor, Macworld Turkiye, PC World Turkiye; UKRAINE'S Computerworld; UNITED KINGDOM'S Lotus Magazine, Macworld, Sunworld; UNITED STATES' AmigaWorld, Cable in the Classroom, CD Review, CIO, Computerworld, Desktop Video World, DOS Resource Guide, Electronic News, Federal Computer Week, Federal Integrator, Game-Pro, IDG Books, InfoWorld, InfoWorld Direct, Laser Event, Macworld, Multimedia World, Network World, NeXTWORLD, PC Games, PC Letter, PC World, Publish, SunWorld, SWATPro, Video Event VENEZUELA'S Computerworld Venezuela, MicroComputerworld Venezuela; VIETNAM'S PC World Vietnam.



### Your Mac can say a lot about you.

If somebody sat down at your Macintosh and started snooping around your disk, which would embarrass you more?

The details of your love life? Your resume? Your adjusted gross income?

How about the Confidential Employee Evaluation you were working on when the Boss hauled you into his office for a chat?

What? You never thought about this before? Then read on and you'll never have to think about it again.

All you'll have to think about is your password.

That's the key to DiskLock, the painless, yet powerful, System 7 savvy way to keep other people's noses permanently out of both your personal and professional data.

You can password-protect selected files, folders or your entire hard disk. And encrypt everything to U.S. Government DES specs.

You don't even have to be there. DiskLock automatically blanks your screen and secures your system for you—without interrupting applications—whenever you wander off.

When you return, it simply asks you for your password and lets you know if anyone got curious while you were away.

Call us today at 800-477-8212. We'll tell you more about DiskLock.

We'll also tell you all about DiskLock PB, our streamlined PowerBook "package that gives you true "sleep" compatibility and impenetrable disk-level security.

So even if they steal your PowerBook, they can't steal your secrets.

FIFTH GENERATION SYSTEMS, INC

Outside U.S. & Canada call: (44) 494-442223



#### Our Users Are Our Best Salespeople!

"We were productive and profitably competitive in three days." Gene Hammond, Graphic Resource Group

"PowerDraw is the CADD package you use to work, rather than work to use." Angelo Mattacchione, Prosum Engineering

To place an order or for a brochure, call Engineered Software (919) 299-4843 or fax (919) 852-2067. In Canada call Evoy & Assoc. (204) 453-8111.



Circle 12 on reader service card

### Free Catalog. 9500 CLIP ART IMAGES WANGE CLUB SOFTWARE CATALOG 680 BRAND NAME FONTS 1200 STOCK PHOTOGRAPHS 50 DESIGN TIPS & TRICKS

#### CALL TODAY 1-800-661-9410

1/2		
vame	Phone	100
Address		IN SECTION
ity/State	Zip	WCH 130

Image Club Graphics, Inc. 729-24th Avenue Southeast Calgary, Alberta, Canada T2G IPS Phone (403) 262 8008 / Fax (403) 261 7013 / Orders (800) 661 9410 / Applelink CDA0573 / Compuserve 72560,2323 / AOL Image Club tion can buy the fonts & clip art used in this ad! Ask for Huxley Vertical @ \$29 & Charme @ \$19. Scissors from Volume 17 Symbols @ \$99.

#### Circle 50 on reader service card

# Macwori

#### EDITORIAL

EXECUTIVE EDITOR SENIOR FOITOR/FEATURES SENIOR EDITOR/REVIEWS DIRECTOR OF EDITORIAL OPERATIONS SENIOR ASSOCIATE EDITOR/FEATURES SENIOR ASSOCIATE EDITOR/GRAPHICS SENIOR ASSOCIATE EDITOR/FEATURES ASSOCIATE EDITOR/GRAPHICS ASSOCIATE EDITOR/REVIEWS ASSOCIATE EDITOR/NETWORKS ASSOCIATE EDITOR/LAB ASSOCIATE EDITOR/NEWS ASSISTANT EDITOR ASSISTANT EDITOR/NEW PRODUCTS ASSISTANT EDITOR/REVIEWS ASSISTANT EDITORS/LAB

Deborah Branscum Dan Muse Carol Person Lauren L. Black Jane Lagas Galen Gruman James A. Martin Charles Piller Cathy E. Abes Mariorie Baer Elizabeth Dougherty Mark Hurlow Dan Littman Tom Moran Suzanne Courteau Cameron Crotty Wendy Sharp Matthew R. Clark. Danny Lee, Tim Warner Iim Feeley. Joanna Pearlstein Lyn Taylor,

Marisa DeFay

ADMINISTRATIVE ASSISTANTS ASSISTANT TO THE EDITOR-IN-CHIEF Susan P. Grant-Marsh

CONTRIBUTING EDITORS Robert C. Eckhardt, Erfert Fenton, lim Heid, Guy Kawasaki, Steven Levy, Cary Lu. Joe Matazzoni, Deke McClelland, Tom Negrino, David Pogue, Lon Poole, Steve Roth, Charles Seiter, Suzanne Stefanac, Franklin N. Tessler, Bruce F. Webster

EDITORIAL ASSISTANTS

Alan Jones, Australia, 011 61 2 439-5133; Marianne Fajstrup, Denmark, 011 4536 44 28 00; Jean Cassagne, France, 011 33 1 49 04 79 00; Stephan Scherzer, Germany, 011 49 89 3 60860; Giulio Ferrari, Italy, 011 39 2 58 011660; Osamu Honma, Japan, 011 81 3 5276-0541; Shin Cho, Korea, 011 82 2 579-8031; Paul Molenaar, Netherlands, 011 31 23 354554; Bernhard Steen, Norway, 011 47 2 647 725; Alvaro Ibariez, Spain, 011 34 1 319 4014; Nicklas Mattsson, Sweden, 011 46 8667-9180: Roger Bataillard, Switzerland, 011 41 1 55 1077; Cemal Balci, Turkey, 011 90 1 279 1180; Peter Worlock, United Kingdom, 011 4471 831-9252

#### COPY EDIT AND

**EDITORIAL PRODUCTION** MANAGING EDITOR Charles Barrett Luis A. Camus, ASSISTANT MANAGING EDITORS Ruth Henrich Katherine L. Ulrich SENIOR COPY EDITOR D. Jacqueline Kan, Paul Michael King PRODUCTION EDITORS Lisa Brazieal, Doreen Engelmann

#### ART AND DESIGN

DESIGN DIRECTOR Dennis McLeod Ioanne Hoffman ART DIRECTOR Leslie Barton SENIOR DESIGNER/INFORMATIONAL GRAPHICS Arne Hurty ASSOCIATE ART DIRECTOR Kent Tavenska Sylvia Benvenuti DESIGNER Hae Yuon Kim ASSOCIATE DESIGNER Tim Johnson SENIOR DESIGN ASSOCIATE Martha Katt DESIGN ASSOCIATE Belinda Chlouber



## Small Business Genius Reveals Accounting Secret.

Easy To Learn, Easy To Use, Easy To Afford.

When it comes to accounting software, this is

CA-Simply Accounting

Easy Street. It's the friendliest, easiest, most powerful small business accounting software ever developed. With simple instructions, terrific tutorials and friendly, colorful menus, you'll be up and running in minutes. Just click the



write a check. process a bill, prepare an invoice or do your entire payroll. And it has all the

mouse to

accounting modules your small business needs: General Ledger, Accounts Payable and Receivable, Job Costing, Payroll and even Inventory Control. They're all completely integrated and let you generate all kinds of great-looking reports with the push of a button.

It's everything you need so you can spend less time on accounting and more time building your business.

See Your Local Dealer Or Call 1-800-225-5224, Dept. 33107.

is easy too. So call today – and make it easy on yourself.



Islandia, NY 11788 7000. All product names referenced berein are trademarks d Mac.

# 1,407110.35,1976

Software For Trading Stocks, Indices, Futures and Mutual Funds

# OEX PROFITS IN THE 90'S (THE SAGA - \$4,487 INTO \$5,197,720 IN 3 1/2 YEARS)

Whether you are a day, intermediate or long term trader, the Right Time Software, for the IBM/compatibles and Macintosh, is the only trader support system ever developed that simultaneously analyzes volume/price and supply/demand to generate TIMELY Buy/Hold/Sell signals. And it's the only software trading system backed by a decade of service and thousands of winning investors.

The software, in combination with our exclusive Trading Manual, provides you with the ease of use and turn-key accuracy needed for profitable trading in the 90's. The above chart is an example of the profit potential with our software's recommendations. You can even back test the programs to verify the signals.

Each intermediate and long term version costs \$499. Our Day Trading Program for Futures, Indices and Stocks is priced at \$899.

NEW - The Right Time Programs "Lite" for Stocks, Indices, Futures and Mutual Funds are priced at \$299

each. Demonstration programs are available for \$25 (each) and their price applies to the purchase price of the full program.



Circle 25 on reader service card

r., Suite 830, Newport Beach, CA, 92660

#### ADVERTISING SALES

VICE PRESIDENT/ASSOCIATE PUBLISHER Shannon D. Dolan (415/243-0505) ASSISTANT TO THE VICE PRESIDENT/ Shawne Hightower-Fisher (415/974-7344) ASSOCIATE PUBLISHER Linda Holbrook NORTHWEST REGIONAL MANAGER (415/974-7440) NO. CALIFORNIA ISAN JOSE, SOUTH) Cherie La France (415/974-3276) SALES ASSOCIATE Tami Fielteau Stephen McGill (415/978-3155) NO. CALIFORNIA (MARIN), WASHINGTON, OREGON, WESTERN CANADA Edward Ramirez SALES ASSOCIATE NO. CALIFORNIA (EAST AND WEST BAY), Suzanne Young Saluti (415/978-3262) IDAHO, MONTANA, WYOMING SALES ASSOCIATE Debbie Burnett SOUTHWEST REGIONAL MANAGER Nancy Coy (714/250-1307) Cathi T. Bledsoe SO. CALIFORNIA Rachel Gillis EASTERN/MIDWEST REGIONAL MANAGER Ioan Kelly (508/872-8600) Paul Bonarrigo NEW ENGLAND, FLORIDA SALES ASSOCIATE Susan Cardoza Lisa Ladle MIDWEST/TEXAS (708/827-4477) SALES ASSOCIATE Kathy Poppenhagen Annette Osnos MID-ATLANTIC/SOUTHEAST (201/587-0090) SALES ASSOCIATE Cathy Langhaar Beverly Schneider MANAGER DIRECT RESPONSE SALES (415/978-3138) ACCOUNT MANAGERS Marsha K. Bowers (415/974-7413), MAIL ORDER Wendi A. Smith (415/978-3117) MACWORLD SHOPPER Niki Stranz (415/978-3105), Carol Johnstone (415/978-3152), Shannon Smith (415/974-7414)

> MACWORLD GLOBAL PRODUCT SUPPORT CENTER

DIRECTOR OF MARKETING AND Kimberlee A. Luedee Lisa McKeon PROMOTION MANAGER Christine Wong (415/978-3160) TECHNICAL MANAGER Chip Carman

#### MARKET RESEARCH

VICE PRESIDENT/DIRECTOR OF RESEARCH

MARKET RESEARCH MANAGER Linda Lawrence MARKETING

Gary L. Rocchio

Cynthia Koral MARKETING DIRECTOR MARKETING MANAGER Anne Nichols MARKETING COORDINATOR Rhona Hamilton

#### CIRCULATION

Angelina Beitia DIRECTOR OF CIRCULATION George Clark SINGLE-COPY SALES DIRECTOR Lori Hitchcock CIRCULATION MANAGER Martin Garchar NEWSSTAND SALES MANAGER SUBSCRIPTION MANAGER Elizabeth lensen PROMOTION MANAGER Kelvin Gee Jenifer Clarkson DIRECT MARKETING MANAGER Deirdre Dugan SUBSCRIPTION COORDINATOR

#### PRODUCTION

VICE PRESIDENT/DIRECTOR OF MANUFACTURING Anne Foley PRODUCTION MANAGER Cynthia Mazzola BILLING INFORMATION MANAGER So Fong Yip AD TRAFFIC COORDINATOR Shellie Anderson

#### **WOULD YOU BELIEVE THIS WAS DONE** WITH MACDRAW® PRO?



FOR ONLY \$149.

#### CANVAS 3.5 IS NOW SHIPPING.

Call 1-305-596-5644. Have your MasterCard, VISA or Amex card number and expiration date ready. Or mail your original program disk to the address below along with your credit card information or check drawn in US dollars on a US bank Offer limited to the US and Canada, Offer subject to change or termination without notice.

features and enhancements to create Canvas 3.5. Like 3-D extrusions of text and graphics.

enveloping of text and graphics, smart lines, fine kerning, fractals, automatic concentric circles and spirals, and a tool loader that allows you to add tools as you work. There's even a versatile pressure-sensitive freehand Bézier pen tool. And Canvas 3.5 has really outdone itself with new improvements including object blends, binding of text to shapes and curves. Beziér text conversions, and macro windows. Which is just the beginning, because Canvas also includes all the great features of 3.0 like custom parallel lines and curves, our unique SmartMouse™, and more, Comparing Canvas to the competition is like comparing a superbike to a tricycle. And only Canvas is self-upgrading, allowing you to add new tools, effects and file translators at will. Last but not least, while MacDraw Pro is idling somewhere back in the Dark Ages, Canvas features seamless file sharing with its recently released Windows version. Add

it all up, and it's Canvas. For the gives you the ride

**NEITHER WOULD WE.** 

easy to see that it's time to shift gears to ultimate in value and performance, Canvas of your life. So go ahead and hop on.

## CANVAS 3.5

SOFTWARE

This entire ad was created and color separated in Canvas. For more information about Canvas and Canvas ToolPAKS™, call Avenue, Miami, Florida, 33173. © Deneba Systems, Inc. Carvas™, SmartMouse™, and ToolPAKS™ are trademarks of Deneba Systems, Inc. registered trademark of Adobe Systems, Incorporated. Freehand™ is a trademark of Aldus Corporation.

(305) 596-5644 or fax (305) 273-9069. Deneba Software, 7400 Southwest 87th MacDraw® Pro is a registered trademark of Claris Corporation. Illustrator® is a





















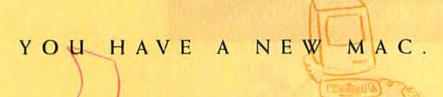




MCDER 1991

MR. 1991 Mar. 191

Circle 57 on reader service card



YOU HAVE AN OLD PC PRINTER.

YOU HAVE BETTER THINGS TO SPEND

MONEY ON THAN A NEW

#### POWERPRINT. YOU NEED

#### Now you can print from your Macintosh™ to over 1,000 PC-compatible printers.

PowerPrint provides you with everything you need to print on almost any PC-compatible printers. Using our cable-andsoftware package, you can access just about any laser, inkjet, dot matrix, or portable printer.

PowerPrint features include built-in spooling, reduction, enlargement, and custom paper sizes, as well as compatibility with TrueType™ and Adobe Type Manager™ scalable fonts. All for under \$150.

So why spend hundreds of dollars on a new printer when all you need to print anytime, anywhere, is PowerPrint?

#### The PowerPrint Family of Products:

PowerPrint/LT™. Print from your Mac to PC-compatible printers on any LocalTalk™ network. Includes software and hardware to network and access just about any printer. For \$399.

PowerPrint/NW™. A software package that allows you to print from your Mac to over 1,000 printers via Novell® NetWare® printing services. LaserWriter™ like control of your networked printers for under \$500.

Call 800-663-6222 today to order direct, or to talk to our technical staff about your printing needs.





Circle 42 on reader service card

#### HOW TO CONTACT MACWORLD

#### SUBSCRIPTION SERVICES

For subscription service questions, call 800/234-1038, 800/288-6848, 303/447-9330, or 415/267-1743, or write Subscriber Services, P.O. Box 54529, Boulder, CO 80322-4529. For dealer inquiries, call 800/999-1170.

#### MACWORLD ON AMERICA ONLINE

Macworld subscribers can contact Macworld editors online via the Macworld area on America Online. The area features reviews, news, new-product announce-ments, version information, a database of products, and Macworld-sponsored message boards and conferences. Several of our editors log on regularly. To obtain a free America Online software kit, call 800/227-6364, extension 5254.

#### MACWORLD IN MICROFORM

Macworld is available on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 313/761-4700.

#### BACK ISSUES OF MACWORLD

Write to Back Issues of Macworld, c/o Snyder Newell, Inc., P.O. Box 7046, San Francisco, CA 94120-9727; \$6 per issue (\$20 overseas). Prepay-ment in U.S. funds necessary. Make checks and money orders payable to Macworld Magazine.

#### MACWORLD EDITORIAL

MAIL OR COURIER Macworld Communications, Editorial Dept., 5th floor, 501 Second St., San Fran-cisco, CA 94107; 415/243-0505.

#### AppleLink: Macworld1

CompuServe: 70370, 702 Fax: 415/442-0766
LETTERS TO THE EDITOR All written comments, questions, and suggestions regarding any aspect of the magazine are read by our editor. We reserve the right to edit all submissions; letters must include your name and address. Direct all correspondence (by mail or electronically) to Letters to the Editor.

QUESTIONS AND QUICK TIPS Direct questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to Quick Tips, Lon

Poole. Please include your name and address.

CONSUMER ADVOCATE Been burned? Really steamed? Direct your concerns (by mail or electronically) to Conspicuous Consumer, Deborah Branscum.

NEW PRODUCTS AND UPDATES Direct press releases and product announcements (by mail or electron-

ically) and shrink-wrapped software upgrades (by mail or courier) to New Products Editor.

BUGS & TURKEYS Mail in descriptions of turkeys (flaws in conception or design) or bugs (defects or flaws in execution); copies of correspondence with vendor or telephone contact notes (if any); and your telephone number, mailing address, and T-shirt size. STREETWISE SHOPPER To obtain an application for inclusion of special product promotions in Streetwise Shopper, vendors and resellers should contact Charles Barrett (by mail or electronically). REPRINTS AND PHOTOCOPY PERMISSION Permission will be granted by the copyright owner for those registered with the Copyright Clearance Center (CCC) to photocopy any article herein—for personal or internal reference use *only*—for the flat fee of \$1.50 per copy of the article or any part thereof. Specify ISSN 0741-8647 and send payment directly to the CCC at 27 Congress St., Salem, MA 01970. Address requests for reprint orders and for permission to copy editorial for other purposes to Reprints

and Permissions, Editorial Dept.

WRITING FOR MACWORLD Do not send us unsolicited manuscripts. If you're interested in writing for Macworld, send a stamped, self-addressed envelope along with a request for our writer's guidelines. Direct (by mail) to Writer's Guidelines, Editorial Dept.

FOUNDING EDITOR

Andrew Fluegelman 1943-1985

Macworld is a publication of Macworld Communications. Inc. Macworld Macword is a pulseation of Maxworld Communications, Inc. Macworld is an independent journal not affiliated with Apple Computer, Inc. Macworld, Macworld Interactive, Macworld Shopper, MW, MW Indoper, Dektop Critic, Quick Tips, Art Beat, and Conspicuous Consumer are registered trademarks of International Data Group, Inc. APPLE, the APPLE LOGO, MAC, and MACINTOSH are registered trademarks, and MACLETTER and POWERBOOK are trademarks of Apple Computer, Inc. Printed in the United States of America. Copyright © 1993 Macworld Communications, Inc. All rights reserved. Macworld is a member of IDG Communications, the world's largest publisher of computer-related information.





# WARNING! LA CIE'S TSUNAMI STORAGE SALE APPROACHING

#### Biggest wave of savings yet.

For limited time, you can get La Cie's top-of-theline Tsunami™ hard drives at very special prices. It's the best deal we've offered yet, but it's more than a great price. It's your chance to own a drive from one of the most respected drive makers afloat.

#### An ocean of awards.

La Cie has won more Macworld, MacUser and MacWeek awards and praise than any other drive company. The ONLY one ever to win Macworld's World Class Awards in every drive category in a single year. The best quality, best engineering and best service and support from the biggest company.

#### Quantum direct from Quantum.

LACIE

La Cie is the only supplier that engineers the drive mechanism and delivers the storage solution directly to you. When you call La Cie, you get the service, support and security of a Fortune 500 company.

#### Everything you need for survival.

Every drive comes ready (plug and play) with our award-winning standard Silverlining™ hard disk management software, complete graphic manuals, ecologically aware packaging and our switchable active termination. With toll-free technical support and a No Risk 30-Day Money Back Guarantee, this is the biggest splash in storage yet. Call now!

# AND THE

### COMPARE







Why should you buy one of those big old boring, boxy drives, when you can have a sleek and portable drive from La Cie, a Quantum company. The Tsunami™ drive is the only Macintosh storage product to win an Industrial Design award. Its quality construction is made to last. Its small footprint and portable design requires very little of your precious desktop space and makes it easy to transport data from one location to another. Our switchable active termination eliminates the need for a termination block and allows you to easily terminate your drive with the flip of a switch. Every Tsunami comes with our award-winning standard Silverlining hard disk management software. And Tsunami runs so quiet, you'll be able to hear yourself think! Come aboard one of our Tsunami speed boats. Now's the time, because the price is right! Call us.

#### Life Preservers Available. Warranty Deals!

La Cie is offering a FIVE YEAR warranty on 525MB Quantum drives or larger and a TWO YEAR warranty on Quantum drives under 525MB. We also have an optional 5-year warranty available for drives under 525MB.



#### Ouantum 3.5" Drives

Size	Internal NOW!	Tsunami	Tsunami Sale Prices!
170MB HO	ı;\$199	\$329	\$279
240MB	\$299	\$439	\$389
525MB	\$699	\$779	\$729
700MB	\$899	5079	\$929
1200MB	\$1149	\$1229	\$1179
1800MB NE	w! Call!	Call!	Call!

#### The La Cie Advantage



- Unlimited TOLL-FREE Technical Support
- FREE Switchable Active Termination
- 30 Day Money Back Guarantee

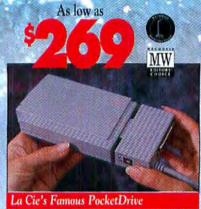


titit

Bobker's Dozen IDAwards

- All Drives Burned In and Tested
- Ready to Plug and Play
- Double Shielded SCSI Cables
- FCC, UL, TUV, VDE & CSA Approved





#### Quantum 2.5" Drives

Size	PowerBook	PocketDrive
40MB	Internal	\$269
80MB	\$199	\$299
160MB	5299 ji	\$399
213MB	\$400	\$500

PocketDrives, less than 10 oz. 213MB mechanism made by Toshiba.

#### 105MB SvOugst Drives

Size	Internal	Externa
105MB	\$639	\$639
105MB Car	tridge	\$79

#### Salvest Drives

88MB Cartridge

Size	Internal	External
44MB	\$379	\$379
88C MB	\$549	\$549
44MB Cartr	idge	\$69

# 128MB Optical

It's hard to beat the safety record of optical drives. La Cie's Optical Drive uses cartridges the same size as 3.5" floppies, but store almost 160 times more. They deliver speed and reliability at a price that's hard to beat. And that's not all; each drive includes awardwinning Silverlining (\$149 free value, Bobker's Dozen) and one free cartridge (\$45 value).

#### 128MB Optical Drives

Size	Internal	Externa
128MB	\$949	\$949
128MB Car	tridge	\$45

#### DAT & Tabe Drives

Size	Internal	External
1.3GB DAT	\$999	\$999
5.0GB DAT	\$1299	\$1299
Turbo DAT	Call!	Call!
150MB Tape		\$449
600MB Tape	\$649	\$649



#### Silverscanner II

Silverscan II makes scanning as quick. painless and productive as possible. With features like dynamic color preview (16 sec.), magnify in preview, proof in preview, sayable scan setting, up to 400% scaling in 1% steps and up to 1600 dpi in 1 dpi steps-all in one pass. It's easy for the beginner and powerful for the advanced user. And it's Macworld's Editor's Choice.

#### Silverscanner II

All Silverscanners come with our powerful Silverscan software and Read-It O.C.R. Pro.

With Color It!	51	599
With Color It! & Cachet	\$18	399
With Cachet & ColorStudio	\$19	999
Optional Transparency Attachment	\$	999
Ontional Sheet Feeder Attachment	64	500

Quantum, Direct From Quantum

#### Mon.-Fri. 5 a.m.-7 p.m. & Sat. 8 a.m.-noon PST

International 503-520-9000 Fax 503-520-9100 (24 hrs.) UK 0800-89-3025 Australia 0014-800-123-007 VISA & MasterCard accepted with no surcharge. C.O.D. and approved purchase orders also accepted



"Cell for details on lerms, conditions, limited money back guarantee, warranty and free oftens. Comparisons may not apply to all vendor products, check specifications. System 7.0.1 schware included only with certain configurations. ZFP+ Drives do not have switchable termination. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact Ltd Cie for international distribution. Add sales tax where applicable. ZFP+ ZFP+, Tsunatin, Plocks/DFN, Shocks/DeN, Shormen, Silvenson, Silvenson, Silvenson, Company. All other trademarks of Ltd Cie, Ltd., a Quantum Company. FORTUNE 500 is a registered trademark of the Time Inc. Magazine Company. All other trademarks are the property of their respective companies. All prices, specifications, terms, warranties, descriptors, products and services herein are subject to change without notice or recourse. C Copyright 1995 Ltd. Cie, Ltd., 8700 SW Creekside Place, Beaverlan, OR 97005. Phone: (503) 520-9000. Fax: (503) 520-9100. All rights reserved. Printed in U.S.A.

# EASY TO PORT.



#### Smooth sailing with PocketDrive.

With La Cie's PocketDrive, you can enjoy the convenience of our exclusive T-connector or PocketDock, the desktop accessories that make connecting and disconnecting your PocketDrive a breeze. La Cie's PocketDrive comes with our unique T-connector which allows you to snap it to almost any Mac. Our optional PocketDock gives you quick, instant desktop connectivity. Our "T" and "dock" have built-in active on/off SCSI termination, SCSI ID and a pass through SCSI connector, so you can leave them in your SCSI chain, even when your PocketDrive is on the go. At just under 10 ounces, and storage up to 213MB, you can cruise anywhere with your files in the palm of your hand.





#### Quantum 2.5" Drives

Size	PowerBook	PocketDrive
40MB	Internal	\$269
80MB	\$199	\$299
160MB	\$299	\$399
213MB	\$499	\$599

PocketDrives, less than 10 oz. 213MB mechanism made by Toshiba

#### Easy to port: OURS

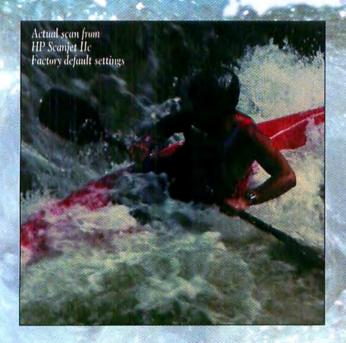
- · Can be used with any Macintosh.
- · Built-in switchable active termination.
- Easy to move drive without disturbing SCSI chain.
- Smallest drive chassis.
- · U.S. and world-wide universal AC adapters available.
- Award-winning industrial design.
- Silverlining hard disk management software with auto drive spin-down.
- · Macworld "Editor's Choice" and World Class Awards.

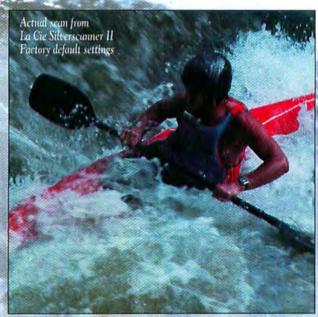
#### Hard to port: THEIRS

- Internal termination does not meet SCSI specifications.
- Moving drives requires reconfiguration of the SCSI chain, some models must be last in SCSI chain.
- AC adapters not readily available.
- Generic design.
- Does not have Silverlining features and benefits.
- No awards.

# 800-999-

# SWIM IN COLOR.





#### Deep blue see.

Silverscanner II is many lightwaves ahead—with gorgeous color, gray scale and line art right out of the box. Independent color controls (RGB) on the gamma/contrast/brightness help you get rich, clean scans with excellent detail and tonal range in highlights and shadows. And with new advanced features like a densitometer, white and black limit, color histogram and auto image adjustment, Silverscanner II is unsurpassed. Navigation is easy, and precise for demanding mariners.

### Silverscanner II

\$**1599** 

"...(Silverscanner) can deliver color performance that surpasses anything else in the less-than-\$2,000 price range, including the popular ScanJet IIc from Hewlett-Packard Co." MacWeek, May 1993

"...Fast and a pleasure to use.
...Produced high-quality printed images
with good resolution, and its
documentation was tops."
Macworld, November 1993

MW EDITORS' CHOICE



#### Silverscanner II

Optional Sheet Feeder Attachment

All Silverscanners come with our powerful Silverscan software and Read-It O.C.R. Pro.

With Color It! \$1599
With Color It! & Cachet \$1899
With Cachet & ColorStudio \$1999
Optional Transparency Attachment \$999

Quantum, Direct From Quantum

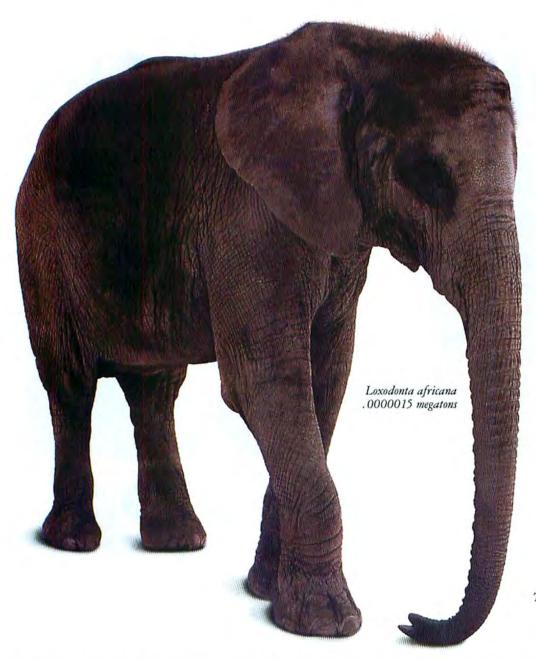
LACE LIMITED A QUANTUM COMPANY

Mon.-Fri. 5 a.m.-7 p.m. & Sat. 8 a.m.-noon PST International 503-520-9000 Fax 503-520-9100 (24 hrs.) UK 0800-89-3025 Australia 0014-800-123-007

International 503-520-9000 Fax 503-520-9100 (24 hrs.) UK 0800-89-3025 Australia 0014-800-123-0 VISA & MasterCard accepted with no suchunge. C.O.D. and approved purchase orders also accepted\*



"Call for details on terms, conditions, limited money back guarantee, warranty and free offers. Comparisons may not apply to all vendor products, check specifications. System 7.0.1 software included only with certain configurations. ZFP+ Drives do not have switchable termination. Prices do not include shipping and only apply to products shipped within the continental United States. Please contact Libble for international distribution. Add safes tax where applicable. ZFP, ZFP+ Taumant, Pocketficher, Systemscanner, Silverscanner, Silverscanne



The Fujitsu DynaM0 128 megabytes

#### **OUR MISSION WAS CLEAR. REDUCE THE SIZE. ENLARGE THE MEMORY.**

For the graphic artist, multimedia producer or the busy document image manager, storing large files has always been an enormous problem.

Introducing a very small solution. The new

The Fujitsu DynaMO. Never before has an optical drive had such an enormous memory with such a small footprint. Fujitsu DynaMO: It's the highest performance, external, plug-and-play optical drive for PCs and Macs. The first thing you'll notice is its low profile. (It's just 1.5"x 5.0"x 8.0".) The next thing you'll notice is

its mammoth memory. Each rewritable cartridge saves up to 128 megabytes. (Roughly the equivalent of 88 3.5-inch double-density disks.)

And because they're removable, and each data cartridge has a life of 30 years, you have virtually unlimited capacity for all of your storage needs.

Get more information on the Fujitsu DynaMO. Call I-800-831-4094. Or, to receive the facts by fax, just dial 1-408-428-0456 from your fax machine and request document 1367.

You'll be surprised at how easy it is to store megatons of memory in the smallest model ever.



Circle 268 on reader service card

COMPUTERS, COMMUNICATIONS, MICROELECTRONICS

### Grading the New Macs

The latest desktop lineup scores well

HE GOOD NEWS IS, WITH Apple's latest product introductions, Macintosh prices are now so reasonable that it doesn't make sense to wait any longer to buy a Mac. It's been a difficult year for Apple, but that's good for users: the company has now closed the price/performance gap with inexpensive Windows clones. We haven't had a chance to completely benchmark the new low-cost Mac models with the 68LC040 processor against competing 486SX machines, but early testing indicates that these Macs may actually be faster. If so, low-cost Macs are for the first time actually a better price/performance bargain than low-cost Windows ma-

chines, while still offering the unique

Macintosh virtues. (See "New 040 Macs"

in this issue for pricing and more details.) The bad news is that for the last year or so, Macintosh models and prices have changed so often that users' heads are spinning. This month, Apple is introducing more models and is repricing, renaming, and upgrading many others. All these changes make it hard to figure out which Mac to buy, so here's a quick guide to help you through the maze. Please note that the grades are not intended as definitive overall ratings but as quick takes. Thorough reviews will have to wait until we can get our hands on shipping units. There's one more caveat: when Apple introduces the new machines, it is also expected to announce a fire sale of overstocked older Macs, a price drop that might improve their relative price/performance.

Apple has simplified its product lines and renamed some Macs to suit their distribution channels. Performas are still sold by mass merchandisers; LCs, through education channels; and Quadras and Power-Books, by computer dealers. Unfortunately, this may be more confusing to users who buy through more than one channel, because some Macs are sold under different names in different channels and some are sold only in specific channels. However, once you know there are only six or seven basic machines worth considering, it's a lot easier to know which to buy.

LC II, III, and "IV"

The LC line has grown so that there are now many model names on the front of the perennial pizza-box Mac, but the choice is really quite simple. Most economy buyers should move directly to what, for convenience, I call the "LC IV," which is essentially the same machine with one of four labels depending on where you buy it: the LC 475, the Quadra 605, and the Performa 475 and 476. The LC IV represents the best bang for the buck if your computing needs are relatively simple and you don't need Ethernet, a built-in FPU, or a built-in CD-ROM. These models are the best value for most consumers and educators and for basic business applications. I give them an A.

Don't buy an LC II or a Performa 410. We are now two generations beyond



these models. They may be a little less expensive, but they're a lot slower than newer low-cost Macs. I have to give them an F.

It wasn't long ago that the LC III was the best Mac bargain. Seven months ago I gave it an A, but it has now dropped to a C+ when compared with the LC IV models. The LC III and the Performa 466/467 (which are essentially the same, but the Performas are a little faster and have larger hard drives) are reasonably good machines. But they are not the best value, unless you are on a tight budget and you get one for a good 35 to 40 percent less than an LC IV.

#### The Color Classic

Don't bother with the Classic or Color Classic. They are no longer much of a value. I give them both Ds or Fs. The Color Classic II would have been great for those who love the classic Mac cabinet or need to save desk space, but Apple decided not to sell it in this country. I would give it a B if you could buy one.

#### The Performa 550 and LC 520

These are basically two versions of the same color machine, but the Performa 550 has a bigger hard drive and is slightly faster. In some ways these are hybrids of the LC series and the Classic series: allin-one machines with a high-quality mon-

> itor and built-in CD-ROM drive for users who like the simplicity of plug-and-play computing. As an alternative, you could buy a Quadra 605, add a good-quality monitor and an external CD-ROM, and it would be a faster machine. It would cost about the same, but have a smaller hard drive and slightly less RAM and VRAM. It comes down to which packaging arrangement you prefer and whether you want to play CD-ROMs in 16-bit color out of the box. In any case, these are good machines. The Performa 550 and the LC 520 both get a B.

#### The Quadra 610 and 650

These two former Centris models have been upgraded in performance and value and renamed as Quadras. They are the best deals going for most business users. Both now cost about half as much as when introduced eight months ago as the Centris 610 and 650. Only seven months ago, the Quadra 610's price position looked dubious when compared with the less expensive LC III, but Apple now has continues

sensible and competitive price positions for all Quadra models. The Quadra 610 is a better deal than the Quadra 605 for anything other than the most basic use because it comes with built-in Ethernet, more memory, and a larger hard drive. It also has an FPU in all but the base model. It would most likely cost you more than the \$400 estimated price difference to add these items to a Quadra 605, and it would still be slightly slower. The Quadra 610 can accept an optional internal CD-ROM

drive, but that drive comes with more heavily outfitted configurations that cost about 30 percent more than the base models. The most sensible machine for business applications that don't need lots of expansion, the Quadra 610 gets an A.

The Quadra 650 offers more expansion than the 610, but will most likely be priced about 40 percent higher than the base 610 (with neither machine including a monitor or keyboard). The 650 is well suited for medium-size and large busi-

nesses that intend to get a lot of years out of their equipment. The 650 can hold three standard-size NuBus cards, has a bigger hard drive, and is slightly faster than the 610. The 650's expandability is also good if you can't quite afford the top-of-the-line power of the Quadra 840AV but need the extra room for cards and storage required by publishing or other production-oriented applications. I give the Quadra 650 an A for being the best overall business workhorse.

#### The Quadra 660AV and 840AV

The AV Macs lay the groundwork for interesting new applications-including voice and data telephony, video, and presentations. They continue the Mac tradition of making vanguard technology accessible to mainstream users. You can expect to pay a little more, but they are good values if you want those technologies. The Quadra 660AV is good for people more interested in being users than multimedia authors, who might need more expansion. You might use a 660AV to combine faxing with voice communications and E-mail, or to record on videotape a presentation you've created. The Quadra 840AV has more room for peripherals and cards, and it is the fastest Mac available. The 840AV is well suited for multimedia authoring, and it's the best choice for demanding production applications, such as color prepress and publishing, where more processing horsepower quickly pays for itself. The AV Macs cost more, so they're not for everyone, but for the above-mentioned applications they are good choices. I give the Quadra 660AV a B- and the Quadra 840AV a B+.

#### The Quadra 950

The Quadra 950 is still the only Mac if you need to accommodate a disk array or you need lots of slots. This old warhorse needs a heart transplant; it gets a C-simply because it is the only machine for heavy hauling. I wouldn't be surprised if Apple upgraded or discontinued it.

#### Now's the Time

Put simply, if you are in the market for a Mac, now is a very good time to buy. Prices have fallen in line with PC prices, and Apple has an excellent assortment to choose from. I don't anticipate the kind of precipitous price cuts we've seen over the last year as Apple played catch-up with Windows PCs. Of course, as newer models age or fail to demonstrate proven demand, you can expect Apple to cut prices in the same way any vendor would. Now that I've covered desktop models, next month I will look at how to choose among the new PowerBooks. m

# This is your brain.







Open a nested folder with a single click. Launch several applications with one command. Perform routine maintenance automatically. Reduce the number of clicks needed to perform most tasks.

OFF SEARCE

Open Sesame! does it all — automatically. Because Open Sesame! learns and automates the repetitive tasks you perform. For example, suppose every time you open *Project Budget*, you also open *Schedule*, and you arrange them side-by-side. Open Sesame! will observe this, and automate it for you.

Open Sesame! couldn't be simpler. Just install it on your Mac (requires 500K) and keep working the way you work now. With Open Sesame!, you'll save time and effort ... reduce repetitive tasks ... even discover more efficient ways of working with System 7.0.

Try Open Sesame! risk free for 30 days. If it doesn't increase

your productivity every day, return it for a full refund.

#### **ANY QUESTIONS?**

Call **1-800-913-3535** to order Open Sesame! at the special introductory price of just \$99. Call now. And automate your Mac — automatically.

#### OPEN SESAME!

Charles River Analytics
55 Wheeler Street Cambridge, MA 02138
Open Sesamel is a registered trademark of Charles RiverAnalycics.
Macintosh is a registered trademark of Apple Computer, Inc.

Circle 18 on reader service card

# To Backup 50 GB, Two Recording Heads Are Better Than One.

#### Single:

Drives can operate independently.

#### Cascade:

Data automatically writes to the second tape when the first tape is full.

#### Mirroring:

Writes the same data to both tapes simultaneously.

#### Striping:

Writes data to two tapes at once, in alternate blocks, doubling capacity and speed.



Introducing the dual drive CY-8505 with the Advanced SCSI Processor.

Working independently, each drive can store up to 25 GB, at speeds of up to 90 MB per minute. So it's perfect for unattended backup.

But performance *really* hits the ceiling when the drives *work together*.

Four selectable recording modes, plus *offline copy and verify*, give you the flexibility to write 50 GB of data any way you need to.

Consider it a data storage management tool, a solution that will solve the problems you encounter every day. The need for higher capacity and speed; the need to make duplicate tapes for off-site storage and data exchange; the need for real-time status information—and the need to save resources and boost productivity on every level.

Each tape drive offers the most advanced in data recording technology. Our hardware data compression

option is the fastest available. And it's switch-selectable, so you can read and write uncompressed data for compatibility with other sites. Add accelerated file access to locate a single file in an average of 85 seconds. And we even offer a data encryption option that lets you control access to sensitive data.

All this, and the *proven* reliability and price performance of 8mm helical scan tape storage.

We back this turnkey solution with a two year warranty that includes responsive service and technical support from our in-house engineering group.

If you need a data storage solution that *means business*, call today for more information at:

(804) 873-9000



Rock Landing Corporate Center • 11846 Rock Landing • Newport News, VA 23606 • Fax: (804) 873-8836

### Can HP give you affordable color PostScript



# oking at it.

eeing is believing.

wasn't a raditionally f business might want dispatches f American wing up on eports and e of today's anies, and aphies and

Recent ments have the quality ing printer h of more bre. With sition and hore with types are ill be the



Get the HP DeskWriter 550C printer and PostScript software for under

\*1,000.

Take a good look, because you've probably never seen PostScript" color printing this affordable before. But here it is, right before your eyes.

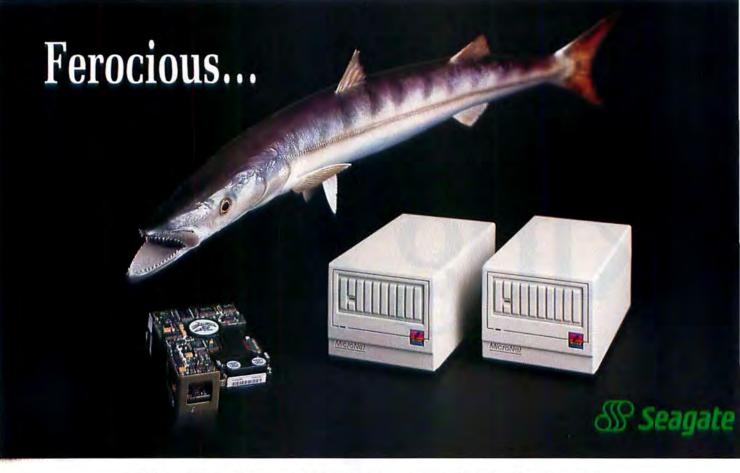
Hewlett-Packard now offers Mac users two remarkably inexpensive ways to print using true Adobe' PostScript Level 2 software. If you already have an HP DeskWriter 550C printer, you can add PostScript software for less than \$250." Or you can buy the HP DeskWriter 550C and PostScript software for under \$1,000."

PostScript software for the HP DeskWriter 550C gives you 35 standard PostScript fonts, support for Adobe Type 1 and TrueType fonts, PostScript language file portability and background printing. All that on a printer that uses HP's own inkjet technology, works with your software, and comes with a three-year warranty, the longest in the industry.

For a closer look at a truly affordable PostScript color printing solution, look in your local Yellow Pages for the name of the HP authorized dealer nearest you.

DeskJet Printers Make it happen.





#### MicroNet's New 7200 RPM Barracuda Hard Disc Drives Devour the Competition in Performance and Reliability

MicroNet's 7200 RPM Seagate Barracuda hard disc drives will give you the edge over the competition with transfer rates as high as 4.8 MB/sec. Average access time of 8 ms. Formatted capacity of 2050 MB. All this in a ferocious 3.5" package.

Exceptionally fast spindle speed of the Barracuda combined with 4 times the typical cache make it ideal for disc intensive applications such as graphics, databases and NetWare servers.



Built on the proven technology of Seagate's Elite series, its unique tall spindle, low-current design results in a drive that runs cool and has an incredible MTBF rating of 500,000 power-on-hours.

Configured as a MicroNet Raven disc array in a Quadra computer, you can count on sustained transfers of 9.2 MB/sec with access times as fast as 4 ms. No other disc array offers faster access times or higher transfer rates than a MicroNet Raven.

ISA, EISA, or PS/2 based fileservers, combined with our 32-Bit, bus-mastering FAST SCSI-2 host adapters, greatly benefit from the transaction rate of the Barracuda disc drive.

For ferocious performance backed by our superior 24-hour technical support and Over-Night-Exchange service, call a MicroNet sales engineer for the name of your nearest Reseller. 1-714-453-6100.

**Quality You Can Count On Since 1988** 



#### MicroNet Technology, Inc.

80 Technology • Irvine, California 92718 • Sales Telephone: (714) 453-6100 Sales FAX: (714) 453-6101 • AppleLink: MICRONET.SLS • Compuserve: 76004,1611

# Lottons

#### Brave New Macworld

ONGRATULATIONS ON THE MUCH improved format. I especially like that your reviews are separated by advertisements. Now I will be able to tear apart old issues and file the reviews by category without having the last page of a review on the reverse side of the first page of another review.

John Williams Front Royal, Virginia

MUCH PREFERRED THE STYLE USED from February '92 to August '93. The bold serif capitals in the title gave *Macworld* a solid look. The contents page is painfully dull now, but can't you keep the reviews in the back? And ditch the yellow stars. Red stars, please.

Ivor Tossel via America Online

LTHOUGH I WAS PLEASANTLY surprised by the "bold new logo," as Adrian Mello put it (State of the Mac, September 1993), the thing I loved the most about the former incarnation of Macworld was that the main feature section was adfree. Gone are those days. Now the ads are at every corner.

John Gilbert Austin, Texas

THE NEW LOGO SCARES ME. I HATE it! The typeface is more appropriate for Obedient Unix User than Macworld.

Chris Adamson via America Online

WANT TO SAY HOW MUCH I ENJOYED your layout and content changes. The magazine now has a clean and inviting look, but it is not for lack of a substantial amount of news, information, opinion, and yes, even hype.

I did not have to ask who was doing all the usual work to which you could not attend while you recast your magazine. Did you count how many times the name



Charles Seiter appeared as a byline to a review or substantial piece? I think it must be a record.

Wayland Y. Brown Savannah, Georgia

#### Supersonic Storage Error

AM WRITING TO EXPRESS FWB'S concern and dismay over the test results of our SledgeHammer2000FMF RAID Array ("Supersonic Storage," page 109, August 1993). The chart "When Do Arrays Pay Off?" erroneously states that the FWB array's performance is below that of other products tested. Additionally, the article implies that our product is a poor value for customers. Nothing could be further from the truth.

FWB Engineering's assessment indicated that Macworld Lab configured the SledgeHammer array for mirroring (RAID Level 1) rather than for striping (RAID Level 0). This would explain Macworld's results, since mirroring offers redundant fault tolerance, while striping offers high data-transfer rates. The numbers that were published are consistent with the level of performance the Sledge-

Hammer array delivers when configured for mirroring.

No one likes to be rated poorly, especially when our product has been independently tested and proven to perform as well as or better than our competitors'.

Steve Goodman Vice President, Sales FWB San Francisco, California

The FWB SledgeHammer2000FMF disk array was incorrectly depicted as slower than competitive products. The FWB array should have been credited with sustained data-transfer rates of about 5MB per second, equal to that of the fastest arrays Macworld Lab tested. We regret the error.—Ed.

#### My Boss Made Me Do It

READ DEBORAH BRANSCUM'S SEPtember column (Conspicuous Consumer) subtitled, "How managers can stop software theft." As a buyer of software and sometimes as a producer of copyrighted work, I follow the rules of copyright law. But as a worker in a government directorate, I cannot stop illegal software proliferation unless my manager understands what is going on—he's the boss and my job depends on his will.

I have seen many things while working here. For instance, I have seen my boss buy software and install it on (at least) four machines, at work and at home. I've seen him use an upgrade offer and install the upgrade on many machines (at work and at home!). He treats other copyrighted materials, such as educational videotapes, similarly. He is the boss, you know. If you want to write about how managers can stop software theft, the first thing you must do is educate them about what a copyright is, what it has to do with software, and what constitutes an illegal act with software. I tried with my manager, but it didn't work.

Name and Address Withheld by Request continues

# When We Say TopDown What Do You Think Of?

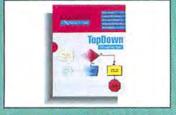








C.



#### C. Very Good! TopDown.

Flowchart what you do and how you do it; then improve it!

TopDown® Flowcharter is the comprehensive software tool for all your flowcharting needs. Use TopDown's multiple levels of detail to clarify and streamline procedures, eliminate waste and improve performance. Flowchart tasks, information flows and processes to identify duplication of effort and potential areas for improvement. Make your business more competitive by clearly understanding the sequence of every process.

When creating or modifying flowcharts, TopDown saves you more time than any draw program. Lines automatically reroute when symbols are moved. Double click a symbol to automatically create a lower level chart. Boxes resize to fit text.



#### Create

- Flowcharts
- Process Flows
- Training Materials
- Procedures
- Task Descriptions



#### Call Now:

Sales 1-800-938-8900

25211 Grogans Mill Rd., Ste. 260 • The Woodlands, TX 77380 Sales 1-800-938-8900 • (713) 298-1500 • Fax (713) 298-2520

Circle 185 on reader service card

#### CORRECTIONS

■ The Quadra 800 requires 60ns RAM SIMMs, not 70ns, as we stated in our October 1993 feature "The AV Macs."

Quarterly updates for AccuZip6 are \$200 per year, not per quarter ("Sbrinking Your Postage Costs," At Work news, September).

■ In the "Outfitting a Mac for Fast SCSI" sidebar ("Supersonic Storage," August 1993), we tested the NuBus version of Storage Dimensions' Data Cannon, not the PDS version as stated.

■ In September's New Products section, the number for Cliff's Notes should have been 800/228-4078. Also, the phone and fax numbers for MicroTouch Systems should have been 508/659-9000 and 508/659-9100, respectively.

■ The September 1993 review of Lotus Notes should have said that the server was running OS/2 system 1.3, not 2.1.

#### You Call That Service?

ET ME SEE IF I HAVE THE FACTS straight. Your reader Elaine Truver ordered items from MacWarehouse that were not delivered as promised ("Service Heroes," Conspicuous Consumer, September 1993). MacWarehouse's service staff then straightened out the problem and were nominated as Service Heroes.

I've had similar problems with Mac-Warehouse. I have never received items "the next day" as promised. There's always a problem: they can't find my order, the item is out of stock. Oh sure, their customer-service staff eventually figures out where the order is and solves the problem, but I wouldn't call them service heroes for that. By the time I have to call to find out where an order is, it is too late. I shop elsewhere.

Bob Kozlowski Concord, Massachusetts

#### Net Where?

ITH A GROAN OF FRUSTRATION, I have just put down the September 1993 issue. Jim Carr's article ("Connecting to NetWare") was well written and provided people who haven't made a commitment to NetWare for Macintosh with some reasonable alternatives. But ... when are your writers going to acknowledge that Token Ring technology exists? I can't recall a single discussion of this subject in your magazine for the last two years. Every time you publish an article on networking technology, the

discussion focuses on LocalTalk versus Ethernet, completely disregarding the fact that Token Ring provides a faster datatransfer rate, as well as better overall throughput, than Ethernet. Is there an editorial bias here?

> Peter Connolly San Francisco, California

#### Statistically Significant

READ AND ENJOYED CHARLES Seiter's article "The Statistical Difference" in the October 1993 issue but am curious: why did he leave out MicroTSP? The review seemed to look only at programs from relatively large software publishers. MicroTSP, from QMS, is a great program for time-series analysis and has a true Macintosh interface.

William S. Brown Juneau, Alaska

MicroTSP is indeed a great program, but to fit the article into the available space we had to cut most references to special-purpose programs from smaller vendors and focus on all-in-one packages.—Ed.

#### Do You See What I See?

ASED ON YOUR SEPTEMBER 1992 review of monitors ("The Bigger Picture"), I purchased an E-Machines T16 II over the NEC MultiSync 5FG and the Apple 16-inch monitors. In the Editors' Choice you said, "This monitor is excellent in almost all respects, particularly in brightness, contrast, sharpness, and overall color purity." Imagine my disappointment on reading "Expanding Your Horizons" in the October 1993 issue, where the E-Machines display was one of only two monitors described as "lackluster" in color saturation. You also said that the color balance was off, claiming "shallow reds, blacks."

I'm an artist just getting started with computers, and how a monitor handles color is important to me. I understand that each editor has personal preferences, but I don't understand how this big of a judging difference could be accounted for.

Baile Oakes Westport, California

Our Editors' Choice boxes and graphics test-results sidebars can give you a quick feel for the top of the heap and the bottom of the barrel, plus hard data if you want to do your own interpretation. But there's no substitute for reading the body text of our test articles. For instance, you'll notice in the October feature that we say, "the majority of the monitors varied only slightly in quality," and, "you really can't continues

# Portable Power

The Pinnacle Tahoe™ Portable 3.5" Optical Drive

Introducing the world's smallest portable 3.5" optical drive

with a rechargeable battery pack option that provides hours of portable computing.

The Pinnacle Tahoe-130 offers the ultimate in

removability and transportability.

It provides portable storage for

Powerbook computing and is the per-

fect choice for your desktop computer.

The Tahoe<sup>TM</sup> 128 MB optical drive weighs only 1.8 pounds and can fit in the palm of

your hand. It's small

size is so flexible it can

easily fit into any briefcase.

Lake Tahoe, Nevada

\$999

\$199 Battery Pack & Travel Case

\$69 3.5" Optical Media

The Tahoe<sup>ra</sup> is the perfect solution for users

on the go, such as graphic designers, service

bureaus, color prepress or any data intensive personal

computer application.

-

FLEXIBILITY

FAST DATA TRANSFER

The Tahoe's <sup>151</sup> optional battery pack provides 3.5 hours of typical computer use, which will extend the run time of your portable computer by eliminating the use of your magnetic or floppy drive. The Pinnacle Tahoe-130 has an ultra fast seek time and a rotation speed of 3600 RPM for fast data throughput.

The portable Tahoe™ ... only by Pinnacle. The optical storage leader. To order a Tahoe™ to go call:

800.553.7070

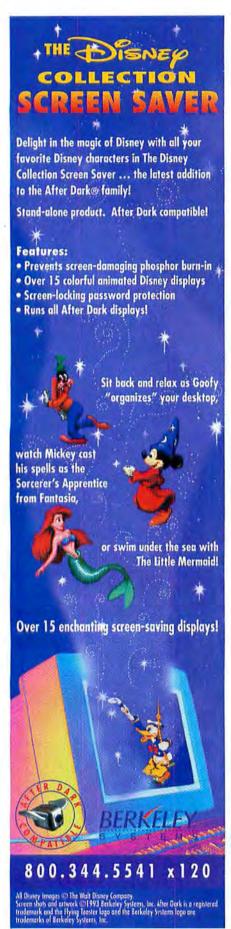
PINNACLE .

ICRO

Trademarks: Teber and Taboe-130 of Pinnacle Medic, Inc., All trademarks and registered marks to their respective owners.

THE OPTICAL STORAGE COMPANY

Circle 55 on reader service card



Circle 84 on reader service card

go wrong with most of the monitors we tested." The quality differences that we pick out in our tests are often very small-nearly indistinguishable without instruments. At that level, we're reporting variations that are well within most companies' acceptable manufacturing tolerances.-Ed.

#### World Class (-y, -less)

T WAS INDEED A PLEASANT SURPRISE to see that you finally revised your method for bestowing the World-Class Awards to enable the acknowledgment of ProVue Corporation's Panorama as the superior Macintosh database.

As an avid user since the early Over-Vue days, I'd like to add my voice to the apparent many who feel so passionately about Panorama. It serves as my address book, spreadsheet, appointment book, and dozens of other things. It's flexible enough to use for simple things and powerful enough to work with complex sets of files. And it's fast!

> Glen Daum Ridgewood, New Fersey

VERY YEAR MACWORLD'S WORLD-Class Awards mean less and less to me. Now it seems that all a company has to do is hope that its users get more questionnaires than the other guy's. What does it mean that a greater percentage of Panorama users either (1) got the survey or (2) responded? If I were a new user, I might be tempted to go out and get Panorama, not knowing that FileMaker Pro is technically a much better product.

I own both programs and have for years. Panorama is faster in some ways than FileMaker, but its layout and reporting tools aren't even close to FileMaker's, Panorama wouldn't know an Apple event if one hit it on the head, and FileMaker is cross-platform, but Panorama wins

the award?

Jeff Gagne Packer Software via America Online

#### But I Don't Want an External Drive

ATTHEW LEEDS'S RECOMmendation that PowerBook users "benefit more by adding an external drive," in the article "Real-Time Compression" (August 1993), missed the point of having a PowerBook. Compression software does not take extra space on an airliner tray or on one's lap in a car or terminal chair, nor does it significantly reduce battery run-time. Disk compression

is the first software I bought for my PowerBook and I find it a necessity.

> Robert Wilson Huntsville, Alabama

#### Missing Macros

WAS QUITE DISAPPOINTED TO FIND no mention of UserLand Frontier in Jim Heid's column on macros and scripting (Getting Started, August 1993). Much space was devoted to AppleScript, which has yet to be distributed commercially. Frontier has been on the market since 1991 and has a hard-core, loyal following. Additionally, Frontier scripts can trigger QuicKeys macros and vice versa, making it possible to use Frontier scripts in situations where Apple events are not fully supported. UserLand Frontier is a valuable tried-and-proven product for the advanced Macintosh user. It should have been given equal time with AppleScript.

> Eugene Barnes Lawrence, Kansas

UR WORD PROCESSOR, NISUS, AND our text editor, QUED/M, have implemented macros since 1987 and 1989, respectively. Nisus users have always been able to record their macros and edit them after recording, or type them in and try them out one line at a time. Several publications, including Macworld, have repeatedly mentioned this, which is why it's puzzling that author Jim Heid failed to include either Nisus or QUED/M in his list of applications that "speak macro."

> Mark Hurvitz Documentation and Technical Support Nisus Software Solana Beach, California

August's Getting Started was intended as an introduction to macro and scripting concepts, not an overview of all macro-capable products. We singled out the programs mentioned because they're among the most popular in the Macintosh world. Nisus and Frontier are both capable programs, but they have a much smaller following than the software we mentioned.-Ed. m

Letters should be sent to Letters, Macworld, 501 Second St., San Francisco, CA 94107; via fax, 415/442-0766; or electronically to CompuServe (70370,702), MCI Mail (294-8078), America Online (Macworld), or AppleLink (Macworld1), or via Internet (70370.702@compuserve.com). Include return address and daytime phone number. Due to the high volume of mail received, we can't respond personally to each letter. We reserve the right to edit all letters. All published letters become the property of Macworld.

# THE PINNACLE SIERRA 1.3GB PTICAL HARD DRIVE

It's The Ultimate In Storage!

4500 RPM

19 msec effective access time

2.0 MBytes per sec. data throughput

#### THE PRICE/PERFORMANCE LEADER

Introducing the Sierra™ 1.3 Gigabyte optical hard drive from Pinnacle Micro with speeds more than three times faster than Pinnacle's award-winning PMO-650 and a sustained data throughput that will satisfy any digital audio or digital video application.

The Sierra<sup>M</sup> 1.3GB is the new standard for graphics, pre-press, imaging, digital audio, digital video, or any data intensive application demanding mountains of storage.

With the speed of hard disk technology and the price advantage of removable media, there is a new standard in the industry... the Pinnacle standard.

SYQU	ESTO BENEAUTHER CHANCE		
NAKE	# OF DISKS	LIST PROCE OF 2.5 GB	PRICE DIFFERENCE
PINNACLE MICRO SIERRA™ 1.3GB	2	53495.	-
SYQUEST® 88 REMOVABLE PLI INFINITY 88	30	\$4785.	\$1290.

**Ansel Adams Wilderness, Sierra National Forest** 

Buy a Pinnacle drive with our own high performance OHD mechanism-4MBytes cache and save up to 40% over system integrator pricing:

INNACLE

Marius actures	NUSTPREODURANDUM	WICOHREID
PINNACLE SIERRA'" 1.3GB	\$3245.	
MICRONET SB-TMO-1300	\$5074.	\$1829.
FWB HD 1300-2	\$4799.	\$1554.
PLI 1.3GB MAXOPTICAL	\$4550.	\$1305.

With Pinnacle's ASCENT program you can upgrade your Sierra\*\* to a Pinnacle optical library system from 20 to 186 GB of networked on-line storage.

The Sierra\*\* ... only by Pinnacle. The optical storage leader. For more info call:

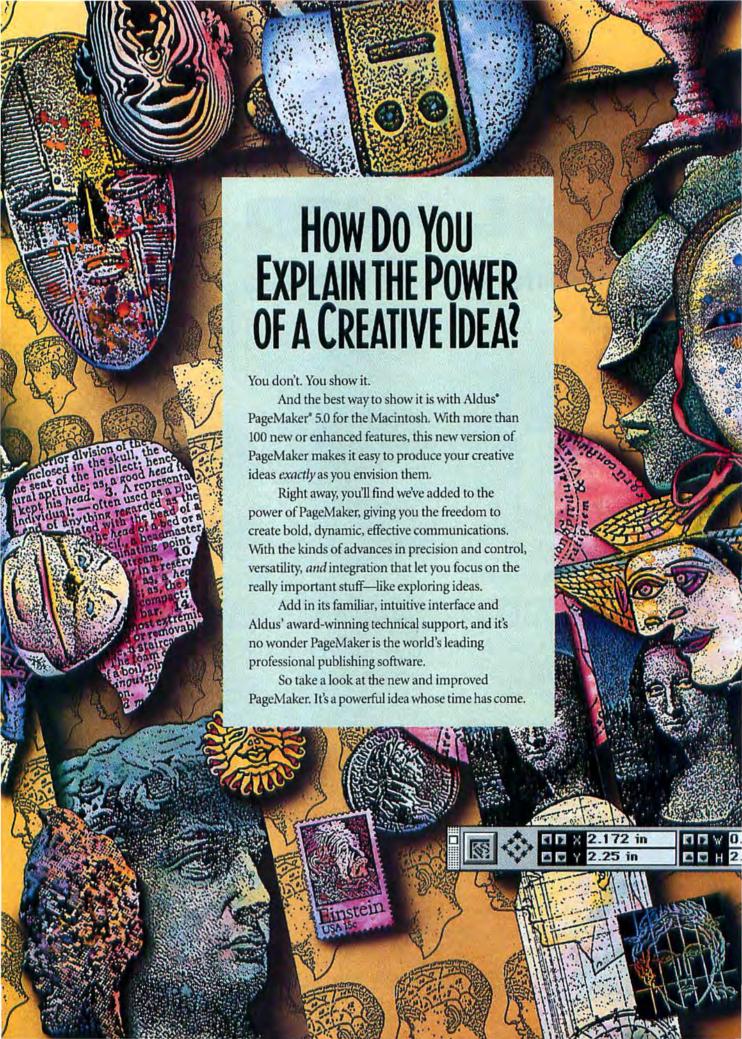
800.553.7070

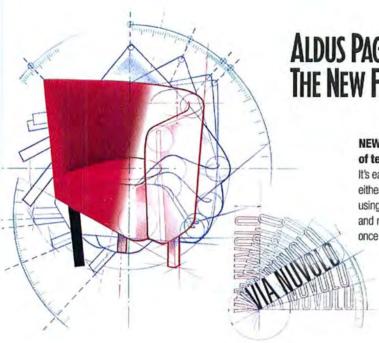
PINNACLE MICRO

1.3 GB of Piercele Micro, Inc. All trademarks and registered marks to their respective owners. Pricing sequired directly from system integrators on 8/23/93.

19 Technology • Irvine, CA 92718 • U.S.A. • Int'l (714) 727-3300 • Fax (714) 727-1913

THE OPTICAL STORAGE COMPANY





ALDUS PAGEMAKER 5.0— THE NEW FACE OF CREATIVITY.

#### **NEW: Incremental rotation** of text and graphics.

It's easy to rotate in 0.01-degree incrementseither visually, using the rotation tool or numerically, using the Control palette (where you can also skew and mirror elements). You can even edit text directly once it's been rotated.

#### **NEW: Multiple open** publications.

Now you can work with unlimited publications open at the same time. Plus move elements among them simply by selecting an object in one publication, dragging it to another, and dropping it in.



#### **NEW: Improved color.**

You can create process-color separations from within PageMaker 5.0. Specify colors easily with an enhanced Colors palette. And when you import an EPS file, its colors are automatically added to the palette.

#### **NEW:** Control palette.

The completely revamped Control palette lets you easily and precisely place objects and apply text attributes. This powerful tool lets you handle much of your work without ever pulling down a menu.

100%	-2	Ö::::		5	22.15°	F+T
100%	tx		BB	+17	00	F+F



#### THE NEW PAGEMAKER 5.0 FOR THE MACINTOSH WILL SPEAK VOLUMES ABOUT YOUR WORK.

To understand fully how intuitive, powerful, and precise the new PageMaker really is, give us a call. We'll send you a 12-page brochure illustrating the many amazing things PageMaker 5.0 for the Macintosh can do. Both for you and your creativity.

### CALL (800) 685-3517 FOR MORE INFORMATION.



#### ABSOLUTE POWER FOR THE CREATIVE PROFESSIONAL

#### Other Kev Features

- Pasteboard lavout metaphor
- · Story editor, an integrated word processor with spelling checker, search/replace
- · Font sizes from 4 to 650 points in 0.1-point increments
- · Table of contents. index, and book capabilities
- · Publications from 1 to 999 pages
- · Built-in color separation
- Extensibility through Aldus Additions
- · Irregular text wrap around all sides of an object
- Extensive typographic controls, such as leading, kerning, tracking, letter spacing, text width
- · Font mapping for cross-platform font substitution
- · Support for Subscribe (Macintosh System 7) and for OLE (as a client application)
- · And much more

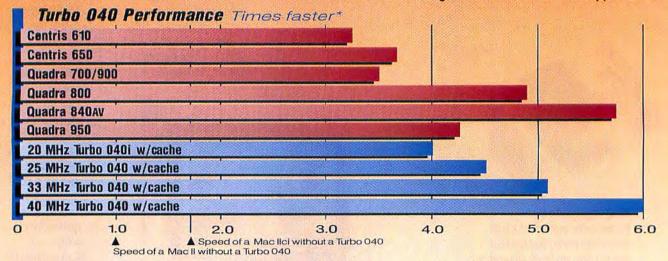


### Make Your Mac Faster than the Quadra 840AV

On October 23, 1970. The Blue Flame blusted across the U.S. Bonneville Sult Flats shattering the land-speed record at an average speed of 422 mph.

THE BLUE FLAME

Record-Setting Performance for Your Apple Macintosh



The Turbo 040 makes your Mac run faster than a Quadra! That's because the Turbo 040 is a CPU accelerator that connects directly to the power source, your Mac's processor direct slot (PDS). It's the fastest and cleanest way to connect an accelerator.

Add a cache card for additional speed! With the optional' external cache card, the FastCache Turbo, your Turbo 040 performance will be supercharged by up to an additional 70%! It's for the power hungry user of graphics and desktop publishing applications.

DayStar designed the Turbo 040 for easy installation, no software patches and no memory hassles. It works with standard hardware, including all NuBus cards, and runs any Quadra compatible software including Apple's virtual memory. Our standard is to provide blazing speed with 100% compatibility for smooth operation.



**NOW** shipping all versions... 20, 25, 33 MHz Turbo 040i (without math coprocessor) 25, 33, 40 MHz Turbo 040 (with built-in math coprocessor) for the Mac IIci, IIsi, II, IIx, IIcx, SE/30, IIvi and IIvx "DayStar's product in particular is excellent in design and execution... an excellent value." MocWEEK, May 17, 1993







Call for an immediate fax brochure! 1-800-532-7853 DIAL 4 THEN CHOOSE BROCHURE 4001

The Leader in Macintosh Acceleration and Image Processing

5556 Atlanta Highway, Flowery Branch, GA 30542 • (404) 967-2077, Fax: (404) 967-3018

Other brands and product names are trademarks or registered trademarks of their respective holders. Product specifications are subject to change without notice. ©1993 DayStar Digital, Inc. \*Average relative performance of: FreeHand Fit in Window, Photoshop Resize, Excel Fill Right, XPress Go to Page, FileMaker Pro Sort. Included with 40 MHz Turbo 040.

# LATE-BREAKING NEWS MACBUILETIN

Was Sculley Forced Out? Apple chairman John Sculley did not resign as Apple's CEO—he was forced out by the board of directors, who believed the CEO focused too much on long-range strategies and not enough on day-to-day operations, according to a law-suit filed by Albert A. Eisenstat, Apple's former executive vice president and secretary. Eisenstat's claims contradict previous statements from Apple and Sculley that Sculley voluntarily stepped aside as CEO. The suit against Apple and new CEO Michael Spindler alleges that Eisenstat's termination financial package was inadequate (his job was cut in last summer's restructuring). Apple said all of the lawsuit's allegations are "without merit."

**Newton Update** Apple, which says it sold 50,000 Newtons and 1500 copies of the Newton software-development kit during the palm-held digital assistant's first two months on the market, is offering a free upgrade to the Newton's operating system. Version 1.04 fixes display problems and has better power management. In the United States call 800/242-3374.

Motorola said they have made "first silicon" versions of the PowerPC 603, the second processor in the PowerPC line. The 603 chip is about as fast as the speedy PowerPC 601 but consumes only about 3 watts, making it ideal for portable computers, energy-saving desktop systems, or PowerPC accelerator boards that could speed up current Macs without exceeding their power budgets. Production volumes of the 603 are expected to begin shipping in the third quarter of 1994, but any computer designed around the chip would probably appear several months later.

**Supra Buys PSI Integration** Supra has purchased PSI Integration after Silicon Valley Bank fore-closed on PSI's secured assets. Supra plans to take advan-

tage of PSI's wider PowerBook modem line and the company's international name-recognition. PSI modem owners will continue to receive support through the former PSI customer service line, 408/369-5700.

ChipSoft Acquired by Intuit In a twist on the current merger mania among software companies, Quicken publisher Intuit (415/322-0573) has announced plans to acquire MacInTax publisher ChipSoft (619/453-4446). ChipSoft obtained MacInTax by buying SoftView several years ago and was blocked by the Justice Department's antitrust division in a recent attempt to buy MECA, which publishes the competing tax-preparation program, TaxCut. Intuit's Quicken competes with MECA's other core product, Managing Your Money. If the deal is completed, the companies plan to maintain all operations in their current locations.

developer Micro Frontier has decided to take a different approach to making its software a standard—the company says it plans to essentially give away as many as 1 million copies of its Color It paint and image-enhancement program. On October 1, the company began sending version 2.3 of the application to users who call 800/949-5555, charging \$8.37 for shipping and handling. The promotion will end with the 1 millionth copy or on December 31, whichever comes first, and then Color It will revert to its \$149.95 retail price.

announced that it will cut roughly 100 workers from its current 1100-person roster, mostly in manufacturing, citing increased competition and lower margins following its September price cuts on Bernoulli products (see "Iomega Cuts Bernoulli Prices," November MacBulletin). The exact date of the layoffs had not been decided at press time, but it was expected to fall in mid-October. **m** 

# AGUS

#### EDITED BY TOM MORAN

IN THIS ISSUE

p. 35 Triple-Speed CD-ROM p. 35 Hard Drive on a Card p. 35 Extending Quadra RAM

p. 36 PowerPC Upgrade p. 36 SideWriter Printer

p. 37 Products for AV Macs p. 38 Products for Newton p. 38 DSP Board

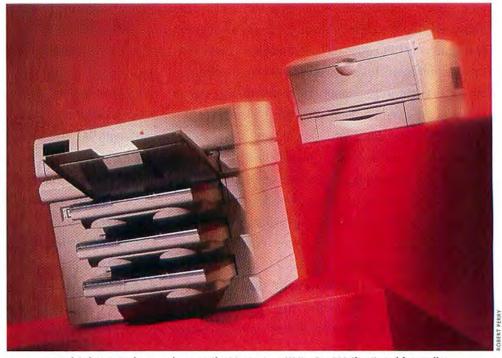
#### Apple Adds Workgroup Printers

MULTIPLATFORM WORKHORSES

f you work in an office with networked laser printers, you probably think your printers aren't too fast, or too versatile. Because the printer market always has room for more speed, better networking, and improved media handling, Apple plans to introduce two new printers for workgroups in November: the big-workgroup LaserWriter Pro 810 and the small-workgroup LaserWriter Select 360. Both printers represent Apple's determined effort not just to be price competitive but also to put more Apple printers on mixed-platform networks.

The LaserWriter Pro 810 uses a 400-dpi print engine that can be driven to 800-dpi resolution by its controller. The 810 prints up to 20 letter-size pages per minute.

You can pick the 810 out of a crowd by the set of three paper cassettes on its side the paper-handling facilities dwarf the actual printer mech-



Apple's latest: For large workgroups, the 20 ppm LaserWriter Pro 810 (front), and for smaller workgroups, the 10 ppm LaserWriter Select 360.

anism. The 810 can take letter, legal, tabloid, A3, A4, A5, B4, and B5 paper sizes. Optional paper cassettes can handle executive and folio sizes. As you would expect, the 810 also prints envelopes, labels, and transparencies.

All this high-resolution, large-format flexibility is accessible from practically any application on any computer on the network. The 810 has LocalTalk, Ethernet, and

standard serial ports; and it supports not just PostScript Level 2, familiar to Macintosh users, but also the PCL 4+ page-description language found on Hewlett-Packard printers in the MS-DOS world. Network protocols standard on this printer include Novell's NetWare IPX, Digital Equipment's LAT, TCP/IP, and Ether-Talk. The printer's software lets network administrators

manage the printer and diagnose problems from any computer on the net.

The LaserWriter Pro 810 ships with 64 TrueType fonts from 15 standard families, 35 PostScript Type 1 fonts, and 33 fonts for PCL 4+. Apple suggests a retail price between \$4600 and \$5000; buyers who need high-resolution printing in large formats can expect to pay a higher price for extra memory (8MB is standard,

16MB for 800-dpi tabloidsize printing). Dataproducts, which actually manufactures the printer, currently sells the equivalent model LZR 2080 for \$5495, and Varityper resells the same system, as the VT 820, for the same price. An optional PostScript-based send/receive fax modem will be offered for \$300 to \$400.

The LaserWriter Select 360, for a mere \$1500 to \$1700, offers a similar set of benefits to workgroups that don't need a vast range of paper sizes or complex networking capabilities. The 360 prints 10 pages per minute at 600 dpi-this combination of resolution and speed is made possible by a 16MHz AMD 29200 RISC processor. The 360 includes PostScript Level 2 and PCL 5 emulation to accommodate both Mac and Windows users, features Apple's typical 15 families of TrueType fonts, and contains TrueType and Type 1 support in ROM (which improves speed and hinting, according to Apple). The 360 has Local-Talk and serial ports, plus a parallel port-seldom seen on Apple products. It switches ports and emulation modes automatically. The 360 handles one paper tray at a time and comes with a 250-page letter-size paper tray and a 50-page multipurpose tray. The 360 also accepts the new PostScript fax card offered for the 810.-CHARLES SEITER

# NEC Triples the Ante on CD-ROM Speed

450-KBPS TRANSFER RATE

CD-ROM drive? If so, don't gloat too long: the first triple-speed drives are making their way to a store near you—for about the same amount of money you paid for your double-speed drive.

NEC recently announced

that new models of its Multi-Spin CD-ROM drives deliver data-transfer rates of 450 KBps, compared with the 300-KBps speed of its current MultiSpin models. The faster data-transfer rate means improved graphics performance—smoother Quick-Time video, for instance.

But in some cases, CD-ROM software must be opti-



NEC's MultiSpin 3Xp (top) and 3Xe CD-ROM drives offer data-transfer rates of 450 KBps.

mized to take advantage of the increased data-transfer rate. NEC said developers such as Macromedia, The Voyager Company, and Warner New Media are updating current products, and introducing new ones, that will take advantage of the triple-speed data-transfer rates. No product announcements were made at press time, however.

NEC has three triplespeed MultiSpin drives: the 3Xe (\$600), an external model; the 3Xi (\$500), an internal device; and the 3Xp (\$455), a portable unit. The 3Xe and 3Xi offer access times of 195ms; the 3Xp's access time is a slower 250ms. All three drives are SCSI 2 devices and have a 256K data cache. A \$35 interface kit is required to connect any MultiSpin CD-ROM drive to a Mac.

NEC said it will offer an upgrade deal in which current MultiSpin owners can return their CD-ROM drives to NEC in exchange for a reduced price on a triple-speed model. No further details of the upgrade offer were available at press time. All three of the new drives were scheduled to ship in mid-October, NEC, 708/860-9500.—JAMES A. MARTIN

# Hard Drive in the Box

YOU ADD THE DRIVE

aybe you've got a 2½-inch, low-capacity SCSI drive hanging around from a PowerBook you've upgraded, and maybe you've got an extra NuBus slot in your desktop Macintosh. Just by coincidence, the ETC Peripherals Purple Bullet board plugs into the NuBus slot and can hold a 21/2-inch, low-profile SCSI drive. The board draws power for the drive from the NuBus, and the company supplies a pass-through SCSI ribbon cable that plugs into your Mac's internal SCSI port. The board fits into any Mac with a NuBus port, as well as the IIsi and Centris 610 with Apple's adapter. With the \$15 Purple Bullet Expander, users can mount two drives, one of which can be a 31/2-inch, lowprofile drive. The product ships with ETC Disk Tools formatting and partitioning software. Shipping now for ETC Peripherals, 813/884-2863.

-CAMERON CROTTY



The ETC Peripherals Purple Bullet board accepts a 31/2-inch hard drive and fits in a NuBus slot.

# Extend AV Quadra RAM

256MB MORE

ith its PowerExtend Memory Expansion Card, Newer Technology comes to the rescue of Quadra 840AV users who feel continues

# In Brief

# Japanese Color Classic

Apple has introduced the Color Classic II, which is identical to the Color Classic with two exceptions—the CPU is a faster 33MHz 68030, and the data bus is a full 32 bits wide. The performance improvements are enticing, but the only place you can get the new model is in Japan. At press time, Apple USA said it has no plans to carry it.

# Quantum High-Capacity Drives

Quantum Corporation, maker of a lot of the hard disks sold under other brand names, has unveiled two new lines of high-capacity disk drives. The Quantum Empire 540 line of five 31/2-inch drives ranges from 127MB to 540MB capacity. In addition, there's a two-disk system called the Quantum Empire 1080, with 1.08GB capacity. The four disk drives in the Go Drive GLS line, 21/2-inch drives designed for portable computers, range from 85MB to 256MB. These drives will replace previous Quantum models.

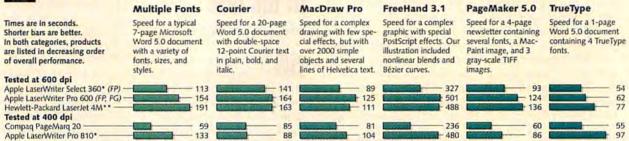
# Pumped-Up RAM

TechWorks has begun shipping new chips for the memory hungry. The 10MB PowerRAM module for the PowerBook 165c or 180c lists for \$799. A 16MB PowerRAM module for the Quadra 800 computer goes for \$895. 512/794-8533.

# Speedy CD-ROM

Chinon America is now shipping the CDA-535, a versatile CD-ROM drive that reads data at a rate of 300 Kbps and has a 256K cache to aid uninterrupted play of multimedia files. Its average seek time is 250ms. The CDA-535 handles CD-ROM, CD audio, and multisession Photo CD. It's CD-ROM/XA-compatible and, with a \$99 PC SCSI adapter, it works with MPC and MPC/2. With cable, SCSI terminator, and CD caddy, the CDA-535 lists for \$795. 310/533-0274.

# How Fast Are the LaserWriter Select 360 and LaserWriter Pro 810?



\*Preproduction unit. \*\*Optional Resolution Enhancement Technology (RET) off. FP = Optional Fine Print at 300 dpi; PG = Optional PhotoGrade at 300 dpi All printers were tested on a Centris 650 with System 7.1, 8MB of RAM, with a Quantum LPS230 hard drive, and with AppleTalk on and background printing off. The Compaq PageMarq 20 also supports 300 dpi and 800 by 400 dpi. The Apple LaserWriter Pro 810 also supports 600 and 800 dpi with optional smoothing.

cramped when limited to a mere 128MB of RAM.

Now shipping, the Power-Extend holds up to eight 4MB, 8MB, 16MB, or 32MB 72-pin SIMMs, for as much as 256MB of additional RAM. For people such as desktop videographers, animators, graphic artists, and others who regularly work with gargantuan files, using a PowerExtend card in each of the 840AV's three NuBus slots allows for a grand system total of up to 896MB of RAM.

The card's flexible memory configuration lets users mix small and large SIMMs on the same card. Also, because PowerExtend accepts slower, 80ns RAM, users can reserve the pricier 60ns RAM for the 840AV's motherboard.

Although PowerExtend with all NuBusequipped Macs, the maker recommends it for the newer, fast-NuBus Quadra 840AV because PowerExtend's performance isn't quite as fast on the Quadra 900 and 950. Newer also planned to ship a version of PowerExtend for the 040 PDS in late September; this version is recommended for older models, such as the Quadra 700 and 800 and the Centris 650.

Newer Technology offers PowerExtend with or without RAM installed; the card alone costs \$370. Because RAM prices were volatile at press time, you must call to get the most recent prices of boards with RAM. (The company also sells 72-pin 32MB SIMMs.) Newer Technology, 316/685-4904.

-SUZANNE COURTEAU

# Add a PowerPC to Your Mac

THE POWERPC INFLUENCE

he other shoe has dropped. The first addboard based on the PowerPC 601 chip has been announced-DayStar Digital plans to ship a coprocessor using the chip this fall. The as-yet-unnamed PDS board is the first in a series of DayStar products to take advantage of a technology called nPower, a method of distributed coprocessing developed by DayStar with cooperation from Apple.

The nPower coprocessor board, which should cost under \$2000, is designed

to work with the Quadra 700, 800, 900, and 950, as well as with the Centris 650. Day-Star plans to introduce versions for the Centris 610 and LC family next year, along with a

line of accelerators

using the 601 PowerPC chip.

Publishing and rendering programs are among the applications most likely to be ready to take advantage of the PowerPC coprocessor board's calculation abilities when it ships. DayStar expects many applications to follow suit in early 1994.

Users will be able to upgrade to the nPower accelerators when they ship early next year. DayStar Digital, 404/967-2077.

-SUZANNE COURTEAU

# Turn Printing on Its Side

HOPE FOR CROWDED DESKS

ith the SideWriter KX-P5400, Panasonic has developed a unique form factor that distinguishes its printer from the pack. Because it rests on its side, the SideWriter has a footprint of about half a square footsmaller than an 8.5-by-11-



This unnamed PowerPC coprocessor board is based on DayStar's nPower technology codeveloped with Apple.

# THE AMCOEX INDEX OF USED MAC PRICES

Machine/RAM/Hard Drive	Average Sale Price	Monthly Change	
Mac SE/2MB/20MB	\$500	\$0	
Mac Portable/1MB/40MB	\$675	-\$25	
PowerBook 100/4MB/40MB	\$850	\$0	
PowerBook 140/4MB/40MB	\$1200	-\$75	
Mac Classic/2MB/40MB	\$550	so	
Mac SE/30/2MB/40MB	\$825	+\$50	
Mac LC/2MB/40MB	\$650	+\$50	
Mac II/4MB/40MB	\$600	-\$50	
Mac IIsi/3MB/40MB	\$900	-\$50	
Mac IIcx/4MB/80MB	\$1000	-\$100	
Mac IIci/4MB/80MB	\$1375	-\$75	
Mac IIfx/4MB/80MB	\$1600	-\$100	
Apple 12-inch B&W display/board	\$125	\$0	
Apple 13-inch RGB display/board	\$350	\$0	
LaserWriter Plus	\$550	-\$25	
LaserWriter IINT	\$875	+\$50	

Index provided by the American Computer Exchange of Atlanta, Georgia (800/786-0717), It reflects sales during week of September 20. Coaligurations include keyboard and exclude monitor play board for noncompact models.

inch sheet of paper-and stands just under a foot high. At 14.3 pounds, the Side-Writer transports readily (with its optional carrying case) and fits into the overhead luggage bin of a jet. But the Post-Script Level 2 personal printer isn't designed solely for mobility; it's intended for anyone with limited space or a need for secure, private printing-and perhaps faxing.

The SideWriter KX-P5400 comes with 2MB of RAM and 17 Adobe fonts. The laser-quality printer uses an LED-based marking en-



The Panasonic SideWriter KX-P5400 is a transportable printer designed to rest on its side.

gine, produces 4 pages per minute, and offers 300-dpi resolution. The suggested list price is \$999, not including the necessary AppleTalk interface. An optional PostScript, plain-paper fax board sends and receives Group 3 fax documents at 9600 bps from within your application. It lists for \$499.

The printer, which complies with the Energy Star power-saving program sponsored by the EPA, was expected to ship in September. Panasonic, 201/348-7000.

-WENDY SHARP

# AV Macs Spur Development

PRODUCT ROUNDUP

pple's AV Macs come with features that no other models have built in, and developers have begun to announce products that take advantage of them. At press time eight products for the AV machines had already been introduced, and most of those are expected to ship by the end of the year.

For instance, the AV Macs' built-in AT&T 3210 Digital Signal Processor (DSP) means extra horsepower for graphics, sound applications, and voice recognition. Video-Fusion's (419/891-1090) Quick-Flix (\$149) digital video-editing software is one of the first packages that can recognize spoken PlainTalk commands. Video editors can simply say, "Select clips one and two," or "One-second iris transition," and then watch as their commands are carried out.

Some companies, such as Great Wave Software (408/438-1990), let the Mac do the talking. The company's NumberMaze (\$69.95) and KidsTime Deluxe (\$49.95) educational programs both talk back to young players, using MacinTalk 2 and MacinTalk Pro, the text-to-speech engines included with the AV Macs.

Less exotic but just as significant, many companies are basking in the glow of Apple Real-Time Architecture (ARTA), the Apple stancontinues

# **BUGS & TURKEYS**

The following steps corrupt high-density floppies on the Quadra 800 and Centris 650: (1) In the Cache Switch control panel, hold down the option key while clicking on the More Compatible button—this allows you to change the setting without a restart; and (2) Put in a high-density floppy and eject it. The disk is now unreadable. Apple is not currently offering a fix.

The Symantec C++ 6.0 compiler doesn't work with its complex math library. A free compiler upgrade, 6.01, addresses this and other bugs. Symantec says the upgrade has been available from the company and online services since late September.

Older Apple Keyboard II's will generate the number 4 if you quickly type 89, 98, 67, or 76 with the number keys above the QWERTY row. Apple has reportedly known of the problem for over two years. If your keyboard has this problem, Apple suggests using the number keypad for all numerical entry.

The CoActive Connector lets you easily share files and printers among Macs and DOS PCs. But the PCs will only mount Mac volumes that have names using CoActive as the first eight letters. CoActive tech support says that this is a problem; CoActive marketing says that this is a feature. The company plans a Chooser-like solution that allows any volume name.

Macworld will send you a Bug Report T-shirt if you are the first to inform us of a serious, reproducible bug that we report in this column, or a Turkey Shoot T-Shirt if we shoot your turkey in this space. See How to Contact Macworld.

# \_\_\_\_

In Brief

# 1.3-Gig Optical Disks

Twice the capacity of previous optical disks, the new 1.3GB double-density optical disks work with Alphatronix's Inspire III family of optical libraries. The libraries, starting at \$14,900, now handle 20GB to 190GB. 919/544-0001.

# Programs by the Bushel

Ingram Micro, a leading software distributor, has begun distributing more than 100 Macintosh programs encrypted on a single CD-ROM. Buyers can test demo versions of the programs contained on the CD-ROM. When they're ready to purchase a title, they call an 800 number, give a credit card number, and receive a password for instant access to the program and its documentation files.

# Iomega MO Drive

The LaserSafe Plus from Iomega is a 1.3GB magneto-optical drive with an average seek time of 19ms. The 5.25-inch device has a sustained read rate of 2.2MB per second and a sustained write rate of 1.1MB per second. Now shipping, the drive has a list price of \$4995. 801/778-1000.

# **Faster DOS Emulation**

Insignia Solutions' SoftPC, a program that lets the Mac mimic a PC and run DOS or Windows programs, sports a faster emulation engine in version 3.1. According to Insignia, SoftPC 3.1 works 30 percent faster than previous versions and includes software that lets a Macintosh user access Novell NetWare file servers and non-AppleShare file servers. SoftPC 3.0 (entry level) lists for \$165, SoftPC 3.1 Professional goes for \$325, and SoftPC 3.1 with Windows for \$499. Insignia also upgraded AccessPC 3.0 (\$129), a file-translation program that lets Macintosh users double-click to open DOS and Windows files on the Mac desktop. 415/694-7600.

dard DSP architecture that should mean fewer compatibility headaches. For example, OSC's (415/252-0460) Deck II 16-bit recording and editing software (\$299) runs just fine either on an AV Mac or on a standard Mac equipped with an ARTA-compatible DSP board. The same is true for several graphics products, including Painter 2.0 with PainterX2 (\$149 and \$79 from Fractal Design, 408/ 688-5300) and VideoFusion's VideoFusion 1.5 (\$649) effects package.

So far, some of the other AV bells and whistles have received more attention, but the AV's GeoPort telecommunications architecture might give digital telephony the foothold it needs to become a major use of the Mac, used in conjunction with Apple's Geoport Telecom Adapter.

Using the GeoPort adapter, Jabra Corporation's (619/622-0764) Ear Phone Streamline AV (\$149) will be able to turn your Mac into a telephone. Users will slip a tiny Ear Phone microphoneand-speaker combination in an ear-the Ear Phone's mike will then pick up the user's speech through bone vibrations. So equipped, and with the company's Personal Dialer software (included with the Ear Phone), you could say, "Call home," and your Macintosh would dial up the number. Then you could carry on a conversation via the Ear Phone instead of having to pick up a phone receiver.

When Articulate Systems (617/935-5656) ships Power-Secretary and its messaging module, you'll be able to call your Mac and have it read your fax or E-mail messages aloud via PlainTalk.

PowerSecretary also can take dictation at speeds up to 45 wpm, but that requires a 68040-based Macintosh with a 16-bit sound board because of the demands of processing the speech at the same time as continually searching the program's extensive phonetic dictionary for matches.

-CAMERON CROTTY

# **Products for Apple's Newton**

Vendor	Product	Ship Date	Price*	Phone
Business Tools				
Aldus Consumer Division	PIM (unnamed)	1993	TBA	619/695-6956
Apple	Fortune 500 Guide to American Business	Fall 1993	\$100	408/996-1010
	Money Magazine Business Forms	Fall 1993	\$40	408/996-1010
	Money Magazine Financial Assistant	Fall 1993	\$100	408/996-1010
Avalon Engineering	Presenterpad	1993	\$139	617/247-7668
Chancery	CSL Profiles In Hand	Fall 1993	TBA	604/294-1233
ComputerBooks	medical software bundle (unnamed)	TBA	\$800	714/966-2023
Dubl-Click	GoFigure	Fall 1993	\$100	818/888-2068
Great Plains	Personal Time & Billing	TBA	TBA	701/281-3130
HealthCare Communications	Hippocrates	Fall 1993	\$300	402/489-039
Integration Systems	Portable MLS for Apple Newton	TBA	TBA	415/726-2620
Intuit	Pocket Quicken	TBA	TBA	415/322-0573
MobileSoft	MobileCalc	Fall 1993	\$100	408/376-0497
On Technology	Meeting Maker XP upgrade	TBA	TBA	617/374-1400
Pastel	ContactPad	1993	TBA	212/941-7500
Portfolio	Dyno Notepad	Fall 1993	TBA	408/252-0420
Slate	Day-Timer Meeting & Expense Pack	Fall 1993	\$100	602/443-7322
State of the Art	Expense It	1993	TBA	714/753-1222
Strategic Mapping	GeoAssist	1993	TBA	408/970-9600
Communications				
CE Software	QuickAccess	TBA	TBA	515/221-1801
Ex Machina	Notify	1993	\$150	718/965-0309
Oracle	Oracle Glue	ТВА	TBA	415/506-7000
Entertainment	49-24-0		4.0	V201020 7010
Apple	Columbo's Mystery Capers	Fall 1993	\$80	408/996-1010
	Dell Crossword Puzzles & Other Games	Fall 1993	\$100	408/996-1010
or v	Fodors 94 Travel Manager	Fall 1993	\$120	408/996-1010
Claris	ClarisGames for Newton	ТВА	TBA	408/987-7227
Fingertip	Fingertip for Golf	Fall 1993	TBA	714/759-9399
	Fingertip for Personal Training	Fall 1993	TBA	714/759-9399
	Fingertip for Sports Analysis	Fall 1993	TBA	714/759-9399
<b>Graphics</b> Saltire	DrawPad	Fall 1993	\$100	503/622-4055

TBA = to be announced. \*Prices are approximate.

This table is a partial listing of the many announced products that are designed to work with Apple's Newton MessagePad personal assistant.

# Sounding Off with DSP

ADDING AV CAPABILITY

pectral Innovations would like to teach your Mac to sing in perfect harmony. Toward this end, the company is shipping NuMedia, a Nu-Bus, ARTA-compatible sound board based on the AT&T 3210 DSP chip also used in the AV Macs. The NuMedia board has stereo analog line

input and output jacks, a stereo microphone input, as well as fiber-optic digital input transceivers. It can record and play back 16-bit stereo sound at 22kHz, 44.1kHz, or 48kHz, making it compatible with CD players and with DAT devices. The board's software extensions route all the standard sound functions through the board, easing performance pressure on the CPU, and all NuMedia's settings are selected through Apple's new Sound Manager (3.0).

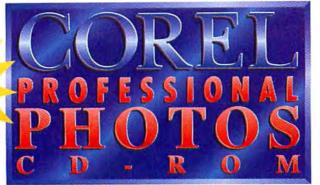
Thanks to the board's

ARTA architecture, NuMedia also works as a general-purpose sound-and-image accelerator, when teamed with ARTA-capable software. However, the board does not support speech recognition, partly because of the digitization rate that Apple's Plain-Talk requires.

The NuMedia board ships with Passport Designs' Passport Producer application software and is currently available for \$1195. Spectral Innovations, 408/955-0366.

-CAMERON CROTTY





Works with any ISO 9660 CD-ROM drive (XA support not needed)

**Royalty Free** 

Kodak Photo CD Format

PC & Mac Compatible

# **Ideal for Desktop Publishing**

Each collection features 100 razor-sharp Kodak Photo CD format photographs on a single disk. The stand alone Corel utilities included let you turn any of these stunning CD-ROM photo images – or your personal photos on CD - into Screen Savers, Wallpaper and slideshows (with optional background

Save time and money on stock photography!

Corel Professional Photos are royalty free for all applications and ready for color separation. There are no additional fees. That makes them ideal for use in any visual communication such as ads, brochures, presentations and multimedia. And you can use CorelDRAW to retouch or add special effects to any Corel Professional Photo.

Already more than 50 titles:

The Arctic Africa Airshows Arizona Deserts **Auto Racing** Birds Bridges Castles China & Tibet Churches Cityscapes Coasts Computer Graphics Couples Education Environment Executives

Fighter Jets Firefighting Fishing **Flowers** Food Glamor Golf Health Insects Ireland Jewelry Lakes & Rivers Lamborghinis Law Lighthouses Lingerie Medical

Mountains **Patterns** People Porsches Reefs Roads Rowing Sailboats Spirit of Buddha Sunrises & Sunsets Swimming Trees Waterfalls Western Canada Wild Animals Windsurfing **WWII Planes** and many more...

he world's leading photo CD collections from the makers of CorelDRAW, the world's best selling graphics software!

**CALL NOW! EXT. 106** 

\$ ATTENTION PROFESSIONAL PHOTOGRAPHERS! \$

If you are a professional photographer interested in having Corel publish your photographs, please call the number below for more information. CALL: (613) 728-8200 ext. 5080

\*Not all utilities are available for Macintosh



# Comprehensive Utilities Included:

- Corel SCREEN SAVER
- Corel CD-AUDIO
- Corel MOSAIC VISUAL FILE MANAGER
- Corel PHOTO CD LAB PLUS OPTIONAL BACKGROUND MUSIC
- WALLPAPER FLIPPER
- PRINTED PHOTO REFERENCE GUIDE





Suggested List Price

100 SUPERB IMAGES IN EACH COLLECTION!



# "I DON'T NEED (tick) YOUR DATA (tick) PROTECTION SOFTWARE (tick). I'VE HAD MY MAC (tick) FOR YEARS AND (tick) IT HASN'T CRASHED (tick) YET."

Not to alarm you or anything. But if a lot of wishful thinking is all that's standing between you and a Mac meltdown, you may want to check out a more proven method of protection.

We suggest the Norton Utilities for Macintosh v2.0. It both prevents data loss and gives you the most effective



Without us, one crash can ruin your whole day.

data recovery features available. In other words, it's like giving your computer its own personal bomb squad.

For starters, let's talk prevention. The Norton Disk Doctor hunts down potential problems and lets you squash them before

they become actual nightmares. Plus, Speed Disk defragments files and boosts performance of your hard disk, making data loss less likely in the first place. So far, so good. Now, the recovery part. Our FileSaver feature keeps a record of vital disk information, which helps



From
Peter Norton, the
leader in
Macintosh utilities.

you rescue files if you happen to lose or delete them. On top of that, you get automatic backup. It's total security like this which has helped Norton Utilities become the best-selling data protection and recovery software in the world.

To learn more, dial FAST FAX 1-800-554-4403 and select option 1, document 411. (For information on easy network installation, choose option 1, document 481.) Better yet, pick up Norton Utilities at your local dealer for about \$149.

You should probably do it today, though. Before your luck runs out.

ENORION UTILITIES
FOR MACINTOSH
SYMANTEC.

# New Products

THE LATEST MACINTOSH RELEASES

# by Cameron Crotty

THIS SECTION COVERS MACINTOSH PRODUCTS FORMALLY ANNOUNCED BUT NOT YET EVALUATED BY MACWORLD. UNLESS OTHERWISE STATED, THE MINIMUM REQUIREMENTS FOR OPERATION ARE A MAC PLUS, WITH 1MB OF RAM, RUNNING SYSTEM 6. ALL INFORMATION AND PERFORMANCE CLAIMS ARE SUPPLIED BY THE PRODUCT VENDOR AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY MACWORLD. ALL PRICES ARE SUGGESTED RETAIL PLEASE CALL VENDORS FOR INFORMATION ON AVAILABILITY.

# HARDWARE

# 15-Inch Color Portrait and 17-Inch Color Monitors

The former is a 15-inch single-resolution (640-by-870) color portrait monitor with a 75Hz vertical refresh rate and a .26mm dot pitch. The latter is a 17-inch single-resolution (832-by-624) color monitor with a 75Hz vertical refresh rate and a .26mm dot pitch. Both monitors come with a tilt-swivel base. 15-inch portrait \$899; 17-inch \$999. TriAm, 714/890-5332; fax 714/890-5335.



15-Inch Color Portrait Monitor

# 6600/CLX Flatbed Color Scanner

With an optical resolution of 600 by 300 dpi, this 24-bit color scanner handles reflective originals up to 8½ by 14 inches. The scanner ships with Adobe Photoshop 2.5, and Accutext's OCR package. An optional document feeder is available. \$1500; document feeder \$795. AVR, 408/434-1115, 800/544-6243; fax 408/434-0968.

# Acecat II Mac

Featuring a 2000-lines-per-inch resolution, this digitizing tablet has a 5-by-5-inch active area, plugs into the serial port, and comes with a 2-button stylus. A 4-button CAD puck is also available. Device draws power from the ADB port. \$149; 4-button puck \$49.95. ACECAD, 408/655-1900, 800/676-4223; fax 408/655-1919.

## DataPak IO 150

Each of the cartridges for this removablemedia Bernoulli drive holds up to 150MB of data. The drive mechanism features a 256K cache and average seek times of 18ms. It can read 44MB and 90MB cartridges and also write to 90MB cartridges. \$939. Mass Microsystems, 408/ 522-1200, 800/522-7979; fax 408/ 733-5499.

# DesignMate 3036

Do you need to look at the big picture? It doesn't get much bigger than an E-size pen plot (roughly 35 by 48 inches). This plotter features an 8-pen turret; plots at up to 42 inches per second; emulates the company's Pacesetter, Artisan Plus, and 1040GT series plotters; and supports CalComp PCI, 960, HPGL, and HPGL/2 protocols. \$2995. CalComp, 714/821-2000, 800/932-1212; no fax.

# **EyeQ LC Player**

Tonight could be movie night on your Mac LC with this digital-video-playback board specifically designed for the LC, LC II, and LC III. You can play 640-by-480, 24-bit video at 30 frames per second (only 30 fields per second). An Ethernet connection is available as an option. 4MB min. memory; requires Mac LC. \$999; with Ethernet \$1295. New Video Corp., 310/396-4000; fax 310/396-0282.

# Image Reader Color Macintosh

This 24-bit-color 600-dpi SCSI scanner is sheetfed and accepts reflective originals up to 8½ inches wide and as long as your software (and RAM) allow. The unit ships with Calera Recognition Systems' WordScan OCR software and a Photoshop plug-in driver. \$999. Info Products, 408/374-7290, 800/775-7576; fax 408/378-1068.

# LanRover/T for NetWare

A remote networking server for Token Ring networks, the product allows either four or eight NetWare users to dial into their Token Ring network and work as if their Mac was simply another node on the network. The server comes in fourand eight-serial-port versions—modems are not included—and supports datatransfer rates of 4 and 16 Mbps and maximum packet sizes of 4K. Client software is included, and the server can be managed with Shiva's Net Manager software. Four ports \$2799; eight ports \$3899. Shiva Corp., 617/270-8300, 800/458-3550; fax 617/270-8852.

## LZR 1580 and LZR 2080

Fast printers for enterprise computing, these 11-by-17-inch, 800-by-800-dpi resolution, PostScript Level 2 printers run at 15 and 20 ppm, respectively, and simultaneously support Novell IPX, TCP/IP, DEC LAT, and Apple EtherTalk through a single Ethernet connection. Each printer stores up to 64 speed/ resolution settings. Depending on these settings, each printer can appear on the network as up to 64 separate, virtual printers. The administrator can assign access privileges to them, and users select them just as if there were multiple printers on the net. Both printers are equipped with LocalTalk, RS-232, and Ethernet ports, as well as a SCSI port for connecting a hard drive. LZR 1580 \$3450: LZR 2080 \$4995. Dataproducts. 818/887-8000, 800/766-7788; fax 818/887-4789.

# Multiscan 17SE

This 17-inch Trinitron monitor features a .25mm aperture pitch, can lock into any vertical scan frequency between 50Hz and 150Hz, and provides resolutions ranging from 640 by 480 to 1600 by 1200 pixels (76Hz at 1280 by 1024). Push-button controls adjust image brightness, contrast, sizing, centering, convergence, and color temperature. The monitor also complies with the Swedish MPR II emissions guidelines. An adapter is required. \$1499.95; adapter \$19.95. Sony Computer Peripheral Products, 408/432-1600, 800/222-7669; no fax.



Multiscan 17SE

#### P300CD and P2300CD

These double-speed CD-ROMs feature average seek times of 280ms, a 256K cache, and multisession Photo CD compatibility. The products come in internal and external versions and ship with SCSI utilities, drivers, and CD audio play software. The P2300CD has a nicer external case with fun status and access LEDs. P300CD external \$799; P300CD internal \$699; P2300CD external \$899; P2300CD internal \$699. CMS Enhancements, 714/222-6000, 800/788-4267; fax 714/549-4004.

## Platinum II Magneto Optical Drives

Depending on the model you choose, you get either 128MB or 256MB of data to go. Both drives use 3½-inch cartridges, feature average seek times of 35ms, and are available in either internal or external configurations. 128MB internal \$1749; 128MB external \$1919; 256MB internal \$2849; 256MB external \$3029. CMS Enhancements, 714/222-6000, 800/788-4267; fax 714/549-4004.

# Power R Presenter 520

This product provides an external monitor port for the LC 520. Users clip a small board onto the Video DAC chip on their Macintosh's motherboard, then mount a two-port strip on the back of the Mac. The strip contains both Apple RGB and standard VGA connections, which can be used simultaneously for as many as three screens at once. \$129. Power R, 206/547-8000, 800/729-6970; fax 206/285-0260.



Screen Image Recorder

# Screen Image Recorder

This screen recorder plugs into your Mac's external video port, displays the video on an internal high-resolution CRT, and then records the image on standard 35mm slide or print film. Exposure times are around 15 seconds. The unit includes a pass-through connector so you can see what you're shooting.

# New Products

\$6000. Datagraf, 708/520-1223, 800/ 538-9231; fax 708/215-2313.

#### Spectrum Scan III

This single-pass 24-bit color flatbed scanner handles 8.5-by-11.7-inch reflective or transparent originals, connects to the Mac via a SCSI or SCSI-2 interface, and features 1200-by-1200-dpi optical resolution. Full-page scans at 1200 dpi take roughly two and a half to three minutes. \$4995. Spark International, 708/ 998-6640; fax 708/998-8840.

# **TokenPrint and TokenPrint Plus**

TokenPrint connects two LocalTalk printers and other devices to Token Ring networks. It has one DB-9 port for Type 1 Token Ring, one RJ-45 port for Type 3 Token Ring, and one LocalTalk port. Once a printer is connected, Macintosh users can select it via the Chooser. Macintosh computers that are connected by the product can use existing SNA gateways to gain access to mainframe services. TokenPrint Plus supports four LocalTalk devices. TokenPrint \$699; TokenPrint Plus \$899. Dayna Commu-



TokenPrint Plus

nications, 801/269-7200, 800/531-0600; fax 801/269-7363.

# **Two Page Display**

This size-large display offers a resolution of 1152 by 870 pixels and a 75Hz vertical refresh rate. The product provides up to 256 shades of gray and can plug directly into the Quadra 700, 800, 900. and 950, and the Centris 610 and 650. The monitor complies with the Swedish MPR II emissions guidelines. \$699. Mobius Technologies, 510/654-0556, 800/949-9020; fax 510/654-2834.

#### VideoEdge

The heart of this package is a box that plugs into the ADB, printer, and modem ports of your Mac. With the box, you control up to six consumer-grade camcorders or VCRs via cabling or trainable infrared. The box also provides passthrough ports for the ports it takes up (two serial, one ADB). With the included software, you can create a database of clips from the tapes in the attached devices, then create an edit decision list from which the product assembles a finished videotape. The package includes the company's CutsPlus titling software. 5MB min. memory; requires Mac IIx. \$695. Silicon Valley Bus, 408/623-2300, 800/775-0555; fax 408/623-4440.

# SOFTWARE

#### **AboutFace**

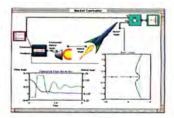
What does that typeface look like again? You may ask yourself that question less often if you have this package. About-Face creates custom style-specimen pages, character set catalogs, and keyboard maps, and the software can reprint a page of text in multiple fonts without requiring you to retype. \$69.95. Big Rock Software, 716/288-2860; fax 716/288-0272

#### Clean Sweep

If you're concerned about software piracy, this two-pronged attack might keep you in the clear. While an extension puts file copying and deletion commands under password protection, an application scans all mounted volumes and compiles a database of proprietary software for easy reference in future internal audits. The application can also track publishers, tech-support phone numbers, version numbers, and purchase order numbers. \$89.95; 10-pack \$299.95; 30-pack \$499.95. Ariel Publishing, 509/923-2249; fax 509/923-2249.

#### ControlWare

This software is for designing, simulating, and analyzing dynamic systems and their feedback controllers. Users create systems by clicking and dragging physical elements, sensors, and electronic components and connecting them. The product provides several standard control systems analysis instruments, including Bode, Nyquist, and Root locus plotters. It is based on Imagine That's Extend, a general-purpose simulation package. 4MB min. memory. \$1690. Seagull Technology, 408/732-9620; fax 408/736-7103.



ControlWare

#### DeskTracy

To help you manage your Mac lab, this software tracks users, computer time, and printing, and provides folder locking and system protection. Administrators can set charge rates for individual Macintoshes and printers, customize log-in screens, and generate reports from collected data. 2MB min. memory; requires System 7, Apple LaserWriter Driver 8.0 or Adobe PSPrinter 8.0. \$149; five-pack \$495; ten-pack \$695. Kansas-Bay Systems, 510/339-7300, 800/754-7300; fax 510/339-1179.

#### **Edit One**

Having a synthesizer with editable sounds is cool, but shuffling and editing them on a 15-character LCD screen isn't. Once the software is configured for a single specific synthesizer or other MIDI device, you can store, edit, and arrange sounds and MIDI information for that device. The configuration is a onetime affair that makes the software usable with that device only. Requires MIDI interface. \$149.95. Opcode Systems, 415/856-3333; fax 415/856-3332.



ng at your computer computer to be at your co That kink you feel in your wrist from typing at your computer the sta

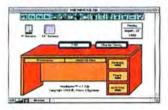
the strain keyboarding puts o

# **Financial Competence**

This tutorial is for folks who don't know the difference between a cash flow report and a balance sheet. Users work their way through a graphic, seven-lesson course in understanding and using financial statements. Users enter information from their own records to help personalize the experience. S99. Real-World, 603/224-2200, 800/678-6336; fax 603/224-1955.

# HeadHunter

The title might sound like the natives are restless, but this is a recruitment management system, designed to help professional recruiters follow the most common steps toward placing their clients. Users can cross-reference job skills and track job orders, presentations, interviews, and follow-up calls. Requires Claris FileMaker Pro. \$695. Micro J Systems, 310/453-5059, 800/995-4868; fax 310/453-2251.



HeadHunter

#### InterPrint

This print client software lets you send output to any TCP/IP-networked Unix print device. You can edit previously defined print queues and, since the Mac has no way of polling a Unix printer to find out what fonts are available, you can map your screen fonts to a list of 39 basic printer fonts. 2MB min. memory. \$195; 10 users \$1595; 25 users \$2995; 50 users \$4995; 100 users \$8995. InterCon Systems Corp., 703/709-5500, 800/468-7266; fax 703/709-5555.

#### **Kid Cuts**

What better use for a Mac than keeping the kids busy on a rainy day? Kids choose paper projects ranging from puzzles and masks to greeting cards and hats, and customize them with paint tools, stamps, and text. Once the projects are printed out, kids cut them out and assemble them with glue or tape. \$29.95. Brøderbund Software, 415/382-4400, 800/521-6263; fax 415/382-4419.

# Language Explorer

Sprechen Sie Mac? Build your English, French, German, and Spanish vocabulary by matching animated picture tiles of foods, animals, buildings, clothing, and other objects to their corresponding words in four languages. A CD-ROM version contains recordings of all words, pronounced by a native speaker. Requires color. \$57.95; CD-ROM \$77.95. Nordic Software, 402/488-5086; fax 402/488-2914.

## Legal File Management System

This multiuser Filemaker Pro-based system organizes caseloads with 17 screens of information about each case. The software produces reports, form letters, and client lists, handles scheduling, and allows users to record verbal case notes. Reports and records can be customized. 5MB min. memory; requires Mac IIx, 20MB hard disk space. \$585. Computer Consulting Group, 213/896-9546; fax 213/617-1759.



Lights Out Sports Fans: Major League Baseball Screen Saver

# Lights Out Sports Fans: Major League Baseball Screen Saver

Now the boys of summer can play on your Macintosh's screen all year round. This screen saver blanks your Mac's display with one of ten Game Plans, including a statistics-based baseball game animated with the logos of your favorite teams. Users can also watch Quadrangle's blimp prowl the screen, keep an eye on players in the dugout, or watch fans in the stadium. Requires Mac II. \$55. Quadrangle Software, 313/769-1675, 800/253-8397; fax 313/769-1695.

# **Mario Teaches Typing**

Learning how to type can be less drudgery with the help of those two ubiquitous plumbers, Mario and Luigi. The software challenges beginning, intermediate, and advanced typists with arcade games cum typing drills, recording and charting progress along the way. Players must guide Mario through three levels of mayhem by typing quickly and accurately. The humor-impaired can choose the optional nongame drill environment. 2.5MB min. memory. \$49.95. MacPlay, 714/553-3522; fax 714/252-2820.

# Marketing Plan Toolkit

This modeling tool works in Microsoft Excel and Lotus 1-2-3 for the Mac and helps you create and organize a marketing plan, complete with expenses, unit sales, and market focus. The documentation also attempts to explain the reasoning behind each task, as well as how to use the program. \$149.95. Palo Alto Software, 503/683-6162, 800/229-7526; fax 503/683-6250.

#### MediaMax

This set of HyperCard stacks simplifies the use of videodiscs and other multimedia resources. Users can build presentations from any CAV or CLV videodisc player, adding text and graphics along the way, and can create custom HyperCard buttons to control pictures, sounds, graphics, and QuickTime movies. Requires HyperCard 2.0. \$199. Videodiscovery, 206/285-5400, 800/548-3472; fax 206/285-9245.

#### Network Scheduler 3

The latest version of this cross-platform group scheduling and calendar applica-

ur hands with our rounded, cushioned, height-adjustable wrist rest.





Conce I started working with Painter and PainterX2," everything changed. Now I'm Pacifica, California discovering new opportunities and developing a whole new style. Of course, I don't have to settle for just one look. With Painter I can do anything my heart and mind desire. 33

# The Painter Unfolds That Which HAS NOT BEEN SEEN." Paul Cézanne

Fractal Design Painter® 2.0. There's just no better way to unveil your true talents on a Macintosho (including the new AV series) or a Windows™ based PC. Especially once you discover the myriad tools and textures included in this Natural-Media® paint application. Plus a more intuitive interface that makes Painter 2.0 easier than ever to use. For more information, call Fractal Design at 1-800-297-COOL today. And bring your genius to light with FRACTAL DESIGN the power of Painter.

© 1993 Franti Denga Corputation. All rights record. Franti Design Paison and Natural Media in empirical analysis, and FaitureN2 is a real-mark of Frantial Design Corporation. All other trademarks are the presented of their responses Indian.

Circle 190 on reader service card

# **New Products**

tion supports Mac clients, as well as Windows and DOS. Users can schedule meetings, appointments, and resources with one another across an enterprise network. The software can also use the directory services of an already installed mail system to distribute data across remote servers. 5 users \$495; 25 users \$1995. Powercore, 815/468-3737, 800/237-4754; fax 815/468-3867.

#### OnAccount

You're running a business and you need to get your affairs in order, but you don't have the time to implement a full-blown accounting package. This software creates, prints, and stores invoices, maintains accounts for up to 500 customers, calculates finance charges on past due accounts, stores inventory items, and prints a variety of reports. 2MB min. memory. \$99. White Crow Software, 802/658-1270, 800/424-0310; fax 802/658-3873.

# QuickShip

Wait a minute, Mr. Postman, don't leave without checking out this United Parcel Service manifest program. Users can print COD tags, shipping labels, and manifests, as well as keep a customerclient database and calculate all shipping rates, including ground and air costs for the United States, Canada, and international shipments. \$295; site license \$695. ShopKeeper Publishing International, 904/222-8808; fax 904/668-9916.



Seize the Day: The Illustrated Personal Organizer

# Seize the Day: The Illustrated **Personal Organizer**

If your days get ugly, maybe your datebook should be beautiful. This product combines a phone and address book, an appointment book, a to-do list, a project list, a personal diary, and a perpetual calendar. It adds 256-color graphics, ranging from perpetually changing "Living Worlds" to galleries of art by famous artists, including Salvador Dalí, Boris Vallejo, Yamagata, and others. Art gallery plug-ins are sold separately. Requires 8-bit color. \$59.95; gallery and journal plug-ins range from \$19.95 to \$29.95. Seize the Day, 707/942-9391; fax 707/942-2998.

# SuperLaserSpool 3.1

Get your Mac back sooner with this Print Monitor substitute. The new software version includes improved user-memory control and enhanced memory management. Users can set which folder they wish to spool files to, and PowerBook users on the road can spool documents and have them printed automatically when users reconnect to their printer. \$149.95. Fifth Generation Systems, 504/291-7221, 800/873-4384; fax 504/295-3268.

# Verisoft Lookup

This client-server directory application allows Macintosh users to access a central VAX database for company information such as phone number, location, or personnel data. The product supports AppleTalk, DECnet, and TCP/IP network protocols, and it features password-protected fields, configurable field widths, and remote access. Server \$2000; single client \$20; volume discounts available. Verisoft, 408/366-8240, 800/998-6452; fax 408/255-1146.

# CD-ROMS

Images With Impact CD-ROM 2.0 A compilation of 3G Graphics' six EPS clip art libraries. The disc also includes nearly 500 colorized versions of blackand-white files, as well as 72-dpi PICT versions of every image. The six libraries are: Accents & Borders 1 and 2, Business 1, Graphics & Symbols 1, People 1, and Places & Faces 1. \$499.95. 3G Graphics, 206/774-3518, 800/456-0234; fax 206/771-8975.

# Oxford English Dictionary Second Edition

Ever wonder what your high-school math teacher was talking about when he mentioned oblate spheroids? Ever pondered the etymology of the word bellicose? This single disc contains all 20 volumes of the English language's most famous dictionary, including definitions for over 500,000 words, over 2,400,000 illustrative quotations, and (thank heavens) search and retrieval software. \$895. Oxford University Press, Electronic Publishing, 212/679-7300 ext. 7127, 800/ 334-4249 ext. 7127; fax 212/725-2972.

# Pop and Politics

This product offers 24-bit, 8-bit, and reduced-scale TIFF images of famous musicians and politicians in concert, in Congress, and informally. Notables include Jon Bon Jovi, Arlo Guthrie, James Taylor, Senate majority leader George Mitchell, Jesse Jackson, and Ted Kennedy. All images are royalty-free, and the disc includes Adobe's Photoshop Try-Out software. \$79.95. TechScan, 805/985-4370, 800/424-8627; fax 805/985-7221.



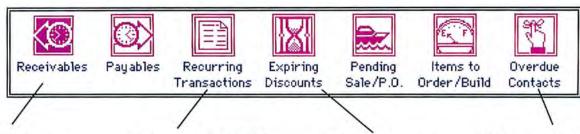
Pop and Politics

# **Think For Yourself**

Why rely on interpreted or secondhand data when you can get the real thing? The disc includes over 30,000 pages of data on the environment, economics, demographics, and health, compiled from such sources as the World Health Organization, the U.S. Department of Commerce, and others. Users access data via the included HyperCard stacks. continues

# It's easy to

# Mind Your Own Business



Click here to see who owes you money.

Click here to recall checks and other transactions instead of re-keying them. Click here to save money, by taking advantage of early payment discounts. Click here to call the people you promised to call – it even dials for you!

# That's because M.Y.O.B's To Do List shows you exactly where you stand.

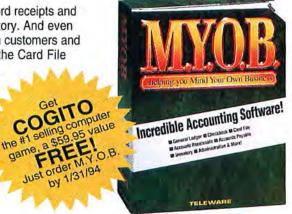
You'll know in seconds what people owe you, what you owe them, and how much inventory you have on hand. You'll have the information you need to make good decisions and manage your business profitably.

And M.Y.O.B. makes running your business incredibly easy. Everything you need is just a mouse click away. Want to bill a customer? Click "Invoice Sales" and fill in the blanks. The invoice screen looks like an invoice (just as the check-writing screen looks like a check).

It's equally easy to record receipts and track expenses and inventory. And even easier to stay in touch with customers and suppliers. Dial right from the Card File with a click of the mouse.

This full-featured program generates over 80 customizable reports. You can analyze sales by item, customer, time period and more. And every form you print is





customizable, too, so it can look exactly as you want it to, logo and all.

# We've won every industry award for accounting software in the past 18 months.

You could systematically compare accounting packages. But MacUser and MacWorld have done it for you. Both declared M.Y.O.B. the *Editor's Choice*.

In fact, over the past 18 months, M.Y.O.B. has won *every comparison* of accounting software in the industry.

And here's the even better news.

Now you can get M.Y.O.B. for just \$99.95 (plus \$6 shipping and handling). What's more, you're free to try M.Y.O.B. for a full 90 days! If you are dissatisfied for any reason, simply return the program to us for a complete refund. This special offer expires 1/31/94, so call today!

U. S. and Canada, call

1-800-851-1315 Ext. 842

(7 AM to 7 PM CST)

or see your local software dealer.

Dealer pricing may vary. To order by mail, send your check (payable to Teleware) to: Special M.Y.O.B. Offer, P.O. Box 1339, Burnsville, MN 55337. NJ residents add 6% sales tax.







**TELEWARE** 







Requires Macintosh Plus or better, 2MB RAM or better, a hard drive with approximately 2MB of free space. System 6.0 or later with the font Geneva 10 installed. An Apple ImageWriter or LaserWriter printer is optional. An Apple (or compatible) modem is optional. M.Y.O.B. is a trademark of Teleware, Inc.

All other products mentioned are trademarks of their respective companies.

# **New Products**

Requires HyperCard 2.1. \$249. PEMD Education Group, 707/894-3668; fax 707/894-5200.

## ACCESSORIES

## **MacDrive Probe**

To catch a thief, you must think like a thief, but to catch a floppy drive problem, should you think like a floppy drive? No, but you might want to try this FDHD floppy drive diagnostic package, which comes with test software and a high-resolution diagnostic alignment disk. The Depot Edition of this product includes the MacDrive Probe Interface Module, an external test board with LED indicator lights, and test points to allow easy monitoring of drive-control signals. \$149; Depot Edition \$399. Accurite, 408/433-1980; fax 408/433-1716.



MacDrive Probe

#### MonitorMiser

Putting your Mac to sleep with a screen saver might prevent phosphor burn-in, but this product plugs into your keyboard and monitor and shuts down the entire monitor after a user-defined period of inactivity (hardware switchable from 4 to 44 minutes). \$79.95. Technology Marketing Partners, 415/940-7800: fax 415/940-7849.

#### **PowerBack**

In the continuous quest to find the ultimate road-warrior widget, we ran across this product, which attaches to a PowerBook and holds a VST ThinPack battery underneath the machine. The product adds about ½ inch to the bottom and ¾ inch to the rear of the PowerBook. \$40. Pilot Technologies, 612/828-6002, 800/682-4987; fax 612/828-6806.

#### SCSI Doc

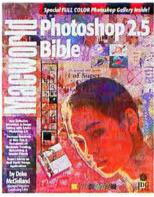
If you've got a PowerBook 100, 160, 165c, 180, or 180c, you can already either connect SCSI devices to your machine or hook up your PowerBook to another Mac as an external SCSI device. This HDI-30-to-DB-25 adapter has a switch that lets you use it for both of the above purposes. The unit also features an LED that indicates the presence of termination power on the SCSI bus. \$49. APS Technologies, 816/373-5800, 800/235-2752; fax 816/478-6506.

## BOOKS

## The Mac Internet Tour Guide

Everybody loves the Internet but always asks the same questions: Where do I go and what do I do when I get there?

The book offers basic tutorials for beginners, as well as road maps to information resources. An included disk contains filetransfer, E-mail, and decompression software that replace the standard Unix interface with a friendly Mac front end. Written by Michael Fraase. 280 pages. \$27.95. Ventana Press, 919/942-0220, 800/743-5369; fax 919/942-1140.



Macworld Photoshop 2.5 Bible

# Macworld Photoshop 2.5 Bible

Macworld's own Deke McClelland leads readers through the intricacies of channel operations, color mapping, distortion filters, and other expert-level Photoshop functions. The book includes a section on filters and special effects, describing over 70 custom filters complete with algorithms and logic explanations. McClelland also covers printing with composite film, color separations,

and duotones. 650 pages. \$29.95. IDG Books Worldwide, 415/358-1250, 800/ 62-2974; fax 415/358-1260.

## Sad Macs, Bombs, and Other Disasters

Don't panic when you see that burning fuse! Ted Landau shows novices and pros how to take control of their Macs in a crisis, plus how to identify, solve, and prevent problems created by applications, corrupted files, and extension conflicts. 608 pages. \$24.95. Addison-Wesley Publishing, 617/944-3700, 800/358-4566; fax 617/942-1621.

# Teach Yourself PageMaker 5.0 for the Macintosh

A ground-zero tutorial for newcomers and a refresher course for old hands, this book covers page-layout and typography basics, as well as PageMaker's capabilities, including the spelling checker, find and change tools, and indexing features. It also offers advice on managing large documents. Written by David Browne, 400 pages. \$21.95. MIS:Press, 212/886-9200; fax 212/807-6654.

To have your product considered for inclusion in New Products, send an announcement with product name, description, minimum memory, peripherals required, pricing, company name, and phone number to New Products Editor, Macworld, 501 Second St., San Francisco, CA 94107, Macworld reserves the right to edit all product announcements.



Announcing the first personal computers that will send faxes, read you your mail, take phone messages and work with your video camera, VCR and TV.



# anything you tell them to.



"Computer, play CD".

Add the AppleCD" 300i disc drive to either machine,
and you can access huge libraries of clip art,
sound effects, video clips and more. Or just play
your own music CDs while you work.

# The Macintosh Centris 660AV and Macintosh Quadra 840AV

You've probably read that telephones, computers, television and other technologies will converge soon.

This is where they meet. Introducing the Macintosh Centris 660AV and Macintosh Quadra 840AV personal computers. These two computers offer a suite of communication capabilities called Apple AV Technologies: a telecommunications center, easy video input/output connections, voice recognition and text-to-speech abilities.

For the first time, use a Macintosh' to pick up phone messages with a point and click, record video by plugging in a



Apple AV Technologies. Telecommunications, video, speech – all the ways you communicate.

video source, and open a file by saying, "Computer, open."

Many of these new functions are sped along by a digital signal processor (this chip flies through data at the rate of 55 MHz in the Macintosh Centris and an even faster 66 MHz in the Macintosh Quadra).

With a 25 MHz 68040 processor and up to 68MB of RAM, the Macintosh Centris has the horsepower required to breeze through huge spreadsheets and documents. And there's room to add a 500MB internal hard disk, a CD-ROM or SyQuest drive and a NuBus expansion card.

The new Macintosh Quadra will make publishing, graphic design and other communications professionals salivate. Its 40 MHz 68040 processor and up to 128MB of RAM make it the most powerful Macintosh ever. And it has room for a gigabyte of hard disk storage, four internal storage devices and three NuBus expansion cards.

Best of all, you can get a Macintosh with Apple AV Technologies starting at \$2,489. Once again, Apple puts the most amazing kind of power within your reach. The power to be your best. Apple

# In fact, they'll do just about



DECEMBER

1 9 9 3

# Reviews

# Macintosh CPU and Display

# Computer and Monitor

# Quadra 840AV

PROS: The speediest Mac CPU currently available; basic multimedia tools all in one package; decent PlainTalk speech recognition; DSP chip for parallel processing of audio and video. CONS: Limited third-party software support; some hardware and software incompatibilities; RAM hungry; RAM upgrades difficult to install. COMPANY: Apple Computer (408/996-1010). LIST PRICE: 8/230, 1MB VRAM, Ethernet \$4069; GeoPort Adapter \$129.



# AudioVision 14 Display

PROS: Integrated audio and video; good picture; good sound; decent microphone. CONS: Screen much too small for multimedia work. COMPANY: Apple Computer (408/996-1010). LIST PRICE: 5769.



PPLE'S NEW QUADRA 840AV IS A technological tour de force, brimming with sophisticated speech-recognition and audio-video technology. Building on the fast, slick, attractive Quadra 800 design, Apple has packed the same case with a 40MHz 68040 CPU and an AT&T 3210 digital signal processor (DSP). The DSP handles the sound, telecommunications, and video tasks, including Apple's PlainTalk voice-recognition technology. The 840AV also incorporates a number of performance optimizers, such as DMA (direct memory access) and the new SCSI Manager (version 4.3), which supports asynchronous tasks. The expansion slot supports the new, speedier NuBus 90 standard and includes a Digital Audio Video (DAV) connector for use



with third-party adapter boards (expected to be available in the future).

The rear panel on the 840AV has some connections reminiscent of a video-cassette deck. In addition to the usual set of Macintosh jacks, the 840AV sports both Composite RCA and S-Video ports. It supports the major video standards—NTSC, PAL, and SECAM—offering international video compatibility.

The base model has 1MB of video RAM (VRAM), which will drive a 19-inch monitor with 8-bit color. You can add another 1MB of VRAM for 16-bit color with a 19- or 20-inch monitor and 24-bit color for smaller screens. If you're looking for large-screen 24-bit color, you'll have to buy a third-party video display adapter.

In addition to System 7.1 and Quick-Time, the 840AV comes with Apple's new PlainTalk speech-recognition software; Video Monitor, for displaying video images on the screen; Fusion Recorder, for capturing video images; and the Open Scripting Architecture (OSA) component of CE Software's QuicKeys 3.0, which lets you use voice-activated macros through AppleScript or QuicKeys.

Apple hasn't forgotten that the little things matter as well. At long last, it offers an intuitive way of turning the computer off that won't confuse novice Macintosh users. You can still select the Shut Down command, but you can also shut down by turning the front-mounted power switch off, or by pressing the power switch on your Mac's keyboard, without endangering your data.

# How the 840AV Fares

You'll quickly realize that the basic 8MB RAM configuration of the Quadra 840AV isn't enough. Plain Talk itself can easily gobble up 3MB or 4MB of RAM, depending on the voice macros you've created.

If you have System extensions that swell the basic system size to 4MB or so, you'll find little elbow room in which to use a RAM-intensive graphics program. Apple provides the high-end versions of the 840AV with a standard 16MB of RAM.

Apple's new scheme of putting system software resources in ROM, and the company's hardware machinations to eke out as much performance as possible, haven't been entirely painless for thirdparty manufacturers. Monitors that "sync on green" (provide horizontal synchronization on the green video signal) won't work properly with the new AV Macs. Some video boards may need ROM upgrades to be compatible with the Nu-Bus 90 format. I've run across a smattering of reports about software problems, too, with products including Adobe Type Manager, Apple's PC Exchange, Global Village's TelePort software, Stac Electronics' Stacker for Macintosh, and others. Many of these products will be updated by the time this review is published. If you're in doubt, call the vendor or manufacturer about compatibility issues to avoid any nasty surprises.

The applications that ship with the 840AV mainly demonstrate the possibilities of the technology and are not fullfeatured realizations. For example, although you can capture the full frame of a video image, you cannot capture a moving video picture, except at low frame rates, without a third-party adapter board. Also, the supplied QuicKeys 3.0 software's functionality is limited to its Open Scripting Architecture, which enables you to activate macros by voice. You have to upgrade to the full program for the rest of its macro-creation capability.

You can display a video image from a camcorder, laser-disc player, or VCR (or even your TV set) in its own window, and at the same time prepare a spreadsheet or word processing document, without suffering any performance hit that is noticeable.

Apple's ads for the AV Macs emphasize the PlainTalk feature, which enables you to issue voice commands to activate basic computer functions, such as "Computer, restart" or "Computer, close window." You can also trigger macros by voice, have the computer read selected text for you, and even have it respond to your questions with preprogrammed answers. During my tests, PlainTalk followed most of my commands (made in the large and somewhat noisy Macworld Lab), but whenever I asked the 840AV to "Shut down," it opened the Sharing Setup control panel instead. Plain Talk at this stage isn't trainable, but you can make some adjustments to its recognition threshold. The artificial voices produced by the 840, however, still sound artificial. After the excitement wears off, you might find yourself going back to the keyboard and mouseat least for now. Once PlainTalk is fully developed it will be able to take over more and more tasks now done by hand.

The Macworld Lab benchmarks indicate that the 840AV performs slightly faster, overall, than the Quadra 800. More surprising is that an 800 equipped with DayStar's \$399 Fast Cache Quadra PDS board (with 128K of ultrafast RAM) can approach, and in most cases exceed, the performance of the 840AV (though without the AV's fancy audio and video capabilities). The 840AV, although fast, lacks the performance-boosting memory-interleaving capability of the 800 (which works when two or four SIMMs of the same capacity and speed are installed).

# **GeoPort Observations**

Apple's \$129 GeoPort interface allows you to use the 840AV as both a telephone and a modem. Apple's Express Modem software (an updated version of the software that ships with Apple's Express Modem for PowerBooks and Duos) emulates a 9600-bps V.32 modem, though it seemed a little finicky at getting reliable connections. With 14,400-bps modems about to drop below \$200 now, however, you may opt to skip this convenience, or wait until a third-party publisher provides faster throughput. The 840AV also has ApplePhone software, which allows you to place and receive calls on your Mac and keep a phone log.

# The AudioVision 14 Display

The screen is Apple's 14-inch RGB Trinitron, but the rest of the package is anything but conventional. At the bottom of the case sit two loudspeaker grills, with several digital controls between them to control contrast, brightness, volume level, speaker muting, and the microphone. The mike's grill is a part of the front bezel, sitting just above the screen.

The speakers are optimized for nearfield use, unlike home audio systems, which are designed for the best listening point to be several feet in front of the speakers. The sound quality is surprisingly rich and full-bodied for such small speakers, although I wouldn't suggest that you throw out your stereo just yet.

The microphone recorded sound cleanly and crisply. The picture was a near match to the regular 13- and 14-inch RGB monitors Apple has produced, but for the kind of multimedia work the 840AV is designed for, the AudioVision is just too small. One hopes that both 16and 19-inch AudioVisions aren't too far off in Apple's production plans.

# Summing Up

Anyone who has accused Apple of losing its touch for innovation should look to the 840AV as a promise of the future of audio and video on personal computers. Even though some of its nifty audio-video features need further development, the 840AV is the best all-around Mac yet. It's very fast, fun to use, and will help you get your work done in a more productive fashion-and isn't that what it's all about? -GENE STEINBERG

#### Quadra 840AV: How Fast Is It? CORE PERFORMANCE INDEX BUSINESS-SYSTEM PERFORMANCE TIMES Times as fast as a Classic (Classic = 1.0) Times are in seconds. Shorter bars are better Use these standard ratings of overall perfor-Use these results to compare the performance of systems for different types of real-world mance, based on a core test suite, to compare business tasks. The results can be compared with any other Macworld Task-Performance Times systems across classes. for Business Systems. Video-Display Floating-Point Common Scientific Processor **Drive-Access** Scientific recalcula-Typical business tasks We added to the File open in Adobe Vertical scrolling in Best result in test. Several tasks in Adobe Products are arranged in in Microsoft Excel and common tasks several Photoshop, Aldus Free-Photoshop, Microsoft Microsoft Excel and tions (which use Word that use the scientific calculations Hand, Microsoft Excel Excel and Word; and Word, and floating-point math) decreasing order of overall in Microsoft Excel. performance. Mac's processor, that use floatingand Word, Claris Filedisk-based sorts in QuarkXPress. drives, and video Maker Pro, and Claris FileMaker Pro point math. display. QuarkXPress. Quadra 800 w/DayStar Fast Cache Quadra 840AV 118.1 49.1 Quadra 800

# Apple Newton MessagePad

# Personal Digital Assistant

PROS: With user's cooperation, handwriting recognition actually works; storing data as objects helps search capabilities; unique Assist function anticipates standard chores. CONS: Internal software needs more work; most third-party software not yet available; needs longer battery life. COMPANY: Apple Computer (408/996-1010). LIST PRICE: \$699; Newton Fax/Modem \$149; Connection Kit for Macintosh \$129.



F WHAT USE, SIR, IS A NEWBORN baby?" Michael Faraday supposedly said to a businessman who remarked that one of Faraday's early experiments in electromagnetism seemed pretty pointless. It helps to keep this quote in mind when evaluating the Newton Message-Pad, Apple's latest premature offspring. Using the Newton, you can see a universe of future possibilities-during your first afternoon you'll think of three new applications you'd like to see. But those applications don't exist yet. Apple got nearly everything right about the Newton except the release date, producing a first few months of disparaging press (cartoons, even) and hundreds of disgruntled customers coast to coast.

This review refers to version 1.04 of the MessagePad software and version 1.0 of the Newton Connection Kit for Macintosh. Many of the early complaints about the Newton have been fixed in 1.04, and the Connection Kit lets you do your heavy start-up data entry (name files, first month's calendar) with a Mac screen and keyboard. I just missed getting the version 2.0 upgrade of the Connection Kit (free to 1.0 users), which will let you translate data files into Newton filesthis kind of software capability should have been available at launch but wasn't. The unit I reviewed was also electromechanically perfect, with no freeze-ups, AC adapter glitches, or other flaky electrical behavior.

# **Getting It Write**

The first issue, of course, is whether this thing can actually read handwriting.

If you walk up to a Newton and sign your name, the probability is less than 10 percent that the Newton will read it correctly. There are three reasons for this. First, your handwriting is essentially a font, and the Newton hasn't been trained in your font yet. Second, your name is unlikely to be in the Newton's dictionaries, which it consults to make a probabilistic guess at word identification. Finally, your signature is likely to be the least "normal" bit of handwriting that you do—look at the individual letters and compare them with the same letters in other words that you write and you will see that a signature is usually quite distinctive (that's why they don't ask everyone simply to write albatross on credit card forms).

However, if you embark upon a cooperative venture with the Newton's hand-writing-recognition software, you will find that it eventually recognizes your slightly-Newton-adapted writing with about 96 percent accuracy, and that you can find substitute words (ones that are somehow easier for the Newton to rec-



Apple Newton MessagePad

ognize) for the remaining 4 percent. Cooperative implies four basic steps. Under Preferences in the Extras drawer, you must first set the sliders under Handwriting Style for spacing and recognition speed—there's a trade-off between speed and accuracy, since higher accuracy requires more time-consuming match analysis. Then you go through the Letter Styles in Preferences, picking the letters that look like your writing. The third step is spending about a half-hour in the Handwriting Practice section, which offers you insight into the mechanics of the recognition process by showing you the Newton's conclusions and reporting statistical near-misses. Finally, it helps to play a few hours of the game Calligrapher, from the same Russian company that sold Apple the recognition algorithms, and then review the material in Instructor (these are both on the Newton's Getting Started card).

If you do all this and additionally resign yourself to typing in technical terms, specialty words, and the names of your friends on the pop-up keyboard screen and saving them in your user dictionary, you will have a system that's quite acceptable at reading handwritten notes. On a sample dictionary of 100 biochemical, engineering, and geology terms, and Macworld editors' last names, the test Newton read 99+ percent correctly. As an index of this software accomplishment, the Newton does better at recognizing handwriting, after training, than most OCR programs do at reading scanned printed material. The advantage incorporated in the Newton software is timing recognition-whereby the program isn't just reading a bitmap, it's looking at the order of appearance of character features. This is a problem if you habitually pause in the middle of words and never cross

> t's, but it makes highly accurate recognition possible if you make a few compromises with the Newton Way. This timing recognition may mean that the big winner in the personal-digital-assistant game is Apple's manufacturing partner, Sharp. Japanese written characters are set down in a precise stroke order, and bad handwriting is not a source of personal pride in Japan, so Sharp may be able to offer nearly 100 percent recognition with no special machine training.

Some points in recognition remain puzzling, however. There seems to be little chance that the Newton will ever read the word I'll correctly (I tested this with eight users, resetting the recognition training each time). The Newton recognizes the replacement phrase "I will," a seemingly similar collection of loops, nearly 100 percent of the time. Recognition of paragraphs is inconsistent, and it takes extra skill to get punctuation right. At the Handwriting Style recognition setting that's fast enough for the user to take notes in an interview, accuracy becomes unacceptable. Many users report turning off the handwriting recognizer for fast note-taking, but this just saves an image of the handwriting that the Newton can't recognize later. As a helpful hint for the speed-obsessed, please note that if you turn off the Newton's sound, you can clip along on the pop-up keyboard at nearly 20 words per minute, with practice. With Panorama-style "clairvoyance," the keyboard could be an important asset.

Geometry recognition is a simpler task, and the Newton does a very good job of cleaning up circles, lines, and polygons. Since these drawing parts are stored as objects that can be positioned independently, it's fairly simple to construct small but precise diagrams. You can also turn off geometry recognition to make notes of free-form sketches, but the tidy appearance of "recognized" forms makes it likely that you'll leave recognition working most of the time.

Objectivity

The data-handling section of the Newton consists of a general-purpose Notepad, a Names file, and a Calendar. Since pieces of data are stored as objects rather than in structured files, it's easy for the Newton to swap data among the three categories. Thus, in the Notepad, you can write "Call Bill Hansen," tap the Assist icon, tap Do, and the Newton will look up Bill Hansen's phone number in the Names file and dial the phone number, either through the Newton fax modem or into a standard phone through the Newton's tiny speaker. This impressive facility was marred in the test Newton by a tendency to insert the number 16 at the beginning of each telephone number it found in the Names file (we simply handerased the 16 each time, but further system patching beyond version 1.04 is needed). Assist is full of useful tricks: you can also write "Meet Tim Schweig at 5 PM on Oct. 7," tap Assist, then Do, and then tap Schedule in the next dialog box, and the Newton will pop "Meet Tim Schweig" into the correct spot in the Calendar (and set an audible alarm if you like). You can drag information from any of the three data files to another file; there's a simple filing system for organizing notes into folders, and you navigate the folder system as if the Newton were a miniature Mac.

The Connection Kit, besides offering a delivery method for system updates and third-party software, enables you to archive your Newton information for



**Keeping in Touch** Connection Kit 1.0 lets you enter basic files, such as name lists and phone numbers, and notes at a Mac keyboard for downloading to the Newton.

backup, enter data at a real keyboard, and synchronize your desktop files and Newton files. This last function is important to the real business use of the Newton, and will be especially so when version 2.0 ships, allowing direct import of files from other applications. The point of handwriting recognition is not to allow you to scribble in 400 names, phone numbers, and addresses—the point is to let you make easy, small additions and modifications to your main desktop contact database and your calendar when you're away from your desk.

# Hard Wear

Since the Newton isn't really at its best as a free-standing Filofax replacement but rather as a portable window on the data in your larger computing environment, the Newton Fax/Modem is an important part of the picture (users report that other v.32bis fax modems also work with the Newton). With the fax modem (2400-bps modem, 9600-bps fax) you can currently send out documents from the Newton, and Newton's own E-mail facilities are scheduled to be set up by the end of the year. E-mail, messaging cards for the PCMCIA card slot in the top of the Newton, and wireless fax modems under development will allow business documents to slosh back and forth between business offices and Newtons out in the field. For now, the fax modem performs

adequately, generating a nice cover sheet if required. Received faxes print somewhat smaller than the standard page, but the Newton's fonts generate a crisp, businesslike message.

The Newton's future as a mobile business partner may be compromised at the moment by battery problems, a theme familiar to PowerBook users. Curiously, I got nearly a week of use, 3 to 4 hours a day, from a set of alkaline batteries, but the battery indicator showed NiCad rechargeable packs running down to 50 percent after 2½ hours. This is a crucial parameter because the Newton appears to lose IQ points when the batteries run down—recognition takes longer and accuracy decreases.

The batteries also run down faster when the Newton drives a printer (I used an Apple Personal LaserWriter 300) or writes to a PCMCIA flash-storage card (the Newton 2MB card). A bigger, better battery solution is needed if travelers are going to use their Newtons with portable ink-jet printers, and flash storage is also critical because the stock Newton offers just 250K of free RAM.

# Summary

In a few months, brave pioneers will introduce software to make the Newton useful far beyond the DayTimer/Rolodex/portable-fax level (for a list of Newton software in the works, see News, in this issue). Software now being demonstrated includes special calculators to augment the Newton's basic calculator and financial formulas, a spreadsheet, studentrecords software for teachers, listings and loan-calculation software for Realtors, expense-report and sales-contact software for business purposes, and accounting/ time-billing software for professionals. For these applications, the fact is, the Newton is perfect. To single out just one, the Newton will be the greatest handheld calculator the world has ever seen, with pen entry of numbers and the computing scope of a small Mac. And if someone fabricates a decent battery pack, a Newton/messaging card/portable-printer combination will be the least obtrusive and most helpful piece of technology ever offered to Realtors. It won't, in contrast, revolutionize life for the journalists who have expressed their dissatisfaction-if an editor wants 2000 words tomorrow, it's time for a PowerBook, not a Newton. Although Apple released the Newton about four months early, and marketing claims led to mistaken expectations about the details of handwriting recognition, the Newton MessagePad is an intelligent piece of work with an impressive variety of serious business uses .- CHARLES SEITER

# **NEWTON SECRETS**

he Newton isn't a Mac, but Apple's team is up to its usual tricks. Here are three of the surprises they've buried in the MessagePad.

- Hold the stylus tip steadily on the clock icon at the bottom of the Note Pad screen. You'll be shown the internal temperature of the Newton.
- Write About Newton and tap Assist. There are the names of the Newton designers . . . and what a font!
- Tap the Find button. Enter Elvis. Tap All. The Newton will tell you, and show you on the map, where the King was last seen. (It's different every time.)

  —David Pogue

# The most complete hand scanning system you can find in a box. Or a store. Or in town. Or in the world for that matter.

Quickly scan text and images into your computer with the OmniScan 256 grayscale scanner. OmniScan produces true 8-bit grayscale at 400 dpi and features advanced illumination technology and solid tracking for the most accurate scanning.



With OmniScan, you can send, receive, OCR, and compress faxes right from your computer using Caere's FaxMaster technology. All you need is a fax modem. OmniScan does the rest.



Scan directly into any application with OmniPage Direct. Direct employs Caere's AnyPage technology to provide the most accurate OCR possible. Font sizes, styles, and formats are no problem for OmniScan Direct's OCR.

Image Assistant GS makes
grayscale image editing and
enhancement a snap. The "Assist
Mode" displays sample image variations right on your
computer screen. All you have to do is choose the one
that works best for you. And to help you add your own
personal touch to images, Image Assistant GS features
a complete set of editing tools and features.

Caere's full integration of grayscale scanning, OCR, image editing, and fax capabilities make OmniScan the most complete hand scanning solution found anywhere. Now that you have discovered it, here's how to locate the dealer nearest you:

1-800-535-SCAN.

Featured at these resellers:



Macvariations





For Your Information.

Caere and OmniScan are registered trademarks of Caere Corporation. The Caere logo, OmniPage Direct, AnyPage, Image Assistant, and FaxMaster are trademarks of Caere Corporation. © 1993. All rights reserved.

# Finale 3.0.1

# Music-Notation Program

PROS: Comprehensive; interface improved over previous versions; exemplary documentation. CONS: May be too complex for some users. COMPANY: Coda Music Technology (800/843-2066). LIST PRICE: 5749.

 $MW \star \star \star \star$ 

INALE WAS THE FIRST MACINtosh product to perform all the functions of musical composition and publishing, from input to playback and part extraction-a revolutionary accomplishment heralding the birth of a new product category. But it burst on the scene in 1988 to mixed reviews. Back then, a program that required a manual was considered an apostate that veered from the True Macintosh Path. People objected to Finale's learning curve and its confounding array of nested dialog boxes.

Coda Music Technology quickly set about clearing up the program's problems. After five years and several versions, the result is Finale 3—the new standard against which all other music-notation

products must be judged.

Since version 2, Finale has come with great documentation. Version 3 boasts three superb volumes-nearly 1000 pages-printed on recycled paper. The Installation and Tutorials volume is the best I've ever seen for a piece of software this complex. The tutorial exercises make third-party exercise books unnecessary. The two other tomes organize the material by musical terms and by program functions. The index at the end of each book wisely covers all three volumes, and the visual index tells you what to look up even if you don't know the name of some musical squiggle or doodad.

A 1988 veteran of Finale would scoff in disbelief to hear this, but Finale's program interface is splendid. Gone are the nested dialog boxes, the hidden clicks, the ridiculous asterisked text buttons. Instead there's a floating, reshapable tool palette; online help everywhere; and convenient controls for navigating measures, pages, and staff layers.

The program is 32-bit clean, balloonhelp rich, background-processing happy, with technical help available by phone, fax, CompuServe, and America Online. Finale has always come with a free Post-Script music font; now you get a True-Type version too. (Unlike in any other program, you're free to substitute Sonata, Crescendo, or any other font you prefer.)

Some of the new features are potent. The number of windows you can have open is limited only by your computer's RAM. You can view different scores, different portions of the same score, a full score and extracted part, or all of the above simultaneously. Playback controls and MIDI instrument assignments have been elegantly simplified. You also get a library of 35 templates, from lead sheet to full orchestra. It's like having a music paper emporium on your hard drive.

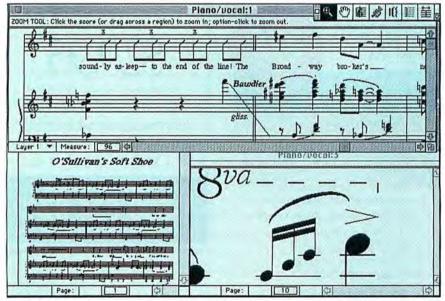
Most dramatically, however, Finale 3 offers something called Smart Articulations. These are musical markingsaccents, staccatos, fermatas, and the like-that jump into place on the note you click, perfectly centered, perfectly distanced, and (if you wish) placed to avoid overlapping the staff lines. Furthermore, these markings move as their associated notes move, and even flip upside down if the stems change direction. (Yet, unlike in rival programs, you're still free to move markings anywhere you wish.) The improved Mass Mover tool makes it easy to add articulations to groups of notes and, because this tool can now select partial measure, its usefulness is quadrupled.

The Shape Designer, Finale's builtin draw program, has been completely overhauled. You use it to make up your own musical symbols, such as harp pedal diagrams and little "watch me!" eyeglass icons. The new Shape Designer is a mini-MacDraw, easy enough for a child to use.

The manual covers over 75 other enhancements, new features, and interface improvements. All of this joy doesn't come without a price, however. Users of the initial 3.0 release were distressed with its nasty bugs; many users scurried back to Finale 2 until Coda sent the cleanedup 3.0.1 version to registered users. MusicProse (Coda's midrange music program) and Finale for Windows can't open Finale 3 files. Until those programs are similarly upgraded, converting their documents to Finale 3 format is a one-way street. And worst of all, Finale 3 is slower than its predecessors, making use on a Mac Plus hopeless and on an LC II impractical for anything but small scores.

So, as with any professional product on the Macintosh, think carefully before buying; while Finale makes the mechanics of composition easier, it won't make you a composer, an arranger, or a copyist. If your needs don't merit the investment in time, money, and training, consider an intermediate-level program such as MusicProse (which has un upgrade path to Finale) or Passport's Encore.

On the other hand, Finale still does what it's always done best-turning your live keyboard performances instantly into standard sheet music; printing gorgeous scores; converting MIDI files from your sequencer program into standard notation-and it's now infinitely more pleasant to use. It's still the only program that uses calibrated width tables for spacing the notes of the music; still one of the few to let you freely move or resize any musical element, from a single note to the entire score; and still the one least likely to limit your notational ambitions, no matter how bizarre. If you find you have high-end needs for notation, no product on the market can match Finale stride for stride. Yet .- RICHARD FENNO

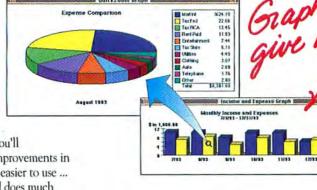


Multiple View One of Finale 3.0's many improvements is simultaneous views of the same score or different scores, limited only by your computer's RAM. Here, the same score is shown in page view (lower left), normal size (top), and zoomed in (lower right).

# New Quicken 4 will radically improve your financial organization in minutes.

There are over 4 million people managing their finances ... tracking their investments ... even running their small businesses with Ouicken. So we knew an upgrade would have to be good.

Really good. That's why you'll find over 100 important improvements in Quicken 4. Now it's even easier to use ... saves you more time ... and does much more. And it's still one of the best bargains



loan payments) twice. Quicken even enters regular payments and deposits for you - so you get up-to-date, organized records of recurring transactions effortlessly.

# Quicken 4 does more

Quicken 4 makes even complex financial situations simple. It now tracks investments with ease. Calculates loan amortization with variable interest rates. Performs "what-if?" calculations for powerful financial planning. It even provides your Quicken Visa® card statement electronically. So you always have a complete financial picture at your fingertips.

# Quicken 4 shows you more

Quicken 4 also gives you new insight into your finances. Vivid 3-D graphs make it easy to monitor your spending patterns more accurately. And

# Over 100 new features & improvements

- Investment tracking
- Loan amortization
- · QuickFill™ automatic data entry
- · Automatic transaction entry
- · Graphs income/expense, net worth, budget, investment performance
- QuickZoom<sup>™</sup> for reports and graphs
- · Report improvements
- · Financial planners college, investment, loan, retirement, mortagage refinancing
- · Tax Schedule reports and links
- IntelliCharge<sup>™</sup> electronic Visa<sup>™</sup> statement
- · And much more!

QuickZoom™ shows you numbers — from a spending category to an individual transaction - with just a doubleclick of your mouse.

# Quicken 4 means business

Quicken 4 doesn't stop with personal finances. Our new Business User's Guide will show you how Quicken 4 can handle things like tracking projects by

job or client. Accounts payable and receivable. And, of course, expense tracking and allocation.

# Quicken 4 saves you more

Perhaps best of all, Quicken 4 remains a bargain. And it comes with a 60-day money-back guarantee. Plus, if you're a previous owner of Quicken, you're eligible

for a \$10 rebate when you purchase Quicken 4 from your favorite retailer.

So try new Quicken 4 - and see a radical improvement in your finances.



Upgrade for only

Plus \$5 shipping & handling, US\$8 in Canada Or buy from your favorite retailer and get a \$10 rebate.

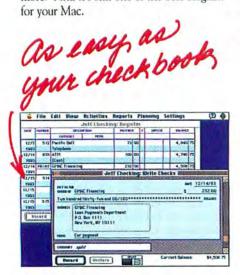
Purchase Quicken 4 for \$69.95 Or find Quicken 4 for even less at retailers everywhere.

To order direct, call

24 hours a day, 7 days a week, U.S. and Canada

Exp. January 30, 1994

©1993 Intuit Inc. Quicken is a registered trademark and QuickZoom, IntelliCharge and QuickFill are trademarks of Intuit Inc. All other trademarks or registered trademarks are the property of their respective holders. IntelliCharge, loan amortization and tax features work only in the U.S. Requires 2 MB memory, hard drive, and System 6 or later. System 7 savvy. All prices are in U.S. funds. For more information and ordering outside the U.S. and Canada, call 1-415-858-6095.



# Ouicken 4 is easier

If you can use a checkbook, Quicken 4 is a no-brainer - you can use Quicken 4 without ever opening a manual. And because Quicken 4 categorizes all your spending - and income - you'll see at a glance where your money goes.



# Quicken 4 saves you more time

Now you can take care of your bills in a fraction of the time it takes by hand. With QuickFill," you'll never have to type the same transaction (like your monthly

# Turbo 040

# **Accelerator Card**

PROS: Good performance; three-year warranty. CONS: Expensive. COMPANY: DayStar Digital (404/967-2077). LIST PRICE: \$1899; adapter card \$119.



YEAR AGO, AN ACCELERATOR CARD with the performance of the 40MHz Turbo 040 would have been a success even with a hefty price tag. Nowadays it's a lot tougher to justify spending \$1899 (plus \$119 for the adapter card, if required) to upgrade obsolete systems like the Mac IIci or the IIcx. With the current CPU price cuts and Apple's 33MHz Quadra 650, upgrading to a faster Mac seems to be a better choice.

The 40MHz Turbo 040 is equipped with the fastest 68040 processor available today-the same one used in the new Quadra 840AV. The new board has the same design as the other Turbo 040 boards from DayStar (the 25MHz and 33MHz versions). But unlike its slower siblings, the 40MHz version comes standard with 128K of secondary cache to boost performance. The 68040 processor already has two built-in caches, one for instructions and one for data. But due to their small size-4K each-the CPU cannot avoid frequently accessing the motherboard memory for instructions or data. If a secondary cache is available, the processor will look there for instructions or data before accessing the slower motherboard memory. While the secondary cache (also called static RAM) is not as fast as the built-in cache of the 68040 chip, accessing and retrieving information from the static RAM is still a lot faster than going to the motherboard memory. Macworld Lab found up to a 50 percent performance improvement with the secondary cache turned on.

As our benchmarks show, the 40MHz Turbo 040 was at least as fast as, if not faster than, the fastest Mac available, in processor-intensive routines such as recalculating a spreadsheet, sharpening a Photoshop image, and finding and replacing words in text. However, when it came to disk- and video-intensive routines, the Quadra 840AV, 800, and even 700 performed much better than the Turboequipped IIci. The slower SCSI port and video on the IIci gave the Quadras the edge on overall I/O performance. To get a Hci equipped with a Turbo 040 to achieve the video and disk performance of a Quadra, you need a faster video card and a SCSI accelerator-rather costly additions. When we tested the Turbo 040 with the Ilci's internal video, the overall speed of the Turbo 040 was a bit slower than that of the Quadra 800. Using an E-Machines ColorLink card instead of internal video, the Turbo 040 was slightly faster than the Quadra 800.

Installation of the Turbo 040 is straightforward. For IIci, IIvx, or Performa owners, simply open up your CPU's cover, find the Processor Direct Slot, and insert the board into the slot. For other CPUs, you will need the \$119 adapter card from DayStar. When you boot up your Mac, instead of the usual happy Mac, you'll see one with a tiny Turbo 040 across it, which tells you the board is up and running. To activate the Turbo 040 and manage the cache, you use

the QuadControl control panel. The AutoCache lets you tailor your Turbo 040 for different applications. For example, you can set up the Turbo 040 to turn off its cache if your application doesn't support the 68040's Copy Back cache mode (the fastest mode) and turn it back on when you quit the application. It also has a feature called Enhanced PowerMath that speeds up mathematical operations by trapping SANE calls and redirecting them to the 68040 floating-point unit.

As with other DayStar products, we experienced only minimal compatibility problems. The DayStar Turbo 040 is currently the only 68040-equipped board that supports virtual memory-not exactly an easy engineering task, since it involves patching some of Apple's memory-management routine. There is a minor bug when virtual memory is turned on, however: the AutoCache feature is disabled-a nuisance if you have applications that don't support some Turbo 040 options. You can manually deselect these features, though. And as is true for other 040 cards, you won't be able to use A/UX with your Turbo 040 card.

The documentation includes detailed color photos that guide you through installation. The Turbo 040 carries a product warranty of three years, plus a toll-free tech-support line and an upgrade path for moving up to future products.

DayStar usually delivers accelerator products with excellent performance at reasonable prices. This time, however, its Turbo 040 seems overpriced. DayStar has indicated that as the 40MHz 68040 chip becomes widely available, the price of the chip will drop, in turn leading to cheaper boards. But for the time being, trading up to a faster Mac seems a more logical solution.—MARK HURLOW

# MW

# DayStar 40MHz Turbo 040: How Fast Is It?

#### CORE-PERFORMANCE INDEX BUSINESS-SYSTEM PERFORMANCE TIMES Times as fast as a Classic (Classic = 1.0). Use these standard ratings of overall perfor-Use these results to compare the performance of systems for different types of real-world mance, based on a core test suite, to combusiness tasks. The results can be compared with any other Macworld Task-Performance pare systems across classes. Times for Business Systems. Video-Display Common Scientific Processor **Drive-Access** Floating-Point Best result in test. Typical business tasks We added to the Several tasks in Adobe File open in Adobe Vertical scrolling in Scientific recalculain Microsoft Excel and common tasks several Photoshop, Aldus Free- Photoshop, Microsoft Microsoft Excel and tions (which use Products are arranged in Excel and Word; and floating-point math) decreasing order of overall Word that use the scientific calculations Hand, Microsoft Excel Word, and QuarkXPress performance. Mac's processor, that use floatingand Word, Claris Filedisk-based sorts in in Microsoft Excel Maker Pro, and drives, and video point math. QuarkXPress. Mac IIci with DayStar 40MHz Turbo 040 A 116.4 66.0 Macintosh Quadra 840AV 16.5 118.1 59.2 49.1 17.5 Macintosh Quadra 800 16.4 26.8 129.1 54.1 52.0 19.1 Mac IIci with DayStar 40MHz Turbo 040 8 128.2 64.3 15.9 27.9 52.8 73.1 Macintosh Quadra 650 C 136.4 57.4 20.5 Macintosh Quadra 700 11.9 19.4 172.3 62.8 26.3 Macintosh Ilci

All Macs, except the Quadra 650, were tested with 16MB of RAM. \*Tested with E-Machines ColorLink Video Card. B Tested with internal video. C Tested with 8MB; with 16MB of interleave memory, results should be on a par with those of the Quadra 800.

Only VideoVision Studio lets you input, capture, display, edit, add special effects, mix sound and output full-screen video at 30 frames Now Full Screen and 60 fields-per-second.

Radius' VideoVision Full Motion, No Compromise Studio gives you a complete, no compromise, professional quality, 24-bit, QuickTime compatible desktop video production system for less than \$4,500.

Desktop Video. And for that you get full-screen, full-motion, flicker-free videos directly from your Macintosh.

No other desktop system even comes close to offering you such an incredible array of capabilities, so incredibly priced.

And right now, VideoVision Studio comes specially packaged with the hottest video

editing and effects software, Adobe Premiere™ and VideoFusion".

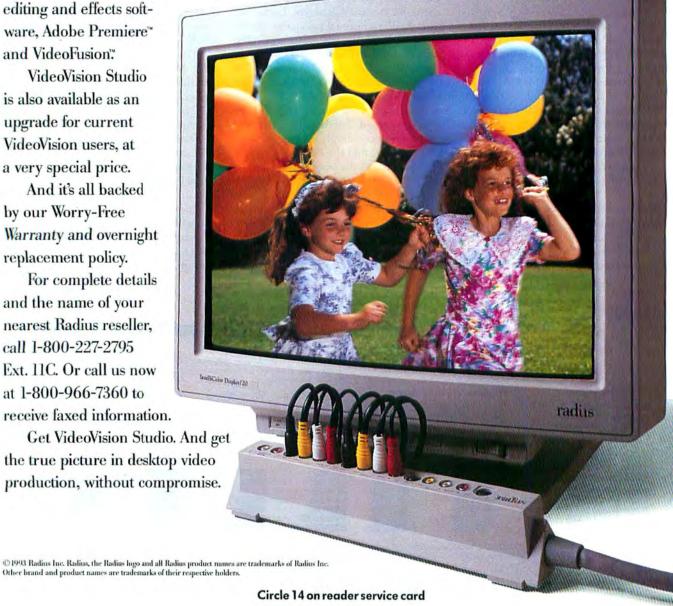
VideoVision Studio is also available as an upgrade for current VideoVision users, at a very special price.

And it's all backed by our Worry-Free Warranty and overnight replacement policy.

For complete details and the name of your nearest Radius reseller. call 1-800-227-2795 Ext. 11C. Or call us now at 1-800-966-7360 to receive faxed information.

Get VideoVision Studio. And get the true picture in desktop video production, without compromise.

VIDEOVISION STUDIO **radus** 



# Two 35mm Slide Scanners

# Film Scanners

# Coolscan LS-10e

PROS: Accommodates loose film; variable focus; excellent image quality; quiet operation.

CONS: Verbose documentation. COMPANY:
Nikon Electronic Imaging (516/547-4200).

LIST PRICE: \$2600; internal model \$2300.



# ScanMaker 35t

PROS: Accommodates loose film; fast scanning. CONS: Weak software. COMPANY: Microtek (213/321-2121). LIST PRICE: \$1999.



Nikon's Coolscan LS-10e are desktop scanners for working with 35mm film. The toaster-shape ScanMaker measures about 71/8 by 71/4 by 11/4 inches. The Coolscan comes as an internal model that fits into the drive port of the Quadra 900 and 950, the Centris 650, and the IIvx, and as an external unit (reviewed here) that measures 51/4 by 127/8 by 2 inches.

These scanners look like very simple devices. Each has SCSI-address controls located conveniently on the rear panel and status lights on the front. Both scanners are principally for handling mounted 35mm slides, but they also come with holders for loose film. The ScanMaker's holds more and is easier to use than the Coolscan's. But the Coolscan's holder is sturdier and holds the film flatter.

Inside, the two differ more significantly. Like most desktop scanners, the ScanMaker uses a fluorescent light source, which needs to warm up for optimal performance. The unit also has a cooling fan, which produces moderate levels of noise. The Coolscan, in contrast, uses a three-part LED light source with one LED each for the red, green, and blue light required to create a color image. This has the triple advantages of being



Nikon's Coolscan LS-10e (left) and the Microtek ScanMaker 35t

cool, needing no warm-up, and since it needs no fan, after a few minor start-up sounds being as noisy as the average rock.

The most notable difference between these two devices is in their software controls. In addition to plug-in filters that let you scan directly into Adobe Photoshop, both scanners come with simple standalone modules that provide preview scans, a cropping tool, and controls for resolution and image size, brightness and contrast, gamma curves, and histograms. The ScanMaker also comes bundled with Photoshop Limited Edition.

In design and implementation the Coolscan software has a slight edge. For instance, its preview scan is much larger and faster than the ScanMaker's, making it easier to see what corrections an image may need. The ScanMaker's preview is only about the size of a 35mm slide, and the zoom tool magnifies only details. The ScanMaker's preview also takes about twice as long as the Coolscan's—about 2 minutes and 15 seconds on average.

The Coolscan software's nicest touch is its real-time focus mode. Zoom in on an area in the preview and the scanner rescans to magnify it, not enlarging the pixels but giving you more of them. Then you use a dial on the scanner to adjust the lens inside the scanner. The image is rescanned and refreshed every few seconds, so you see results instantly. In a second focus mode, the preview doesn't change as you adjust the knob; instead, a slider bar indicates graphically and numerically the precise degree of focus.

Choosing between these two film scanners comes down to deciding whether you value speed over (unedited) image quality or vice versa. The ScanMaker delivers a good image, though tending toward a slight yellow cast and flat exposure (easily mitigated by skilled use of a good image processor). The Coolscan produces remarkably true images, with good detail and color rendition and no noticeable bias toward any single color. On the other hand, even at its slowest setting the ScanMaker delivers a finished image in about half the time of the Coolscan (it

scanned a 5MB file in about four and a half minutes; the Coolscan took about eight). Being biased toward publication, I prefer the Coolscan. For a few extra dollars it delivers an image good enough for applications such as newsprint publications and some types of catalogs.

-MATTHEW NIELSEN

# Now Compress 1.0

# File-Compression Program

PROS: Good compression performance, both in size and speed; Inspector gives excellent control. CONS: Doesn't read Stuffit Deluxe or Stuffit Lite files. COMPANY: Now Software (503/274-2800), LIST PRICE: \$99.



OMETIMES BEING LATE TO THE party pays off, as it has for Now Compress. The program saves hard disk space by compressing files transparently or on demand and by creating archives. Now Compress includes the best features from the market leaders, including Fifth Generation's AutoDoubler and Disk-Doubler, and Aladdin's StuffIt Space-Saver, plus some unique features.

Installing Now Compress gives you a new menu in the Finder and a control panel for settings. All operations are handled from the menu, including compression and decompression, archiving and de-archiving, and creating self-extracting archives. You can also mark files or folders to be excluded from compression. Now Compress comes with three small applications-Archive Now, Compress Now, and Expand Now-that allow you to compress or expand items under System 7 by dragging and dropping them onto icons in the Finder. Expand Now is freeware that you can give to anyone who needs to expand files and archives created with Now Compress.

The program compresses files in memory, then verifies the compressed copy before replacing the uncompressed version. While AutoDoubler changes the icons of compressed files, Now Compress does not; the only way to tell if a file has been compressed with Now Compress is to view the file in the Inspector window.

Inspector is a feature unique to Now Compress that lists all the files and folders on your disk, along with their status. It tells you the uncompressed and compressed sizes for files and folders, and the size percentage saved by compression. You access Inspector from the Now Compress menu, and you can control all of Now Compress's compression and archiving features through a button bar at the top of the Inspector window.

Now Compress compacts files using two methods—Faster and Smaller. As you might expect, Faster mode is a bit quicker, but it doesn't crunch files quite as tightly as Smaller mode. In most cases, continues it makes more sense to use Faster, as Smaller gives only small advantages in size. For example, a 215K uncompressed Excel file was squashed to 99K using Faster and to 86K using Slower.

Macworld Lab tested Now Compress's compression speed and efficiency against AutoDoubler and StuffIt Space-Saver, using 24 files from 7 different applications. Now Compress crunched most files a few percentage points tighter than did the competition but was a little slower at opening compressed applications and documents, usually by a few seconds. The extent of Now Compress's extra compression, while measurable, wasn't very large; for example, on our database test file, AutoDoubler compressed the file to 54 percent of its original size, while Now Compress crunched the file to 48 percent. All of the compression products showed significant slowdowns in launching compressed programs and files over their uncompressed counterparts, but comparisons of compression products showed little practical difference in speed. The spread between the fastest and slowest products in most of our tests was about ten seconds. I found that switching to Now Compress from AutoDoubler did not perceptibly slow my Centris 650 or PowerBook 140.

The Settings control panel allows you to set the volumes that will receive idletime compression, the amount of time the system will wait before compressing, and the amount of time a file must remain unmodified before it's compressed. You can set compression to occur only between certain times of the day (or at system shutdown), and exclude items from compression by label, location, type, or creator. By default, the System Folder and its contents are not compressed. You can also set several preferences for archiving, and pick user-defined hot keys for most Now Compress functions.

The Convert function decompresses files previously compressed in Auto-Doubler, DiskDoubler, Compact Pro, StuffIt 1.5.1, and StuffIt SpaceSaver and converts them to the Now Compress format. Now Compress cannot read StuffIt Deluxe or StuffIt Lite files, so you need to decompress these files with the freeware StuffIt Expander.

Now Compress is a good product. At press time, Now Software was finishing up a free maintenance release that fixes minor bugs and improves compatibility with some applications, mostly disk utilities. As a late entry into the crowded compression market, Now Compress holds its own; it is easy to use, complete, and it compresses as well as or better than other options.—TOM NEGRINO

# Icon-It Pro 3.0.6

# Tool-bar Utility

PROS: Flexible icon editor attaches custom tool bars to all your applications. CONS: Quirky interface and sometimes quirky performance.

COMPANY: Olduvai Corporation (305/670-1112). LIST PRICE: \$129.



F YOU LOVE WORKING WITH ICONS, you'll be in your element with Icon-It Pro. This program can attach custom tool bars to almost any application, including the Finder. The tool-bar buttons or icons represent menu-bar commands, such as opening and printing a document, or items in the Apple menu. You can choose from a library of standard icons or you can draw your own with Icon-It Pro's handy bitmap editor.

Icon-It Pro builds on the same idea as the tool bars in the latest versions of Microsoft Excel and Word, but it has much more flexibility. You create your own tool bar, choose its location and dis-



**Icon-It Pro Editor** The button editor allows you to attach functions to a specific icon and to customize icons using a palette of bitmap-editing tools.

play (vertical or horizontal), and select the number and size of buttons. Also, you can specify space between the buttons and add a frame around them.

Icon-It Pro comes with a one-button installer, which places an extension in the System Folder to manage the tool bars you've created, and installs the application and some additional files, including a library of tool-bar buttons.

The interface is a little clunky and multilayered, but you get used to it. First you open the application to which you want to add your tool bar. Then you launch Icon-It Pro's Switchboard, which allows you to Create or Auto-Create a tool bar. With the latter feature, Icon-It Pro builds a tool bar based on the application's menu commands. (If you don't have enough RAM on your Mac to open

more than one application at once, or you're working under System 6's Finder, Icon-It Pro can create a Menu Snapshot that lets you assign menu options to buttons when the target application is not open.

Once Icon-It Pro generates the tool bar, you have to customize it because not every button will function correctly automatically. You also need to enter the icon editor to build an icon bar from scratch. You double-click on the buttons to bring up Icon-It Pro's icon editor, then link a function to the selected button. You can even link a macro to a button. If you're not completely pleased with the selected icon, use the bitmap-editing tools to change it or create an icon of your own. Icon-It Pro can also extract icons from your favorite applications and add them to your custom tool bar.

When the tool bar is complete, you attach it to the program. As your needs change, you can edit the tool bar and reinstall it in the application.

Once you get past the steps in this process, you'll find that your tool bars work pretty well. Occasionally I had to relink a button to a command to get it to perform the correct operation. When

building a large tool bar and attaching it to an application, I sometimes got a message that I needed to restart the computer to accommodate the new tool bar. According to Olduvai's tech-support people, the Icon-It Pro extension loads memory at start-up based on the number of applications to which tool bars are attached. As you expand your tool-bar repertoire, memory needs may increase.

Although I didn't uncover any outright bugs, there

were a few areas of eccentric behavior in addition to the ones noted above. Whenever I interrupted a screen saver to resume work in a program, the Icon-It Pro tool bar would be all black—it would take a second or two for the screen to redraw and display the regular tool bar. Also, switching from one application to another resulted in a momentary delay before the tool bar reappeared. Olduvai's tech support says the program will perform faster in a future release. I also found that Icon-It Pro didn't deal very successfully with application submenus.

If you're tired of pull-down menus and obscure keyboard-command shortcuts, Icon-It Pro is a useful alternative. And once you get the hang of creating your own icons, it might even be fun.

-GENE STEINBERG

# **MovieMovie**

# Video- and Audio-Capture Board

PROS: Provides audio and video capture on one board; 7-inch form factor; new Sony video chip. CONS: Mono sound input only. COMPANY: Sigma Designs (510/770-0100). LIST PRICE: \$349; with Avid VideoShop \$449.

 $MW \star \star \star \star$ 

T'S BEEN OVER A YEAR SINCE I started QuickTiming, using SuperMac Technology's VideoSpigot board to capture and then butcher my favorite scenes from the Star Trek movies. It's a fairly simple process: drop the Spigot into the Mac's NuBus slot; hook up the video and audio source; launch SuperMac's videocapture application, ScreenPlay; and start capturing. One catch: If your Mac, like my IIci, does not support built-in sound, you need a MacRecorder or other audioinput device-another expense on top of the \$500 board. Sigma Designs avoids this dilemma by adding audio-capture capabilities to its MovieMovie video-capture board, at an excellent price. Unfortunately, because the board supports only mono sound, the effort may be too little, too late.

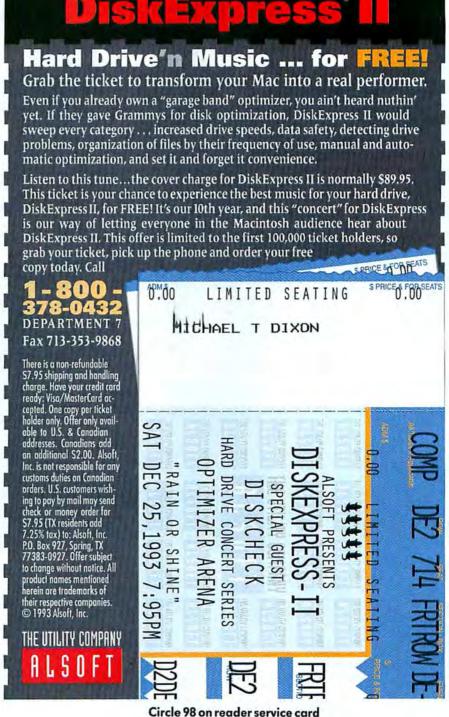
Installing the board is simple, and since it's a 7-inch NuBus board, Centris 610 owners need not be left out. On the other hand, like the VideoSpigot, the MovieMovie lacks the composite RCA video cable you need to connect the video source and the board, and you also must supply the audio cable. The board has a single female RCA connector.

The MovieMovie does come with a simple video-capture application, Screen-Edit, and QuickTime 1.6. ScreenEdit's start-up window is straightforward; three buttons let you play, stop, and record, and the zoom box in the upper right-hand corner of the window lets you change the size of the preview/record window. A floating window gives you controls for adjusting image brightness, hue, saturation, and sharpness. A second floating window provides audio gain and volume controls. The clear and concise documentation offers just enough information about QuickTime so as not to scare the neophyte. If you prefer to do all the capturing and editing in Adobe Premiere or Avid's VideoShop, Sigma Designs also provides MovieMovie Video Extension and MovieMovie Sound Extension.

The MovieMovie is the first board in its price range to use the new chip from Sony that converts the NTSC signal to RGB directly in hardware. In contrast, the VideoSpigot must first convert the NTSC signal to YUV through its onboard Philips chip and then convert YUV to RGB in software. This hardware-based conversion, along with a 512K buffer, gives the MovieMovie board a 15 to 20 percent speed advantage over the Video-Spigot. Unfortunately, you have only two sizes for recording movies: quarter screen (at around 30 frames per second to a fast hard disk or, even better, a RAM disk), or

half screen (at around 25 frames per second). At full screen, you're limited to making single-frame video grabs.

If you've held out this long for an alternative to the VideoSpigot, the MovieMovie may be what you've been waiting for. The price is right, and the addition of on-board audio input is a plus, even if it is only mono. Now, should you buy this board to upgrade your Centris 610 instead of buying a 660AV? Well, that's another review .- DANNY LEE





You can store 21 megabytes\* of data on a single 3M Floptical\* diskette—just right for larger graphic, spreadsheet or backup files. Floptical technology is a practical and affordable way to increase your storage capacity—without giving up the convenience of diskettes.

And with appropriate host adapter and driver software, Floptical drives are compatible with standard 3.5" diskettes.

Consider cost and compatibility. You'll see why 21 megabyte Floptical diskettes are emerging as the new standard in high capacity diskettes. It's another reason why more businesses protect important information on 3M brand data storage products than any other brand in the world. For more information and a complete listing of Floptical drive manufacturers call 1-800-888-1889, ext. 46.

The 3M 21 megabyte Floptical diskette.



# Useful Voice Processor for Mac 1.1v7 Power To Go 2.0

# **Dictation Software**

PROS: Voice-activated recording; automatic pause on playback; adjustable sound-input level. CONS: Fixed-length "tapes"; doesn't work in background; susceptible to crashes. COMPANY: Useful Software Corporation (508/774-8233). LIST PRICE: \$179.95.



1TH USEFUL VOICE PROCESSOR ON your Macintosh you can be a dictator-of the spoken word, that is.

The main drawback is that a sound file consumes about 220K of disk space per minute at a compression ratio of 6:1. At that rate, unless you have oodles of disk space to spare, you still need a tape recorder for long dictation sessions. Useful Voice Processor permits recording at compression ratios up to 12:1, but speech compressed more than 8:1 gets pretty garbled on playback. Regardless of compression ratio, Useful Voice Processor conserves disk space by not recording silences longer than 0.3 second. In fact, it disregards all sounds quieter than the threshold you set.

You control Voice Processor by clicking buttons and dragging sliders, or by means of keystrokes. The interface has some rough edges, such as a pointer that doesn't change to a wristwatch shape when you're waiting, causing you to wonder whether your Mac has crashed. It

Calaboose Theatricals 7-7-1864 Useful Voice Processor 1.1v7 6 Elapsed time: Remaining time: 000:16 Input Volume Rec Rew Stop FF Pause Play Rate: 100% Rinna Jakes, drunk and disorderly, but excessively cheerful, made her first appearance in the city prison last night and made the dreary vault ring with music. It was of the distorted, hifalutin kind, and she evidently considers herself an opera sharp of some Copyright © 1992-1993, Useful Software Corporation

Dictator's Controls You use the controls in Useful Voice Processor's window (or their keyboard equivalents) to record your dictation on a Mac disk. You transcribe a tape by typing into the entry box at the bottom of the window while listening. Simulated tape reels gauge tape position, and a scroll bar below the tapemovement buttons governs playback speed.

hasn't, but it usually does if you open more than two tape files without boosting the application's memory by 250K per tape. (Useful Software knows about this defect and plans to fix it.)

More troublesome is the fact that every tape file must be a fixed length—30 seconds or 5, 15, 30, or 60 minutes-and Voice Processor does not notify you when you reach the end. To avoid losing dictation, you must watch the Voice Processor window. Long tapes do not ameliorate this inconvenience because any unused tape takes the same amount of space as used tape. More choices of tape length would help: 30 seconds is not enough for a business letter and 5 minutes is too much.

Like a regular tape recorder, Voice Processor lets you record over a previously recorded tape without warning; but you cannot insert new dictation in the middle of an existing tape as you can with the competing product, Memorizer (see Reviews, August 1993). Voice Processor successfully records 30-second tapes directly to floppy disk, but loses chunks of dictation from a 5-minute tape recorded on floppy. Recording to a hard drive presents no problems.

You can play tapes back at any speed from 1 to 150 percent of normal, but to transcribe you must put them into a different mode. In transcription mode, pressing the enter key plays the segment up to the next pause, and you can move backward or forward one segment at a

> time, which makes transcription natural and easy.

> Useful Voice Processor saves transcriptions as plain text, which you can open and format with any word processor. Too bad you can't operate the tape in the background while typing in a word processor with on-the-fly spell checking, smart quotes, and formatting.

> Useful Voice Processor has what it takes to record and transcribe dictation on a hard drive, and the silence suppression and automatic pause are very useful. Yet the interface is a bit primitive and you must take uncommon care to avoid crashing. When these shortcomings are fixed, the program will be a decent value (with the caveat that sound files will still use lots of disk space).-LON POOLE

# PowerBook Utility Package

PROS: Reasonably accurate, floating-palette Power Gauge feature; on-demand and on-the-fly compression tools; convenient travel clock; decent security module. CONS: Lacks file-syncing capability; idle-time compression and screen saver utilities fail to monitor modem activity. COMPANY: Claris Corporation (408/ 727-8227). LIST PRICE: \$99.

 $MW \star \star \star$ 

OWER TO GO IS A POWERBOOK-MANagement utility with a few unique slants that keep it above the also-ran category in this software bracket.

The Power To Go control panel includes ten modules covering different areas of PowerBook use. The compression product is none other than StuffIt SpaceSaver from Aladdin Systems, which is also available separately or as part of the StuffIt Deluxe package (see Reviews, August 1993).

Power To Go allows you to create custom sets of module settings, including passwords for different use patterns, such as at home and at the office, or for different users.

The best part of Power To Go is a handy Power Gauge module. A floating palette that sits above your desktop can display battery-life estimates, or you can configure it to show the date and time, CPU speed, a travel clock (showing the time in different cities to which you are traveling), and an instant Sleep button. Unlike the usual menu-bar display, Power Gauge doesn't encroach on tight menubar space. You can move the palette anywhere on the desktop, or remove it by clicking on a close box or activating a keyboard command. Power Gauge determines how quickly you use up power after a few battery drains and recharges, and then displays a reasonably accurate estimate of battery life (though the figures might fluctuate).

The Power Management module lets you set factors that affect battery use, such as hard-disk spin-down, processor rest, system sleep, and backlight dimming. To save battery power while you're on the road, you can opt to reduce CPU speed on the PowerBooks that support this feature (all of them except the 100 and the 140). You can set the options individually or on a convenient slider bar.

Power To Go also includes a decent Security module that requests your passcontinues

# WHERE WERE YOU THE LAST TIME NORTON UPDATED THEIR SOFTWARE?



It's been a long time since Norton Utilities really improved its software for the Mac. Too long. Now Central Point Software introduces a newer, faster, smarter Mac utility—new MacTools 3.0. How much smarter is it? It retrieves accidentally trashed files in one step. (With Norton, it takes seventeen.) It continuously checks for disk corruption in the background, so small problems don't become disasters. (Norton doesn't.) MacTools 3.0 also finds and fixes Desktop file damage. (Norton can't.) And unlike Norton, it includes complete anti-virus protection, with network support. But that's just scratching the surface. For a detailed comparison of MacTools 3.0 vs. Norton, call FAXBACK at 1-800-847-8766 and ask for document 97532. For all upgrades, just call 1-800-277-3873. And stop living in the past.

Upgrade from MacTools, Norton, SAM or Virex only \$49.95\* 1-800-277-3873

\*Upgrade from MacTools, Norton Utilities, SAM or Virex. Offer expires February 28, 1994, Offer good only in U.S. and Canada. Shipping and handling extra.

**CENTRAL POINT** 

# Reviews

word under such conditions as starting up, restarting, awakening from the Sleep mode, or editing your screen saver. Password protection works even when you start with your extensions off, but you can bypass it by booting up with a floppy disk.

The remaining modules are rather undistinguished. An Airport module flashes a quick start-up message to speed your passage through airport security; a cursor finder is useful on PowerBooks with passive matrix screens; and a Menu module gives you sticky menus that can drop down with or without a mouse-click. There's also a screen saver. The Disk and Modem modules produce menu-bar displays to monitor disk and modem activity, but these two modules were nearly useless, since the displays were barely visible. High-speed modem-transfer activity doesn't seem to show up at all.

While the competition has added filesyncing capability, Power To Go is missing this feature. I would also like to see the keyboard mapping of extended keyboard functions that appears in some other PowerBook utility products.

Also included is Aladdin's StuffIt SpaceSaver, which, in combination with the Magic Menu control panel, gives you on-demand compression of files via a pull-down menu, with a keyboard command, or by appending a file extension or label, such as .sit or small, to the file name. SpaceSaver can also compress files in the background while your Mac is idle. SpaceSaver was stable in day-to-day use but a bit slow in opening compressed applications. Once applications were open, though, overall system performance seemed unaffected. SpaceSaver does need to monitor modem use more thoroughly. A few file-download sessions terminated abruptly when SpaceSaver kicked in while file transfers were active (the screen-saver module produced the same problem).

The basic Power To Go modules and SpaceSaver could be better integrated. As it is, you are dealing with two separate programs bundled in one box, and you have to telephone separate sources for support (Claris for Power To Go and Aladdin Systems for SpaceSaver). To their credit, both publishers' technical support—although not toll-free—was friendly and helpful.

System 7.1 comes with the basic tools to manage your Duo or PowerBook's performance and the PowerBook Display and PowerBook control panels. But if you want more sophisticated control of your computer's performance—and could use a handy compression program besides—Power To Go may be just up your alley.

—GENE STEINBERG

# On The Road 1.1

# **PowerBook Utility**

PROS: Automatically defers printing and faxing; automatic location setup; can reroute documents to different printers. CONS:
Limited printer and modem support; problems recognizing serial printers; awkward interface.
COMPANY: Connectix Corporation (415/571-5100). LIST PRICE: \$99.

MW \*\*\*

OU'VE JUST RETURNED TO YOUR office from a business trip. You log your PowerBook or Duo on to your network, then open the documents you prepared during your trip and start queuing them to the printer or fax. Eventually, you can start working. Or you can install On The Road, a handy utility that takes the drudgery out of these routine tasks.

When used in automatic mode, On The Road looks at what's hooked up to your modem and printer ports and adjusts its settings accordingly. So, for example, if you're hooked up to a network consisting of printers and other Macs, the program assumes you are at work (or another location that you've specified) and displays an appropriate icon on the menu bar. If there is no network activity, the program assumes you are on the road. You can still issue print and fax commands, but the actual printing or faxing is deferred. Now here's the best part: once you've hooked up to your network, On The Road faxes all the deferred faxes and prints all the deferred documents, automatically.

The On The Road application lets you adjust your location settings and add new locations to those already built in. Whenever you start up or awaken your PowerBook or Duo, On The Road attempts to guess your location. If it doesn't succeed, it displays a dialog box asking you to confirm where you are.

If you choose to select your location manually, you have a number of additional options. One is that you can have the program alert you that there are faxes and documents in the queue. It then lets you decide what to do with them. Another option is one of the program's niftiest features; it lets you designate which printer to send a document to (although documents queued to a laser printer cannot be sent to a serial printer, and vice versa). On The Road's queue display looks like the PrintMonitor window, but it gives you the added advantage of being able to redirect the listed jobs to a different printer if the one originally selected is busy.

You also have a set of network options, such as whether to save your password and whether to turn on AppleTalk automatically whenever you connect to a network. You can also adjust the sensitivity of its location guesses, if you regularly connect to more than one network (see "On The Road Location Editing").

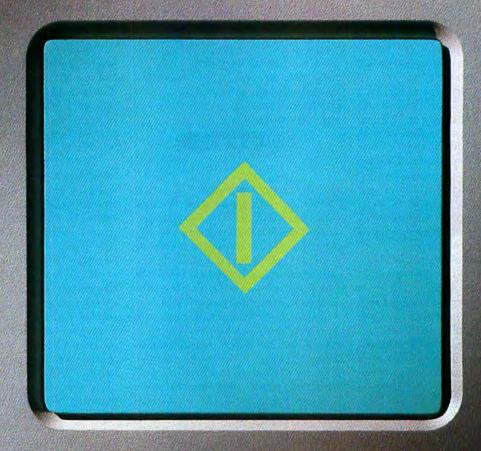
If you need to change control panel settings or use a particular application at a work site, you can drop an alias of the control panel or application into the Startup for On The Road folder that the program places in the System Folder. Inside, there's a separate folder for each location. When you start up your computer in a location, On The Road automatically launches whatever aliases or programs lie in that location's folder. This feature works, but the whole process is rather awkward—it would be far more convenient to add start-up items through a dialog box.

For the most part, On The Road's detection scheme works as advertised. But it does have its quirks. One limitation is that it doesn't alter location based on the presence of a serial printer and therefore will not print automatically when the only change in configuration is the addition of a serial printer. The biggest limitation, however, is the program's hardware support. Version 1.1 limits you to Apple and Hewlett-Packard printers, and modems from Apple, Global Village, and PSI or modems that use Faxstf software. Connectix promises to add support for other devices in future versions, but for now, if your setup doesn't fit this profile, On The Road isn't for you.

While everything On The Road does could be done manually, the program proves useful. And its ability to launch applications based on environment and change printers on the fly are real pluses. Although I hope for some improvements in the future, On The Road is a helpful tool for the traveling PowerBook user.—GENE STEINBERG



On The Road Location Editing The Location Editor lets you fine-tune the location settings as well as allowing you to add or delete settings.



For an idea of how much color copier experience we have, push this 1.2 billion times.

Since 1987, when Canon introduced the world's first Color Laser Copier, our copiers have made a whopping one billion, two hundred million color copies.

It's no wonder Canon has been the unsurpassed leader in color copiers

for six consecutive years, with equally unsurpassed color quality.

Today, Canon makes the most technologically sophisticated color copiers available, including copiers that can even connect to your computer. And because different work environments have different needs, Canon offers a choice of color copier solutions. One sure to fit *your* needs.

So if you want the experience of Canon color copiers behind you, start pushing:

1-800-OK-CANON. We'll

immediately rush you a free

Color Solutions guide.





# PowerBook 140 F/25 Upgrade

# Hardware Enhancement

PROS: Increases CPU speed from 16MHz to 25MHz; adds FPU for faster floating-point calculations; quick turnaround; professional installation; fully compatible; one-year warranty.

CONS: Not cheap. COMPANY: Digital Eclipse Software (510/547-6101). LIST PRICE: \$399.



OP OPEN EITHER A POWERBOOK 140 or a PowerBook 170 and you'll see that the daughterboard is marked "Macintosh PowerBook 140/170." That's right, they share the same guts, except the 140 has a set of crystal oscillators that keep the 68030 central processing unit (CPU) from running at full speed, plus an empty space where the 170 has a floating-point unit (FPU). Change the oscillators and add an FPU, and essentially you turn the 16MHz PowerBook 140 into a 25MHz PowerBook 170, minus an active matrix screen.

That's exactly what Digital Eclipse does when it installs its \$399 PowerBook 140 F/25 Upgrade. (Digital Eclipse also offers a \$439 PowerBook 160 F/33 Upgrade that increases the processor speed of a 160 from 25MHz to 33MHz, matching that of a PowerBook 180.)

The F/25 Upgrade is not a userinstallable product; you have to send your PowerBook to Digital Eclipse. Typical turnaround time is five to seven days, and the price includes pickup and delivery (add \$50 for overnight shipping).

Digital Eclipse performs a visual inspection of each PowerBook for shipping damage, then runs a set of diagnostic tests to make sure the machine isn't dead on arrival. Once Digital Eclipse determines that the machine is functional, a technician removes the daughterboard.

First, one of the oscillators on the daughterboard is moved and another oscillator is added. By simply changing the oscillators and not touching the 68030, the PowerBook runs at 25MHz, which steps the 140 up to a PowerBook 145. The increased processor speed causes additional heat, so a quarter-inch-thick piece of a rubbery compound is mounted on top of the CPU. The compound transfers heat to metal shielding underneath the keyboard. This should help prevent the heat buildup that could cause premature component failure.

Once the new oscillators and heat sink are in place, the technician carefully mounts a Motorola 68882 FPU in the empty footprint directly beneath the 68030. Although this step requires that 68 tiny, surface-mount solder connections be made by hand, the installation on my unit looks very clean, with no cold joints or excess solder slop. And since there are no cut traces or loose wires, the finished daughterboard is indistinguishable from that of a genuine PowerBook 170 board. In fact, the System recognizes the modified Mac as a PowerBook 170!

To test Digital Eclipse's claims that the F/25 Upgrade increases processor speed by 60 percent and improves mathematical computations by several hundred percent, I performed a series of benchmark tests on two PowerBook 140s, identical except for the upgrade, both running System 7.1, each with 8MB of memory and a 40MB Conner hard drive. Using Scott Berfield's Speedometer 3.23 (\$30 shareware), I confirmed that the upgraded CPU does indeed run 60 percent faster than that of a stock Power-Book 140. Furthermore, Speedometer reported that Color QuickDraw graphics routines are performed 33 percent faster, and integer and floating-point calculations are two to three times quicker. The upgraded PowerBook 140 showed a weighted Speedometer performance rating 35 percent greater than before, making it more than four times faster than a Mac Classic. Finally, for a real-world test, I measured the time it took to scroll from the top to the bottom of a 469K Microsoft Word 5.1 document, as well as perform a global search and replace. Both tasks took 25 percent less time on the upgraded PowerBook 140.

The F/25 Upgrade is supposedly 100 percent compatible with all software and hardware for the PowerBooks, and my experience bears this out. I've had no problem with software or internal devices such as fax modems, memory modules, and video expansion cards. Of course, the installation voids whatever warranty may still apply to your PowerBook 140, but Digital Eclipse has a one-year warranty on parts and labor.

I am very impressed with Digital Eclipse's professionalism and the fact that the upgrade does exactly what is promised. For routine tasks, the PowerBook 140 F/25 Upgrade provides a noticeable increase in speed, but for math-intensive applications that rely on the FPU the upgrade demonstrates truly impressive gains. At \$399, the upgrade seems expensive, but it's the only way to extend the viability of the PowerBook 140, and is a less drastic and costly measure than buying a new model.—OWEN W. LINZMAYER

# AsantéHub 1012

# **Networking Hardware**

PROS: Elegant design; easy to install; fits conveniently into existing network structure as well as working in a stand-alone environment.

CONS: Some IP options can be tricky for beginners. COMPANY: Asanté Technologies (408/435-8388), LIST PRICE: \$1299.



HE ASANTÉHUB 1012 IS A 12-PORT, 10BaseT Ethernet hub that works right out of the box. Asanté also offers, at an additional price, options for SNMP support (\$1499) and the AsantéView network-management software (\$299).

The AsantéHub is compact and efficient. The front panel has a single row of 12 ports in three groups of four, making it easy to locate a particular node. To the left of the 12 ports are three groups of LED indicators. The first two groups give a visual indication of hub utilization (bandwidth usage) and packet collision. These two groups of LEDs resemble volume-level meters on your stereo receiver. The third group of LEDs are status indicators for the nodes connected.

The rear panel provides the connection options. An RJ-21 connector lets you use a punchdown block instead of the 12 ports on the front panel. The 3-In-1 Uplink area provides the three standard connection methods: RJ-45, BNC, and AUI. Redundant links can also be established (using one wiring method as a backup for another)—this is essential in case one of the wiring methods fails. If used in a stand-alone environment, the extra RJ-45 port can be used for a 13th node in addition to the 12 on the front panel.

To test the AsantéHub, I used ten Centris 650s and two ci's, with file and application sharing turned on. I then proceeded to log on to each workstation from each other workstation (11 mounted hard drives on each desktop). By the time I mounted the drives on the seventh machine, it took about 5 seconds to display the available servers. This was the worst performance degradation I discovered, which isn't a big deal.

I also created overhead on the network by running two different operations (copy and install) between each Mac in four pairs of machines. After creating the overhead, I timed the transfer rate of a IMB file from one node to another during these operations. The first overhead operation was to copy a 50MB folder containing a continues



Since 1984, the original Mac mailorder source. Over 3500 products. Companies with Money Back Guarantees are highlighted with \*.

# **POWERBOOK**

* Applied Engineering 30 day MBG
8799 Auto Adapt. 69. 8800 Battery Charger 65.
* Battery Technology, Inc 30 day MBG
7562 140-180 Battery 59. 10392 Charger 65.
* Connectix 30 day MBG
8441 CPU 2.0 55. 10765 Virtual 3.02 55.
10764 CPU/Virtual Bundle 69.
* Dove Computer 30 day MBG
5383 DoveFaxPB 99,
★ Global Village 30 day MBG
7720 PowerPort/Silver., 319, 7710 /Gold., 369,
* I/O Design Cases 30 day MBG
8121 PowerBook SL 52. 8113 PowerBook EX 59.
* Kensington 30 day MBG
11552 NoteBook Traveler Compact 49.
1092 Deluxe 75. 9585 Executive 115.
5976 NoteBook Keypad 79.
* Prometheus 30 day MBG
11965 Ultima Home Office -Powerbook 289.
★ Sophisticated Circuits 30 day MBG
7425 PowerPad 69. 7419 with QuicKeys 109.
* Symantec 60 day MBG
1199 Norton Essentials for PowerBook 1.1 87.
* Targus 60 day MBG
11207 Leather PB Case 95. 1305 Universal 69.
7369 Notepac 35. 6037 Premier Leather Case 169.
* Thunderware 30 day MBG
3841 Lightning Scan Portable 399.



★Inspiration Software ... 30 day MBG 11269 Inspiration 4.0—Easiest way to brainstorm, diagram & write! Offers powerful diagrams & presentation visuals to transform concepts into stories, proposals & reports. Clearly communicate even complex info ........ \$165.

	U.S. Robotics	
11841	WorldPort 14.4 Fax	\$359.
	Utilitron, Inc.	
3012	PowerSwap (Swap batt. w/o shutdown)	25.
	Zoom Telephonics 30 day MBG	
10737	FaxModem PBK	77.

# **DAILY BUSINESS**

	DAILY BUSINESS	
	Abacus Concepts	
7106	StatView 4.0 439. 5840 SuperANOVA 3	69.
5618	4th Dimension 3.04 5	75
*	Advanced Software 30 day MBG	
8051	InTouch 2.0 55. 9049 DocuComp II	99
*	Aldus 30 day MBG	
	TouchBase or DateBook Pro ea. 49.	
8614	TouchBase Pro/DateBook Pro w/Quicken 4	95
*	Attain Corporation 60 day MBG	
8465	IN CONTROL 85, 11545 with Dynodex	99.
	Atticus	
	Atticus Vista	45.
	Avery 60 day MBG	
	MacLabel Pro 1.6.1	48
	Baseline Publishing 30 day MBG	
	Thunder 7 1.5.3	55
	CheckMark Software 60 day MBG	
	MultiLedger 3.0 225. 5862 Payroll 5.1 1 Clarls 30 day MBG	69
	Ciaria 30 day WIDG	



5630 ClarisWorks/Quicken Bundle..

# Atticus

_	
	Frame Technology
12983	FrameMaker 4.0 599.
	IdeaFisher Systems, Inc.
11721	IdeaFisher 2.0 95.
	Inspiration Software 30 day MBG
	Inspiration 4.0 165.
*	Intuit 30 day MBG
11845	Quicken 4.0
	Lotus Development 60 day MBG
	Special: 1-2-3 Mac & DeltaGraph Pro Bun. 99.
	MECA
2796	Managing Your Money 5.0 32.
	Microsoft 30 day MBG
	Upgrades available call
2884	Works 3.0. 155. 3669 Excel 4.0 295.
4902	Word 5.1., 295. 2878 PowerPoint 3.0 295.
2565	Project 3.0 445. 5454 MS Office 3.0 475.
	Niles & Associates 30 day MBG
4602	EndNote 1.6 85. 8010 Plus 1.3 142.
*	Nolo Press 30 day MBG
	WillMaker 4.0 35. 1204 Living Trust 43.
*	Now Software 30 day MBG
1793	Now Up-to-Date 65. 2366 (10 pack) 519.
*	Palo Alto Software 60 day MBG
6975	Business or 4960 Marketing Toolkit ea. 75.
	Pastel Development 30 day MBG
	DayMaker 2.03 79.
*	Peachtree 60 day MBG

9588 Insight Accounting 299. 9584 PAM 2.0 115.



Special Bundle with Quicken 4.0 thru 12/31/93

\*Aldus ... 30 day MBG

8614 TOUCHBASE PRO and DATEBOOK PRO Bundle—Organize your life. Integrated to manage contacts, calendars, appointments & to-dos quickly & easily. Macworld Editors' Choice for Personal Information Manager \$95.

★ Personal Training Sys. ... 60 day MBG Various levels: Excel, Persuasion, FileMaker Pro, Illustrator, FreeHand, Word, WordPerfect, ClarisWorks, MS Works, & Ouicken ea. 49.

\*Portfolio Systems ... 30 day MBG
7992 DynoPage 2.0 or 6916 Dynodex ..... ea. 38.
 \*ProVUE ... 60 day MBG

4582 Panorama II 239. 11540 PowerTeam 95.

\* Reality Technologies ... 30 day MBG

12331 WealthBuilder w/free Zoom AMX Modem 69.

\* Spinnaker Software ... 30 day MBG

★ Symantec ... 60 day MBG
7636 ACTI 169. 10317 ACTI Comp. Upgrd. 79.
★ Teleware ... 30 day MBG
7616 M.Y.O.B. 3.0 109. 10726 BESTBOOKS 55.

WordPerfect
4268 WordPerfect 3.0 299. 4711 Upgrade 55.

11720 WP Works/Quicken/QuickDEX II special 99.

\*WordStar ... 30 day MBG

7664 WriteNow with Correct Grammar 3.0 .... 42.

GRAPHICS & DESIGN

10289 SuperATM 89. 4145 Adobe Premiere 429. 11843 Illustrator 5.0 368. 6644 Photoshop 548.



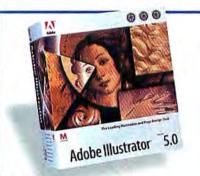
* Aldus 30 day MBG
6674 Personal Press \$129, 2461 Gallery Effects \$128.
10176 Fetch 199. 7541 IntelliDraw 194.
3506 SuperPaint 99. 4751 Persuasion 325.
1330 FreeHand 389. 11548 PageMaker 5.0 579.
Altsys
1983 EPS Exchange 89. 1195 Fontographer 258.
* Apple Computer 30 day MBG
3008 Apple Font Pack 45.
Broderbund Software
3572 Kid Pix 1.2 34. 7293 Companion 23.
1427 Print Shop 35. 6281 TypeStyler 2.1 126.
Caere
4930 OmniPage Professional 629. 7705 Direct 189.
7925 OmniScan 399.
★ Claris 30 day MBG
2518 MacDraw Pro 1.5 274.95
★ DeltaPoint 60 day MBG
12715 Special: 1-2-3 Mac & DeltaGraph Pro Bun. 99.
12974 DeltaGraph Pro 3 special 79.
★ Deneba Software 30 day MBG
11055 artWORKS 99. 3227 Canvas 3.5 259.
* Eastman Kodak 30 day MBG
12265 ColorSense Mgr. 329. 8198 ShoeBox 99.
* Expert Software 30 day MBG
4870 Expert Color Paint or 8619 Home ea. 29.
Fractal Design
1068 Sketcher 1.0 49.95
10402 Painter 2.0 265. 1564 PainterX2 special 69.



WHILE SUPPLIES LAST

# Fractal Design

1564 PainterX2—An extension to Painter 2.0; revolutionizes the way artists and designers combine and orchestrate multiple graphic elements. Floating selections can be painted, scaled, rotated & distorted special offer \$69.



# Adobe Systems



# MicroMat Computer Systems

12279 Astound 249, 12276 Animation Works 115,

#### Gold Disk Astound 24 Graphsoft

11723 BluePrint 199. 11724 MiniCad + 589.	
Gryphon	
4202 Morph 2.0 164.95	,
* Letraset 30 day MBG	
Letraset FonTek Library - Full line avail. call	
Light Source	
11059 Ofoto 2.02 275.	
* Manhattan Graphics 30 day MBG	
4990 Ready, Set, Go! 6.0 149.	
Postcraft International	
2210 Effects Specialist 2.0 89.	
Quark	
7612 QuarkXPress 3.2 589.	
* Ray Dream 30 day MBG	
12264 JAG II (increase image quality)	
4761 Designer 3.0 239. 12280 addDepth 1.0.2 125.	
* Specular International 30 day MBG	
4962 Infini-D 2.5	
* Synergy Software 30 day MBG	
6617 KaleidaGraph 3.0 139.	

# 

ClickArt (bitmapped).. 34. or (EPS)... 55.

\* T/Maker ... 30 day MBG

* Abbott Systems 30 day MBG
5236 CanOpener 2.0 59. 9578 Kaleidoscope 25.
* Aladdin Systems 30 day MBG
7410 Stufflt SpaceSaver 3.4 34. 6740 Deluxe 65.
* Apple Computer 30 day MBG
1206 At Ease 45. 7072 QuickTime Starter Kit., 105.
1074 System 7.1 (with free PCTV video) 79.
12654 Japanese Language Kit 195.
* Berkeley Systems 30 day MBG
1502 The Disney Collection Screen Saver 29.
5737 After Dark 2.0x (30+ screens!) 28.
2198 More After Dark 23. 2196 Bundle 39.
3392 Star Trek: The Screen Saver 34.
* Binary Software 30 day MBG
11989 Square One 1.5., 45, 12475 Bloopers., 19.
Casa Blanca Works
1593 Drive7 2.3 49.
* CE Software 60 day MBG
1727 CalendarMaker 39. 7927 QuicKeys 3.0 105.
* Central Point 60 day MBG
10595 Safe & Sound 32. 5041 MacTools 3.0 89.
* Claris Clear Choice 30 day MBG
11205 Retrieve It! 46.
* Dantz Development 30 day MBG
9115 DiskFit Direct 1.0 29. 3393 Pro 72.
5255 Retrospect., 145. 7945 Remote 2.0., 259.
country to provide a care of the property of the

★ Datawatch ... 30 day MBG 4803 Virex/Mac \$57, 11486 SuperSet Utilities \$85. \* Fifth Generation ... 30 day MBG 5342 MacPak 1.0.. 96. 3955 Suitcase 2.1.3 53. 7404 DiskDoubler 52. 4838 AutoDoubler ... 58. 12298 AutoDoubler/DiskDoubler Combo ....... 85. 10398 CopyDoubler 39. 7704 Public Utilities .. 98. FWB, Inc. 2999 Hard Disk ToolKit 125. 7929 Personal 49. \* Golden Triangle ... 30 day MBG 11731 TimesTwo (1.44).. 83. 11773 (800K).. 83. \* Harvard Systems Corp. ... 30 day MBG 11193 Kai's Power Tools for Photoshop ......... 89. ★ Inline Design ... 30 day MBG 7068 INITPicker 49. 1740 Redux Deluxe 2.01 49. \* Kent Marsh Ltd. ... 30 day MBG 9513 FolderBolt 71. 1839 NightWatch II ..... 89. 1725 CryptoMactic 1.01 ...... 55. \* Kiwi Software ... 60 day MBG 11736 Screenscapes..... \* Logical Solutions ... 30 day MBG 10169 7th Heaven 67. 11191 Chameleon..... 39. MicroMat Computer Systems 3732 MacEKG II.... 89. 2998 DriveTech.... 41. \* No Hands Software ... 30 day MBG 11194 Common Ground 119. 11195 Magnet 85. \* Now Software ... 30 day MBG 12303 Now Compress 65. 12304 Now FUN! 45. 6925 Now Utilities 4.0.....



# ★T/Maker ... 30 day MBG

3144 Incredible Image Pak 2000—Over 2,000 full-color EPS images drawn by professionals. Plus, 40 Bitstream fonts and a specialty paper sampler FREE from Paper Direct! Easy-to-use images will enhance everything you create....... \$89.



# \*Microsoft ... 30 day MBG

1293MW



# MacConnection 14 Mill Street, Marlow, NH 03456 603-446-3333 FAX 603-446-7791



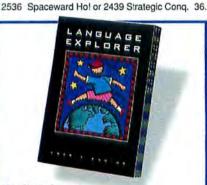
★DeltaPoint ... 60 day MBG

12974 DeltaGraph Pro 3-DeltaGraph Pro 3 is unsurpassed for creating visually stunning, technically accurate charts and graphs, all with publication quality. More than 100 new features!..... special \$79.

* Q	uadrangle 60 day MBG
	ghts Out Sports Fans 35.
S	tac Electronics
11568 S	tacker for Macintosh 95.
	ymantec 60 day MBG
5176 S	AM 3.5 64. 6748 Norton Utilities 2.0 95.
11727 C	++ 6.0 for Mac 339. 2688 THINK C 6.0 199.
	eknosys 30 day MBG
	elp! 88. 12291 Competitive Upgrade 49.
	serLand Software
4753 F	rontier 2.0 185.
	TOTAL CONTRACTOR OF SEAS COLUMN

# **LEARN & PLAY**

		ActiVision	
	1039	Shanghai II 19. 1134 Lost Treasures Vol. I	29.
		Broderbund Software	
		Carmen Sandiego Series (CP) ea.	29.
	8285	Where/World Carmen Sandiego Deluxe	47.
1	1561	TRISTAN Pinball	35.
		Buena Vista Software	
	1711	Heaven and Earth	34.
		Bungie Software	
	7445	Pathways Into Darkness	39.
	*	Callisto 30 day MBG	
1	1369	Super Mines 29. 11756 Super Maze Wars	39.
	*	Carina 30 day MBG	
	7761	Voyager II, the Dynamic Sky Simulator	99.
	*	Casady & Greene 30 day MBG	
		ZOA, Crystal Crazy, or Spaceway 2000 ea.	31.
	*	Centron Software 30 day MBG	
	5910	Crossword Creator 39. 8524 Casino Master	45.
	*	Davidson & Associates 30 day MB	G
1	0953	Kid Pictures 19. 2574 MathBlaster Plus	34.
	7942	Kid Works 2 34. 1076 Zoo Keeper	34.
		Delta Tao Software	
	-	0 111 1 0100 0 1 1 0	-



# Nordic Software

7723 Language Explorer—The fun way for kids of all ages to learn new languages ........ \$29. 8258 Turbo Math Facts-Learn the basics with this entertaining tutor...... 24. 8257 Preschool Pack-Six colorful programs 34.

*	Edmark Corporation 30 day MBG
7155	Kid Desk \$24. 7318 Millie's Math House \$29.
1078	Bailey's Book House 29.
	Electronic Arts
1907	PGA Golf 38. 2805 Tournament Course 18.
	Game Tek
7433	Wheel of Fortune 24.
	Graphic Simulations
8083	Missions at Leyte Gulf (reg. Hellcats) 20.
4756	Hellcats Over the Pacific 1.0.3 38.
*	Great Wave 30 day MBG
	KidsMath 2.0 or 2276 Kid's Time ea. 25.
8527	NumberMaze or 3471 DaisyQuest ea. 35.
*	HyperGlot Software 30 day MBG
	(Language Tutorials: full line available)
*	Inline Software 30 day MBG
11188	Pax Imperia 44. 1562 3 in Three 31.
	Interplay Productions
1615	Mario Teaches Typing 29.95
	Bridge Deluxe or Out Of This World ea. 34.
*	Learning Company 30 day MBG
	Reader Rabbit Series ea. 34.
*	Leister Productions 30 day MBG
7126	Reunion 3.0 119.
	Maxis 30 day MBG
11272	SimAnt 29. 11270 SimLife 29.
	Kid's Studio 35.
5279	SimCity Classic 24. 11628 A-Train Bun. 45.
*	MECC 30 day MBG
3959	Word Munchers 18. 3963 Oregon Trail 28.



# ★Berkeley Systems ... 30 day MBG 1502 The Disney Collection Screen Saver-Incl. over 15 well-known Disney displays ..... \$29. 3392 Star Trek: The Screen Saver ...... 34. 5737 After Dark 2.0x (30+ screens!)...... 28. 2196 After Dark & More After Dark Bundle 39.

*	Microsoft 30 day MBG
	Flight Simulator 4.0 (CP) 43.95
	Nordic Software
7723	Language Explorer or 7767 ClockShop ea. 29.
8258	Turbo Math Facts 24.
8257	Preschool Pack 34. Psygnosis
11562	Lemmings
	Oh, No! More Lemmings
4619	Mavis Beacon Typing 2.0 (CP) 29.
	The Miracle (piano teacher) 339.95
	Spectrum Holobyte 30 day MBG
3464	Tetris 23. 4835 Super Tetris 29.
3017	Wordtris 1.0 29. 9113 Falcon Color 41. StudyWare
	ACT, GMAT, GRE or SAT Prep ea. 29. Velocity
11538	Spectre Supreme 40. 11537 LAN 2-Pak 52. Virgin Software
	Scrabble or Monopoly ea. 19, 1746 Risk 29.

# VIDEO AND SOUND

	Articulate Systems	
	Voice Navigator SW (Head/Desk Mike) ea.	319.
	Coda Music Technology	
5604	Finale 3.0	549.
	Macromedia	
7651	Action Mac 339. 5087 Director 3.1	799.
4598	MacRecorder Sound System PRO	189.



\*Radius ... 30 day MBG

1749 VideoVision Studio Upgrade-Record full-screen, full-motion, 60 field per second, digital video input and output along with stere

	to and from your hard disk \$1799.
	Media Vision 60 day MBG
11738	Pro AudioSpectrum 16 Nubus 329
	Nova Development
11101	Kabcoml 29. 12278 w/More Kabcoml 40
10000	Opcode Systems
	Midi Translator II 42. 12225 Vision 339
	Audioshop 1.05 61. 12227 Musicshop 1.0 99
	Radius 30 day MBG
	PrecisionColor Pivot (reqs. interface) 999.
1/49	VideoVision Studio Upgrade 1799.
0044	RasterOps
	24STV 799. 3043 Paint Board Turbo 1199.
3048	20/20 Multiscan Color 20" Display 1699.
1505	Sigma Designs
1565	MovieMovie 299. 11541 ErgoView 17 1199.
10520	Sony CPD-1430 14" Multiscan Trinitron Monitor 689
	CPD-1730 17" Multiscan Trinitron 1149 SuperMac/E-Machines 30 day MBG
	VideoSpigot LC 245. 4164 (for NuBus) 375.
	17" Multimode Display 999. Trade Up cal
	20" + Color 1799. 10321 ColorPg. T16ll 1299.
	21" Platinum Two-Display
	Thunderstorm 469, 11982 Thunder/24 2299.
11903	Thuriderstoff 469. 11982 Thurider/24 2299.

# CD-ROM

8005 Ultura LX., 1189, 7985 EtherDock., 10322 E-Machines Presentor.....

9066 Futura SX... 369. 9065 Futura MX.. 649.

1299

8027 Futura II LX 819.

10321 E-Machines T16II Monitor .....

8028 Futura II SX 459.

Against All Odds 10330 From Alice To Ocean Book (with CDs).. 39. Broderbund 3730 Just Grandma and Me...... 34. 9059 Arthur's Teacher Trouble...... 41.



# Caere

7925 OmniScan-Caere's OmniScan is a handheld scanning solution with integrated OCR (OmniPage Direct), image-editing (Image Assistant) & recognition capabilities (FaxMaster) in a convenient package......\$399.



## NEWTON

THIS EXPERT PAD'S REALLY SHARP!

\$699

## OUARK

GET THE LATEST 3.2 VERSION OVERNIGHT!



# SYQUEST

GET DOWN! DROPPED \$90.

Quark X Press.

## MICKEY

WHY? BECAUSE HE LIKES TO SAVE SCREENS!



### MacC



\*Dantz Development ... 30 day MBG 7945 Retrospect Remote 2.0—Powerful Mac network backup software. For automatic, centralized backup and archiving. Supports compression, encryption, & verification \$259. 3393 DiskFit Pro-Efficient media backup 72.

\* CoStar ... 30 day MBG 1885 Stingray ADB 79. 1880 LabelWriter Plus 239. \* Datadesk ... 30 day MBG 9830 MAC101E 129. 2384 w 2384 w/QuicKeys 159. **Dataproducts** 10318 LZR 960.. 1099. 10319 LZR 965.. 1899. **Epson** 8194 Action Scanning Sys. (ES-600C SCSI) 899. 10741 ES-800C Scan. 1199. 8219 Pro Mac .. 1399. 3052 Interface Kit for ES-600C or ES-800C., 325. ★ GDT Softworks ... 30 day MBG 2499 PowerPrint 94. 12717 PowerPrint NW 319. Hewlett-Packard

8368 LaserJet 4M.... 2199. 4312 4ML.... 1189. 7970 Toner Cartridge ...... 109. 7665 DeskWriter 550C ...... 669. \* Kensington ... 30 day MBG 2547 Turbo Mouse 4.0 ADB...... 107.95 **Key Tronics** Mac Pro + Kybrd. 135. 1070 TrakPro 219.

10266 TrackMate Mac...... 95.

Kraft 7519 KM30 Joystick 42. 9508 Thunderstick 52. \* Microtek Labs, Inc. ... 30 day MBG 5438 ScanMaker II w/Adobe Photoshop LE. 899. 5441 ScanMaker Ilxe w/Photoshop (full pkg.) 1199. \* Mouse Systems ... 30 day MBG

7520 Little Mouse ADB or 8001 Plus.. ea. 68.95 9471 A<sup>3</sup> Mouse...... 79.95 NEC 2933 SilentWriter Model 95 with Fax...... \* Sophisticated Circuits ... 30 day MBG 8009 PowerKey 2.01. 75. 8008 Remote ..... 32.

Thunderware 4994 LightningScan 400... \* WACOM ... 30 day MBG 11259 The ArtZ (6" x 8" Graphics Tablet) ...... 349.



★Logical Solutions ... 30 day MBG With 7th Heaven & Chameleon, System 7 springs to life! Utilities change your Mac into what it should be; fast, colorful & easy to use. 10169 7th Heaven ...... \$67. 11191 Chameleon ...... 39.



★Targus ... 60 day MBG 11207 Leather PowerBook Case-Full-grain cowhide, padded computer section, plus plenty of room for power supply, cables, modem, AC adapter, external keyboard, file folders, disks, pens, and more .......\$95.

#### **UPGRADES & DRIVES**

SIMMs ... Various, incl. manual & video call \* Applied Engineering ... 30 day MBG 1 1.44 MB HD Drive 229. 5290 Plus Drive 299. 8361 10282 TransWarp 4300 (40 MHz, no FPU).... 389. \* DayStar Digital ... 30 day MBG 1613 FastCache 040 (Quadra 700 or 900) .. 259. 11987 FastCache 040 (Quadra 700, 800, 900, 950) 359. Turbo 040i 20 MHz 719. 1302 33 MHz 899. PowerCache for SE/30, II, IIx, IIcx, IIci, IIsi, LC 40 MHz ...... 539. 50 MHz...... 679. FWB. Inc. 9529 PocketHammer 170 475. 2314 PH 240 559. PocketHammer 525...... 1175. 12011 hammer1000FMF...... 1549. 7991 IOMEGA 6499 90 MB Transportable (regs. interface). 479. 2467 90 MB Gold Std. Rem. Cart. (Qty. 3)... 289. Mac Transportable 90 PRO..... 10499 Transportable MultiDisk 150...... 569. \* MDS Drives ... 60 day MBG MDS 44 SyQuest w/SW & cartridge ea. 299. MDS 88... ea. 469. MDS 88c... ea. 499. 11881 MDS 120 MB Fixed Drive (zero footprint) 299. 11880 210 MB..... 429. 11863 540 MB ...... 11963 MDS 120 MB Fixed Drive (upright) ..... 11962 210 (upright) 449. 11961 540 (upright) 899. Mobius Technologies, Inc. 8049 Speedster 33MHz with FPU... Speedster 25MHz without FPU .......... 599. Peripheral Land, Inc. (PLI) Infinity 40 Turbo 459. 11470 88/RW 44 625. 8399 Infinity 3.5" Optical Drive ...... 1149. 2864 Infinity Floptical Drive (21 MB) ........... 399. 2865 Floptical Cart. (21 MB) 25. 2899 (10 pk.) 230. 1 GB Mini Array.. 2399. 8803 2 GB.. 3499.



★Manhattan Graphics ... 30 day MBG 4990 Ready, Set, Go! 6.0—Desktop publishing that puts professional layout capability within every user's reach. Includes grids, an electronic pasteboard, precision text & object rotation, & a powerful typographic word processor \$149.



with BASF, the magnetic media inventors! All

backed by a lifetime warranty. Act now, and receive a free T-120 videotape when you buy four boxes of 3.5" HD diskettes! ...... \$49.

#### ACCESSORIES

\* Apple Computer ... 30 day MBG 9773 StyleWriter Ink Cart. 19. 8499 (3 pack) 55. LaserWriter Toners: Personal 65. LW II 85. \* Avery ... 60 day MBG 5392 Avery 5196 (31/2"-Disk Labels-Laser)..... 29. Disks/Media Various manufacturers.... call BASF ... 30 day MBG 11803 31/2" HD Disks (4) Bundle....... \*I/O Design Cases ... 30 day MBG 8812 Ultimate Classic 60. 1941 Ultimate LC 89. 1473 PowerBook Attache Case (burgundy). 149. \* Kensington (full line) ... 30 day MBG 2559 Apple Security Kit 33. 4973 Pwr. Tree 20 24. \* Moustrak Mouspads ... 30 day MBG Star Trek..... 14. 2694 Blue 7 x 9..... 8. \* Targus ... 60 day MBG 7369 Notepac 35. 7370 Business Traveler 199.

#### OUR POLICY/SHIPPING

- VISA and MASTERCARD. No surcharge added.
- Your card is not charged until we ship.
- . If we must ship a partial order, we never charge freight on subsequent shipment(s) (in the U.S.).
- No sales tax, except OH (pls. add applicable tax).
- All U.S. shipments insured; no additional charge.
- APO/FPO orders shipped First Class Mail.
- International orders U.S. \$100 min. Add 2% surcharge & \$2.30 insurance. Vendor support/upgrade eligibility may be limited outside U.S. Some products not available for export. Call or FAX for info.
- Upon receipt and approval, personal & co. checks clear same day for immediate shipment of your order.
- Corporate P.O.s & bids accepted. Call for info.
- COD maximum \$1000. Cash or certified check. COD orders require an additional \$4.50 charge, ship via UPS and may require additional UPS charges.
- 120 day limited warranty. Defective hardware repaired or replaced at our discretion. Defective software replaced immediately. Item availability, prices and promotions are subject to change without notice.
- We are not responsible for typographical errors. Hours: 8 a.m. Mon. continuous thru 5 p.m. Sun. ET. Bus. offices: 603-446-7711 Mon-Fri 9 to 5:30 p.m. ET.

Continental U.S.: Total shipping charge on any order is \$3. Barring events beyond our control, all credit card orders (no CODs) phoned in weekdays by 3:15 a.m. ET will ship Airborne Express for delivery the next business day. That's same day del. for orders placed btwn. midnight and 3:15 a.m.! (Some orders ship UPS Ground for next day delivery). Saturday delivery available to many areas upon request at no additional charge. Order all day Saturday thru noon Sunday for Monday delivery. Some areas req. an extra day delivery. Hawaii, Alaska, Canada, Puerto Rico & U.S. Virgin Islands: Shipping may require additional time and charges. Call 800-800-3333 for information. All other areas: Please call 603-446-3333 or FAX 603-446-7791 for information.

	CD Technology
2321	CD-ROM Caddy \$11. 4084 America Alive! \$75.
	Porta Drive CD-ROM Drive 619.
	FWB, Inc.
10198	CD ToolKit 49. 11582 HammerCD 659.
*	Highlighted Data 30 day MBG
	Elec. Map Cabinet or 7771 Webster's Dict. 149.
	Interplay Productions
7111	Battle Chess CD-ROM Enhanced 45.
*	Media Vision 60 day MBG
	CD-ROM Multimedia Kit (Sony or NEC) 699.
	Microsoft 30 day MBG
1741	Musical Instruments on CD-ROM 55.
	NEC CD-ROM Drives
6577	CDR-38 Portable 279. 6582 CDR-74-1 419.
	Peripheral Land, Inc. (PLI)
	Multi-Session Int. CD-ROM Super Bun 599.
	Multi-Session CD-ROM Drive Bundle 649.
	Presto Studios 30 day MBG
11330	The Journeyman Project 44.95
0.000	Software Toolworks
	US Atlas 39. 3915 Grolier Encyclopedia 225.
	Spectrum Holobyte 30 day MBG
1485	Iron Helix 59.
	Time Warner
7454	Hell Cab 1.0 (CD-ROM) 64.
	Wayzata Technology
	CD Fun House 25. 10188 Macnificent 7 35.
8602	Best of Shareware 35.



#### Postcraft International

2210 Effects Specialist 2.0-120 dynamic effects, each modifiable in thousands of ways. Full color support. Transform any PostScript, bitmapped or TrueType fonts. Use with any DTP, drawing, WP or paint program..... \$89.



★ProVUE ... 60 day MBG

4582 Panorama II-The versatile, fast, and easy to use database with something for everyone! Charts, outlines, advanced graphic tools, multiple user capability, and much more .....



#### U.S. Robotics

11842 Sportster 14.4 Mac & Fax-Data and Fax to 14,400 bps. V.32bis, V.42/MNP 2-4 error control, V.42bis/MNP 5 compression. Includes LC version FAX/stf and MicroPhone LT, cable, & specials on Prodigy & CompuServe \$239.95

#### COMMUNICATIONS

*	Apple Computer 30 day MBG
7073	Mac PC Exchg. 69. 7102 AppleShare 969.
7101	AppleTalk Remote Access 149.
	Asanté Technologies, Inc.
	Asanté Lite Ethernet Cards ea. 125.
2775	10/T Hub-8 249. 2772 10/T Hub-12 499.
	BOCA Research
11052	M144I V.32bis FaxModem 189.
******	Cardinal Technologies 30 day MBG
7670	MVP24MAC 59. 11621 MVP96MAC 169.
11609	MVP144MAC with FAX 189.
	CE Software 60 day MBG
8066	QuickMail (5 user) 279. 8067 (10) 399.
0000	Coactive
1104	Mac Connector
1104	Coactive Connection Mac to PC 179.
1070	CompuServe 60 day MBG
16/6	Membership Kit 25. 1673 Navigator 3.2 49.
*	DataViz 60 day MBG
1823	MacLink Plus/PC 129.
	MacLink Plus/Translators 109.
*	Dayna 60 day MBG
	DOS Mounter Plus 54.95
	Safe Deposit Personal 59.
	DaynaPORT E: (BNC or 10 BASE-T) ea. 149.
8719	EtherPrint or 9888 (10BASE-T) ea. 339.
*	Dove Computer 30 day MBG
	DoveFax 2 119. 9634 DoveFax+V 189.
12453	DoveFax 144E 239. 10200 Pro+V 399.
8971	DoveWriter 379. 8970 Sheet Feeder 99.
te	Farallon Computing 30 day MBG
	Full line of EtherMac cards available call
	PhoneNET Connector 10-Pk (DIN8) 195.
4802	PhoneNET StarController 357 899.
9805	Timbuktu 5.0 or 4866 Remote 3.0 ea. 129.
9516	PowerPath 105. 9518 LocalPath 139.
6922	Replica for Mac 69. 7407 (10 user) 499.
*	Freesoft 30 day MBG
6115	White Knight 11 89.
*	Global Village 30 day MBG
2175	Global Village 30 day MBG TelePort/Silver 319. 2179 Gold 369.
7889	TelePort/Bronze II
3418	GlobalFax Software for PowerBook Duo 79.
7017	Haves
10822	ACCURA 2400 69. 11422 96 Fax 209.
	ACCURA 144 + Fax 144 235.
2300	Smartcom II., 84. 5971 OPTIMA 24., 119.
3037	OPTIMA 144FAX Pocket
7557	AccessPC 3.0
4080	SoftPC 99. 10553 SoftPC Windows 299.
	Practical Peripherals 30 day MBG
8063	PM14400FX FaxModem 419. 11045 MT 229.
0000	THE THOU A LUNINGGETT TO THE TEST

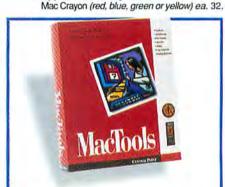
* Prometheus 30 day MBG	
4724 Home Office., \$129, 8990 Ultima., \$219	
★ Shiva 30 day MBG	
3444 NetSerial 1.35 275. 6555 LanRover/L 599	
LANRover/4E for ARA or Netware ea. 1699	
LANRover/8E for ARA or Netware ea. 2549	
NetModem/E (thick, thin, 10BASE-T) ea. 1479	
* Software Ventures 30 day MBG	
1964 MicroPhone II 139. 3455 Pro 209	0
* Sophisticated Circuits 30 day MBG	
10172 Desktop Dialer 47	
*STF Technologies 30 day MBG	
7644 FaxManager Plus 74. 7638 FaxSTF LC 25	
Supra FAXModems	
11223 V.32bis 14400 229. 5337 14400LC 159	
* Synergy 30 day MBG	
6618 VersaTerm 5.0 109. 6619 PRO 5.0 169	
U.S. Robotics	
11842 Sportster 14.4 Mac & Fax 239.95	5
* Zoom Telephonics 30 day MBG	
7757 Fax/Modem AFX 69. 3553 VFX V.32bis 172	
7917 Pocket Fax/Modem 77	
3576 FX9624V Send/receive V.42 Fax/Modem 119	

#### INPUT/OUTPUT

Advanced Gravis

1482 Game Pad.. 39. 9963 MouseStick II.. 69.

\* Appoint ... 30 day MBG



#### Central Point Software

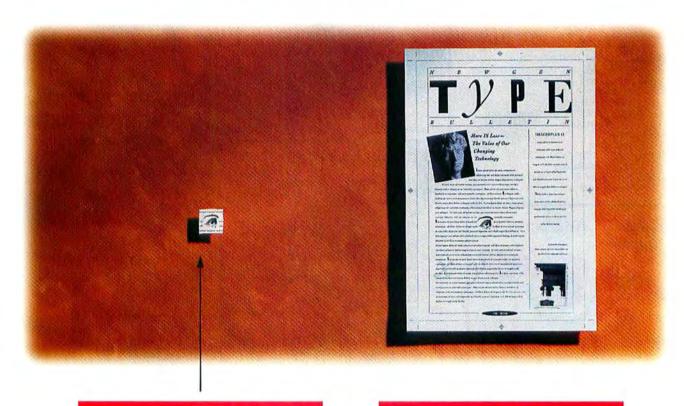
5041 MacTools 3.0-New MacTools 3.0 offers one-click undeleting, background disk checking and antivirus protection in one package .. \$89. 



★Dove Computer ... 30 day MBG 8971 DoveWriter-A portable thermal printer that produces laser quality output, 360 x 360 dpi; Weighs only 2.6 lbs and fits in your briefcase or laptop carrying case ....... \$379. 8970 20-Page Sheet Feeder ...... 99.



# We'd Like To Show You What Five Cents Worth Of Typesetting Can Look Like.



Approximately \$.05 worth of 1270-∂pi, Linotronic output (about 1/400 of a page) Approximately \$.05 worth of 1200-dpi output from the ImagerPlus 12

You'd be surprised what five cents buys you in typesetting these days. The ImagerPlus 12 from NewGen Systems gives you a full 11x17 page of 1200-dpi output — for a fraction of what you'd pay your local service bureau.

With NewGen's Image Enhancement Technology, the ImagerPlus 12 produces amaz-

ingly clear type and graphics as well as smooth gray scales. • Then, there's the

driving diskettes across town to your service bureau or tying up your modem with a 20MB file. And speaking of large files, the ImagerPlus 12 handles them with ease — thanks to 40MB of memory. What's more, the product's powerful RISC processor delivers output in seconds. Without rush

convenience of getting typeset quality straight from your Mac or PC. No more

charges. • Call NewGen at 1-800-756-0556 for details. Or better yet, send us a file of your next project. We'll send you camera-ready output from the ImagerPlus 12. And it won't even cost you a nickel.



NewGen Systems Corporation, 17550 Newhope Street, Fountain Valley, California 92708. Telephone 714-641-8600, Fax 714-641-2800. ©1993, NewGen Systems Corporation. All trademarks and registered trademarks are of their respective companies.

Now prints full 11x17 bleeds!

#### Reviews

variety of applications and files. With this overhead, the copy operation took 7.1 seconds. The second overhead operation was installing Microsoft Word over the network—the 1MB file transfer took 7.2 seconds. With no overhead taxing the hub, the file transfer took 6.8 seconds.

The AsantéView In-Band management software can manage the station as a node on the hub; with the Out-of-Band version you access your Mac via a dialup modem line or directly connect to the hub via a serial port on your Mac.

AsantéView provides a collection of configuration, monitoring, management, and mapping options. Installation and setup is a relatively painless process. I found only one minor problem. The documentation shows the position of a DIP switch incorrectly, but Asanté tech support was aware of this and gave me the correct settings.

The best part of the AsantéView software is its graphically oriented approach to configuring the hub. For example, the port control window shows the front panel of the hub with all 12 front ports. You can use this window to monitor and configure individual port preferences. Available options include port operation (enabling/disabling), jabber correction (on/off), and polarity correction (on/off), among others.

Asanté provides an incredible timesaver for managers who don't have easy access to the hub. A window that is an exact representation of the front panel of the AsantéHub mirrors all monitoring functions of the panel. Also included in the AsantéView software is a fantastic mapping function as well as performance meters for the most complete hubmanagement system available.

The network manager can also use the software to poll each Mac on the net for the type of CPU, FPU, and Mac model, as well as the installed RAM and system software version. Each polled machine needs an SNMP agent installed. (Asanté will provide one for an additional charge, or you can use Apple's new SNMP for AppleTalk.)

One minor roadblock is the requirement that all machines on the hub be assigned an IP (Internet Protocol) address. The IP address gives each node a more structured addressing system so that it can be easily accessed in a multiplatform environment of PCs and Unix machines. The software has an autoaddressing feature, however, for managers who are not familiar with IP-addressing processes.

The AsantéHub is a premium device at a bargain price, and it fits into the everexpanding Ethernet market. Asanté Corporation's great reputation continues with the AsantéHub 1012.—MATTHEW CLARK

#### **External Speakers**

#### **Powered Speaker Sets**

#### AppleDesign Powered Speakers

PROS: Look and sound good; can be turned up frighteningly loud. CONS: Bare-wire-and-terminal connections; top-heavy. COMPANY: Apple Computer (408/996-1010). LIST PRICE: \$179.



#### ACS100

PROS: Lightweight. CONS: Sound not particularly good; no power switch; DSP control doesn't add anything. COMPANY: Altec Lansing Consumer Products (717/296-2818). LIST PRICE: \$180.



#### ACS150

PROS: Adds bass presence. CONS: Heavy and expensive. COMPANY: Altec Lansing Consumer Products (717/296-2818). LIST PRICE: \$150.



OR DOING SERIOUS AUDIO WORK, appreciating the nuances of multimedia software, or playing games, external speakers are a must. But are these speakers worth the price tag that comes with the fancy label?

AppleDesign Powered Speakers look like they're made to sit next to your Mac. They're tall (about the height of a 13-inch monitor), platinum, and curvy. Setup is a piece of cake, thanks to a clear, detailed manual, but no thanks to an unnecessary nod to high-end stereo paraphernalia. To connect the speakers to each other, you

stick bare wire ends into audiophile-style lever terminals instead of more user-friendly earphone-style jacks. The speakers are sturdy, but rather heavy for road trips, and their skinny tallness makes them tippy and unstable.

Sonically, the Powered Speakers are solid. They excel at reproducing top and midrange tones and can produce uncomfortably high volumes without noticeable distortion. If



AppleDesign (top), ACS100 (lower right), and ACS150 (lower left) speakers

you want to hook up your portable CD player (via a pair of RCA jacks on the main speaker), you won't be disappointed.

Altec Lansing, while a well-respected name in home audio, has a few things to learn about making PC speakers. The main speaker cone sits faceup in a squat box while the tweeter flips up and down on a hinged arm. This arrangement makes sense for traveling, and the speakers themselves are light. There's also a tone control and a DSP (Digital Signal

Processing) control.

But any infatuation with the ACS100 fades about the time you apply power. The sound quality isn't as refined as it should be-there's too much emphasis on the high end at the expense of the midrange. Turning down the treble helps some but also muddies the sound. According to the company, the DSP control should increase stereo presence and add depth, but I didn't notice a difference. Also, with the volume set at a comfortable listening level, the Altec Lansings hiss noticeably, and on my test units there was an occasional low hum that didn't go away until I wiggled the cords just right. Finally, there's no on/off switch.

Altec Lansing sells a separate ACS150 subwoofer that rounds out the sharp tones of the ACS100 and gives a growly presence to a MIDI score or a quick round of Spectre, but again, overall performance is disappointing. The bass response is neither punchy enough nor loud enough, even with the ACS150's volume control turned all the way up and the speaker placed in the corner of the room. There's no power switch, and the unit is about the size—and weight—of a concrete block. You should literally weigh the small extra benefits this unit might give against its considerable heft.

Either set of speakers would be adequate for small presentations or audio production, but I would hesitate to recommend the Altec Lansing speakers un-

til the company works out the kinks. The AppleDesign units look and sound good, but you can get similar performance and save yourself some money by shopping at a music store (but make sure to buy shielded speakers, as the Apple and Altec Lansing units are). Just remember, once you've heard externals, you will never go back to the Mac's internal squeaker.

-CAMERON CROTTY

#### Tithout training, thousands of dollars already spent on computers and software is needlessly wasted.



"...just one short-cut on your Word video saved me 20 minutes of set-up time, not to mention frustration ... "

Harland Anderson - Computer Consultant

#### \$3,800 Wasted Without TRAINING!



"As a result of your videos my Mac is running lean and mean ... "

J. J. Johnson - San Jose, CA

#### .800 Wasted Without TRAINING!

"A company having a difficult business year is often the one that needs to train the most, because they're clearly in a competitive situation where it's even more important to elevate the skills of their people... We find the BEST RETURN ON ANY INVESTMENT COMES FROM TRAINING...your rewards go for the lifetime of the employee rather than just for the lifetime of the equipment." Tom Peters

#### **Excellent Low Cost** Training Solution

MacAcademy training videos are simple, low cost, easy-to-use and extremely effective. New users to the Mac or to a Macintosh program can master a program by watching t.v.! Each technique is described in detail with the user seeing each step on a Macintosh screen.

#### Award Winning **Excellence in Training**

MACWORLD Magazine readers voted MacAcademy the World Class Award for training giving MacAcademy more than twice as many; stes as any other training product or company.



#### **Guaranteed Results**

Each MacAcademy Training Video carries an iron clad, money-back guarantee. If, within 30 days, you are not totally satisfied with every video you purchase from MacAcademy you may receive a full refund...no questions asked!

#### MacAcademy Videos Work

MacAcademy training videos have I helped over 100,000 people learn new Macintosh skills. By using the videos new users can cut their learning curve by up to 75%.

#### To Order

To order with a credit card call 800-527-1914 Dept. MW1293. Purchase | orders, checks, and credit card orders may be mailed to the address listed below. Please add \$3 plus \$1 per video shipping and handling. FAX number is 904-677-6717, International 904-677-1918.

#### MacAcade

477 S. Nova Rd. Ormond Beach, FL 32174

Circle 106 on reader service card

Acius 4th Dimension (1) Acius 4th Dimension (2) Acius 4th Dimension (3) Acius 4th Dimension (4) Adobe Illustrator 3.2 (1) Adobe Illustrator 3.2 (2) Adobe Illustrator 3.2 (3) Adobe Photoshop (1) Adobe Photoshop (2) Adobe Photoshop (3) Adobe Photoshop (4) Aldus Freehand (1) Aldus Freehand (2) Aldus Freehand (3) Aldus Freehand (4) Aldus PageMaker (1) Aldus PageMaker (2) Aldus PageMaker (3) Aldus PageMaker (4) Aldus Persuasion (1) Aldus Persuasion (2) Aldus SuperPaint (1) Aldus SuperPaint (2) Aldus SuperPaint (3) ō Claris FileMaker Pro (1) Claris FileMaker Pro (2) Claris FileMaker Pro (3) Claris FileMaker Pro (4) Claris HyperCard (1) Claris HyperCard (2) Claris HyperCard (3) Claris MacDraw Pro (1) Claris MacDraw Pro (2) Claris MacProject II (1) Claris MacProject II (2) Claris MacProject II (3) Claris MacWrite II (1) Claris MacWrite II (2) ClarisWorks (1) ClarisWorks (2) ClarisWorks (3) ClarisWorks (4) Deneba Canvas (1) Deneba Canvas (2) Deneba Canvas (3) Intuit Quicken (1) Intuit Quicken (2) Learning Macintosh (1) Learning Macintosh (2) Learning Macintosh (3) Microsoft Excel (1) Microsoft Excel (2) Microsoft Excel (3) Microsoft Excel (4) Microsoft Excel (5) Microsoft PowerPoint ( Microsoft Word (1) Microsoft Word (2) Microsoft Word (3) Microsoft Word (4) Microsoft Works (1) Microsoft Works (2) Microsoft Works (3) Microsoft Works (4) QuarkXPress (1)

QuarkXPress (2)

QuarkXPress (3)

WordPerfect (1) WordPerfect (2)

Using PowerBooks (1)

Using PowerBooks (2)

\$49/ea.

\$49/ea.

#### Now Fun

#### **Desktop Enhancement**

PROS: Cheap, easy way to improve your Mac; lots of sounds; makes a picture fill the entire desktop. CONS: Performance sometimes sluggish; limited screen-saver modules and desktop pictures. COMPANY: Now Software (503/274-2800). LIST PRICE: \$69.



VER GET TIRED OF USING THE SAME old Mac? Now Fun is a set of five desktop enhancements—all of which install as control panels—that let you customize everything from menu colors to Macintosh sounds, to liven things up.

Many of the utilities resemble shareware programs you may be familiar with. FunSounds, for example, is similar to SoundMaster, in that it lets you assign sounds to computer happenings—at startup and shutdown, when you insert or eject a floppy disk, and so on. The utility comes with almost 2MB worth of sounds, ranging from a baby's giggle to an air horn. It also reads standard System 7 sound files, so you should have no problem configuring your Mac to sound just the way you want. FunCursors is a cousin to the shareware CursorAnimator. FunCursors lets you customize, color, and animate the Mac's standard arrow, watch, text, crosshairs, and plus-sign cursors, as well as the program's special ones—from spinning beach balls to rotating teacups. Or create your own.

My favorite Now Fun component is FunPictures, which lets you custom-design your desktop. Other programs decorate the desktop by modifying the standard System tiles. FunPictures can use tiles, but it can also cover your desktop with a single PICT, EPS, MacPaint, Startup Screen, GIF, Wallpaper pattern, or Photo CD image. FunPictures lets you crop and resize the picture to fit, although it's slow at resizing. It also monopolizes your Mac for a few seconds after start-up, a minor annoyance. Many of the patterns and pictures that ship with the program are either juvenile or dull, so be prepared to supply your own graphics.

FunScreenSavers has modules similar to those in Berkeley Systems' After Dark. In fact, FunScreenSavers can use After Dark modules, although not those from Star Trek the Screen Saver—a disappointment for Trekkies. Many of the included modules are just interesting line patterns; only a few have high-quality graphics. More modules like Night Rider, which features an animated scene of a desert motorcycle ride, would make this an excellent screen saver.

Finally, FunColors allows you to change the color of just about everything you see on your Mac—menu items, window titles, and dialog boxes, to name but a few. It's not always easy to know exactly what you're changing, and a window tinge took me a while to figure out (it's subtle). You can change colors with several applications open, but doing so noticeably slows the Mac. Even so, the module kind of grew on me. Now when I operate without it my Mac looks naked and boring.

By no stretch of the imagination can you argue that Now Fun is a true Macintosh upgrade, but it does offer some amusing and welcome changes. Consider it if you ever find yourself in a frivolous softwarebuying mood.—PAUL DEVINE



The World Is Easy to Find FunPictures can create a whole new world for your desktop.

#### Spectre Supreme

#### Game

PROS: Great graphics; completely addictive; can involve strategy. CONS: No way to save a game in progress; no way to switch to another application except when between game levels. COMPANY: Velocity Development (415/274-8840). LIST PRICE: Single player \$69.95; two-pack \$89.95.



N SPECTRE SUPREME, YOU PLAY A cybertank in a cyberworld where all kinds of bad guys are trying to cyberkill you. Spectre Supreme is different from other games with the same basic plot because it's so engrossing. While it's not exactly realisticit certainly bears no relation to anything remotely real-it's very believable. This is partly due to the sense of physical motion the game creates: you actually feel like you're inside the game, because what you see on screen responds in all details to your movements. Also, the Spectre world has a stark character all its own. When you play, you plunge into an intricate, mechanized future. The game's graphics make that world come alive.

In Spectre Supreme, as in the original Spectre, your goal is to pick up a series of flags and kill the tanks that are trying to kill you. When you get all the flags, you move to a harder level. Spectre Supreme offers all kinds of new twists, however: special alternate weapons, cybermud that slows you to a crawl, shields, gateways that transport you across the playing field, and other new toys. You can also increase the difficulty settingwhich causes the terrain to change and the enemy tanks to get better at shooting youand you can customize the keyboard controls. Spectre Supreme also comes with Sam's Crazy Worlds, a series of customized levels. Velocity claims it will be releasing more modules to keep the game changing.

Velocity has also added to the network game. In the original Spectre, there was only one game for networks: each person played a tank trying to kill other tanks. In Spectre Supreme, there are 13 variations, including Cyberball, which is basically tank soccer: the red team tries to knock the ball through the white team's goal and vice versa. Cyberball lacks the mayhem of some variations; in Mano a Mano, for instance, you try to kill the other players' tanks with no obstacles on the playing field. A message at the beginning of Mano a Mano says "Nothing to hide behind."

After extensive testing in our lab, the MNSTC (Macworld Network Spectre Test Crew) concluded that the original Spectre's network game is superior to Spectre Supreme's because it gives players slightly greater maneuverability and speed. However, Spectre Supreme's single-user game is definitely better than the original. The vast increase in variation far outweighs the small loss of maneuverability.

Spectre Supreme does have a couple of problems. First, there is no way to save a game in progress. Second, although the game frees you to move to another application when you complete a level, you can't pause in the middle of a level and switch applications. Also, if you're running System 7 and have other applications open, you occasionally encounter some peculiar color changes. Finally, the MNSTC complains that in team play, scores should be calculated by team and shooting your own teammates should be penalized.

Still, Spectre Supreme isn't like many other games in which a sinking boredom sets in when you realize that you can't get beyond a certain point and even if you did, it would just be a slightly more taxing but similar level. The pleasure of Spectre Supreme comes not in getting farther and farther, scoring higher and higher, but rather in the almost addictive sense of control that you get from moving that little tank around. This game is so much fun, it's even fun when you lose.—GIDEON YAFFE

# Now You Can Select and Actually Use Any PC File on Your Mac.





MacLinkPlus 7.5. Now With Over 1000 Mac-PC Translations.

With more than 1,000 translation options, our family of products lets you use virtually any file, in any application. With just a double click, get fast, accurate file conversion between the most popular Mac and PC word processing, graphics, spreadsheet and database applications-with all formatting intact!

#### 1. Open & Edit Files, Even Without The Application.

MacLinkPlus™guarantees an end to file compatibility prob-

lems, thanks to our vast library of translators and Macintosh® Easy Open extension from Apple. To open a Mac or PC file without the original application, just double click on it. You'll see a list of

applications that can open your file with the help of MacLinkPlus translation. Easily. Reliably.

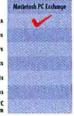
3. Only MacLinkPlus Has The Complete Solution.

#### 2. Complements Existing Network Software.

If your Mac is on a network, MacLinkPlus converts the files you've already moved with your Mac/PC networking software-the final step in true cross-platform compatibility. For networks, large or small, MacLinkPlus is now available in multi-packs and site

licenses. Compatibility and affordability. What more could you ask for?

















Call 800-671-1114 For More Information.



#### Mr. File 2.0

#### **Finder Utility**

PROS: Copying and finding works well; easy to learn. CONS: A few interface quirks. COMPANY: Softways (408/978-9167). LIST PRICE: \$99.



ACK IN THE DAYS OF SYSTEM 6, 1 relied heavily on two desk accessories: CE Software's DiskTop, which let me copy those pesky invisible files the Finder refused to see, and Norton's Fast Find, which showed a cute running person as it compiled a list of items it found. I stopped using those DAs long ago, and now I've found their replacement in Softways' Mr. File 2.0.

Mr. File is an easy-to-use DA that lets you maneuver around the desktop and find files. Its Folder window lets you navigate your disks and move, rename, launch, and copy files. The Find window offers search criteria, including creation and modification dates, using pop-up menus with selections such as "last 30 days." You can save the list of found items and later open it as a Mr. File file. The Selection window lets you create a list of files for easy launching.

Mr. File uses only 20K of RAM and is fairly similar to DiskTop, with one major difference: Mr. File offers background copying and finding. You can change the product's response by choosing settings such as Normal, Faster, Handling (which prevents jerkiness associated with background functions), and Turbo (which works in the foreground only). The Normal setting is described as a compromise between Faster and Handling. Mr. File also has #key equivalents for all major functions.

In my tests, copying a 1.3MB file from a file server to a hard drive over an Ethernet network took the Finder 23.65 seconds. Using Mr. File's Normal setting, the same task took 57.53 seconds—but it was done entirely in the background. With the Faster setting it took 22.28; in Mr. File's Turbo mode, the task took just 10.78 seconds.

Mr. File also copies files intelligently. Its version of the "Replace items with the same names with selected items?" dialog box lets you choose, for example, to replace old items with newer ones or to synchronize all copies of a file.

One of my problems with Mr. File is its interface, which provides not one but two places to select a volume (see "Getting Around"). Also, at one point, a message box flashed so quickly I couldn't read it. (I think it said that calculating folder sizes would take a while.) And while the manual is well



Getting Around Mr. File's interface is easy to understand, except for a few quirks. For example, why are there two different places to select the Editorial server (top left)?

written and entertaining, it comes in two parts, one describing an early version of Mr. File, and an update for version 2.0. You have to read the old one first and then scan the new one to find changes. My last gripe with Mr. File, though minor, is its name, which I've submitted for consideration in the All-Time Dumbest Mac Product Names Contest. The product is even referred to as "he" in the documentation.

Despite its few drawbacks, Mr. File's well-designed background capabilities make it a handy desk accessory for a good price. If you can get into the habit of relying on Mr. File, your life in the Finder will move to the fast lane—leaving you lots more time to play Shanghai.—JOANNA PEARLSTEIN

#### Toner Tuner 1.0.3

#### **Printing Utility**

PROS: Works well; inexpensive; incredibly easy to use. CONS: None. COMPANY: Working Software (408/423-5696). LIST PRICE: \$24.95.



HE CRY ECHOES THROUGHOUT Macworld's editorial department: "Argh! We need a new toner cartridge!" Usually at least six people report it to our MIS guy, and in the meantime editors pace and stand in line at other printers. If only we'd been using Toner Tuner.

Toner Tuner is an incredibly simple print utility from Working Software. It's an extension that lets you adjust the amount of toner applied to each print job. Normally, your printer uses the maximum amount of toner to print documents. With Toner Tuner, you can decrease the amount of toner for drafts and less important documents, using a slider bar that appears in the print dialog boxes. Toner quantity percentages range from 0.1 to 100.

Of course, decreasing the amount of toner used for a print job means that document will be lighter; a document printed at 50 percent uses half the normal amount of toner, though its appearance depends on the document type.

I printed several documents at varying percentages with Toner Tuner. Graphic images came out decently; this utility would be particularly useful for graphic artists who print several versions of a design. For text, the readability changes depending on the font. At 40 percent, thinner fonts in 12-point were hard to read, but everything else was surprisingly clear. At 60 percent, only Courier, Goudy, and Monaco were hard to read in 12-point. At 70 percent, most fonts looked as though they'd been printed on a StyleWriter's Faster setting. In all of the above cases, the larger the point size, the more legible the font.

If you want to print your documents at 100 percent, simply turn off Toner Tuner in your print dialog box or set the toner per-

LeverWriter "MW Edit lig P1 Plain Paper" 7.12 Print

Copies: Pages: & Nii O From: To: Cancel

Cover Page: & No O First Page C Lest Page

Paper Source: & Paper Cassette O Manual Feed

Print: Black & White Color/Freystele

Gestination: Printer O Pastscripto File

Lever Loos - Rhoot... O Signature Pages Only

Section Rhooge: From: 1 To: 1 Print Section Onlo

Print Hidden Test Print Next File Print Back To Frent

**Simplest Product on Earth?** Toner Tuner adds a slider bar to your print dialog boxes so you can choose how much toner to use for the job.

centage to 100. Working Software tells you how to set a default percentage for Toner Tuner by altering a resource in ResEdit. This was easy to do, and Working Software's technical support was helpful.

Toner Tuner's percentages are slightly erratic—it gives you most but not all whole numbers between 1 and 100 to choose from. You also can't type in the percentage you want (you must use the mouse), a feature my wrists and I would appreciate.

Toner Tuner didn't interfere with any of my applications, and its list of product incompatibilities is short (there are problems with HP DeskWriter drivers earlier than version 2.2, Xante's Accel-A-Writer upgrade board, and Apple's PC Exchange). It requires System 6 or later and works on all Macintoshes.

Aside from my minuscule gripes, Toner Tuner is an incredibly useful, money-saving utility. It's hard to assess exactly how much money Toner Tuner could save a user. But, if your print percentages average 70 percent, if a toner cartridge normally prints 3000 sheets, and if your office prints 18,000 pages a year, using Toner Tuner could save you \$100 annually. I suggest you only use your printer for final jobs and try Toner Tuner for your other print jobs. After all, if you can't save trees, you might at least save your toner.

-JOANNA PEARLSTEIN

# RasterOps has a number of openings for Duo users.

Introducing DuoMate, the only docking station that opens your Duo to a world of possibilities. With more features than any

Apple Desktop Bus port allows connection of external keyboard, mause, or other device. SCSI interface supports up to six SCSI devices including external hard drives and network adapters.

DuoMate 8
supports large-screen
displays up to 21"
in 8-bit color, and
DuoMate 16sc offers
the added impact of

Monitor output port

automatically adjusts to the resolution and

docking ledge. This addition not

at 640x480 resolution.

DuoMate has been ergonom-

frequency of your monitor.

HDI-20 port for external floppy disk drive.

Duo power supply

other dock, DuoMate

transforms your PowerBook®

Duo into a fully functioning

Macintosh® workstation.

Our 16sc is also the only dock

Ledge supports your Duo to protect its connector and to angle the computer for more comfortable use.

Release button

DuoMATE 16sc

ically designed with our unique

RASTEROPS

with a standard 25-pin SCSI connector for hard drive or network connections. So it works with all of your other SCSI devices without special cabling.



DuoMate is the only docking station that lets you work in color on monitors as large as 21".

DuoMate gives you more ways to make impressive presentations. It provides the flexibility of choosing an output device from monitors up to 21", LCD panels, VGA displays, RGB projectors or NTSC/PAL (RGB) monitors. All with superior color.

only angles the computer for more comfortable use, it also supports and protects the Duo's connector.

jack for external speakers

or amplifier.

So if your job entails using a PowerBook Duo, it's about time you applied for a DuoMate. There's no dock-

ing station out there with so many openings to greater productivity. Visit your nearest RasterOps dealer to see how to get more out of your Duo, or call 1.800.SAY.COLOR.



#### RASTEROPS<sup>®</sup>

THE ART & SCIENCE OF COLOR™

2500 Walsh Ave., Santa Clara, CA 95051. Fax: 408.562.4066.

#### Reviews

#### HyperStudio

#### Hypermedia Authoring Tool

PROS: Supports color and many multimedia functions without scripting. CONS: Rough edges; limited scripting and customization features. COMPANY: Roger Wagner Publishing (619/442-0522). LIST PRICE: \$179.95.



LTHOUGH DESIGNED FOR ADULTS, HyperCard is widely used as an educational authoring tool. HyperStudio, a kidoriented imitation HyperCard, is no mere clone. Experienced hyperhackers will find that it has many familiar features, several welcome surprises, and a few frustrations.

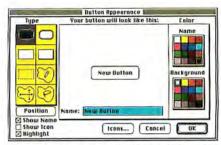
HyperStudio documents have the lookand-feel of HyperCard stacks, except for the presence of color. It's as easy to create a HyperStudio stack in which each card has a color palette of 16 or 256 colors as it is to create a black-and-white stack. You can paint color graphics with HyperStudio's limited but functional paint tools, or import them. You can colorize buttons and text items through dialog boxes.

Button-creation dialog boxes offer more than color; they automate many

processes that require scripting in Hyper-Card. A few mouse-clicks create a button that can play an animated sequence or QuickTime movie, activate a self-scrolling text field, or control a laser disc or CD.

The transition from HyperCard to HyperStudio isn't completely pleasant or intuitive. The documentation is incomplete and poorly edited. The powerful Hyper-Talk language has been replaced by a limited version of Logo. HyperStudio offers only one card size. You cannot place buttons and other objects in backgrounds. You can record sounds but not edit them. Commands and keyboard shortcuts differ inexplicably from the familiar Hyper-Card versions, often violating Macintosh conventions. (For example, the keyboard shortcut for "Go to next card" is #-period, which means "stop" in the rest of the Macintosh universe.)

We tested HyperStudio with a group of students and teachers in Craig, Alaska. We spent four intense days building a presentation that included drawings, animation, scanned photos, QuickTime movies, narration, and music. We created and edited most sounds and many drawings with other applications and imported them to HyperStudio to improve the quality. We also linked several smaller stacks into one large presentation to avoid system crashes. All movies, sounds, animation, and transi-



Button Envy Color and multimedia functions are controlled by dialog boxes, not scripts.

tions were controlled by HyperStudio's unique "magic buttons"-which are automatically triggered at preset time intervals.

Even though we encountered shortcomings and bugs, we produced an impressive ten-minute multimedia documentary. While we could have produced a more professional show using HyperCard, we would have needed several more days for training, scripting, and debugging. Reaction from students and teachers was mostly positive. Some grumbled about the things Hyper-Studio couldn't do, but most were impressed by all that it could do.

HyperStudio offers promise as an easyto-use authoring tool, especially for children and teachers. If the publishers clean up the interface and make the program more robust, it'll be hard to resist.

-GEORGE AND BEN BEEKMAN

#### **MobileWriterPS**

#### Portable PostScript printer

PROS: Fast; PostScript; easy setup. CONS: Heavy for a portable printer; prints best on glossy laser paper. COMPANY: Mannesmann Tally Corporation (206/251-5524). LIST PRICE: \$999.

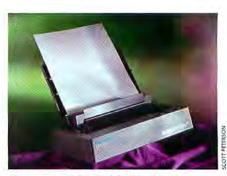
 $MW \star \star \star$ 

HE MOBILEWRITERPS IS CURRENTly the only battery-powered portable PostScript printer available. If you use a PostScript printer at work, using another one on the road means less document reformatting and more time savings.

The MobileWriterPS is a sturdy, PowerBook-gray box, slightly larger than a PowerBook and decidedly heavier. Setup is fairly simple, although I had to read the directions. Two latches, one on either side of the printer's top, release the cover, which then flips open. A separate metal piece hooks into place, creating a paper tray. The MobileWriterPS has an 80-page sheet feeder. Although the printer feels solid, the latches and the sheet feeder feel flimsy, and potentially breakable. A bigger problem, however, is the weight of the printer. The MobileWriterPS's 8 pounds, in addition to a PowerBook, just doesn't leave me mobile enough.

The MobileWriterPS is a thermaltransfer printer. While Mannesmann Tally claims that the printer works well on any paper, it suggests that slightly glossy, more expensive laser paper be used for the best results. Macworld Lab tests showed a noticeable deterioration in print quality from laser paper to plain paper. On laser paper the print quality was quite good, but on inexpensive bond it was barely acceptable. The thermal-transfer ribbons do offer the advantage (especially important in a portable printer) of being impossible to spill, unlike toner. Each ribbon should last approximately 150 pages, at \$15 per ribbon. This is comparable to 20 pages per \$5 single-strike ribbon for the GCC WriteMove II, another portable thermal-transfer printer, or a few hundred pages per \$19 cartridge for Apple's Portable StyleWriter.

The MobileWriterPS is rated at 6 pages per minute for text and 4 ppm for graphics. In tests including a multiple-font document and a 20-page document using Courier, the MobileWriterPS was faster than the ink-jet portable printers we've seen. But in tests that used QuickDraw (a Claris MacDraw Pro document and an Aldus FreeHand document), the MobileWriterPS was slower than the other portable printers.



Mannesmann Tally's MobileWriterPS

The MobileWriterPS comes with 35 PostScript-compatible fonts, plus Adobe Type 1 and TrueType support. It's Apple-Talk compatible and emulates a Laser-Writer IINT, so it's completely plug-andplay. The MobileWriterPS can print approximately 150 pages when the nickelcadmium battery is fully charged and can keep working while the battery recharges.

At \$999 the MobileWriterPS is the most expensive portable printer we've seen-the Portable StyleWriter lists for \$449; the WriteMove II costs \$599.

If you need a portable printer, this fast PostScript portable may save you time. But before you buy, bear in mind the trade-offs of its inconvenient 8-pound weight, fairly high price, and need for expensive laser paper.-WENDY SHARP

#### Office Tracker 1.1

#### Tracking Software

PROS: Easy to learn and use; customizable layouts; great tech support and documentation. CONS: Requires System 7; no automatic notification; no way to customize sort. COMPANY: Milum Corporation (512/327-2255). LIST PRICE: \$195; 20 users \$495; 50 users \$995.



EOPLE COME AND GO, EQUIPMENT disappears, everyone is in a hurry. You try to keep on top of things, but you need help-something that's fast and efficient, and that doesn't take up too much of your Mac's memory. Office Tracker helps.

Office Tracker comes in a single-user version for managers or office assistants, and a network version for general office use. Both versions allow users to set up multiple in/out boards for different tracking needsfor example, one to log employees in and out of meetings and lunch, and one to track products checked out of the software library or you can consolidate this information into one board. All changes of status (for example, from in to out) are made through a simple dialog box. Administrators can

restrict users from signing coworkers in and out but give them access to the equipment board. The administrator can configure Office Tracker to open the same boards each time you start the program.

The network version allows each client to customize the appearance and layout of boards, but Office Tracker provides no way to customize a sort. For example, it sorts only by the first letter in the name field, so "Joe Smith" falls under 7, not S.

While Office Tracker is intuitive, easy to use, and even fun, the single-user version doesn't do anything you couldn't do with pen and paper. The network version, on the other hand, is a boon for busy offices.

The network version is set up as a client-server package. The client software, Viewer, lets networked users sign in or out of the office in seconds. Clients can also set the In/Out dialog box to open at specified times. Office Tracker speeds up the process of signing in and out by guessing individuals' destinations. For example, if you sign out to lunch at noon every day, the dialog box automatically displays the editable message "out to lunch" when it pops up at noon, and "home" when you leave at 5 p.m. The dialog box also provides a pop-up list of all previously typed destinations, allowing you to select a place instead of retyping it. The problem is that you cannot rearrange or edit this list within the program. After a few

months it can be faster to type the destination than to choose it from the menu.

Notify is a handy feature that automates tracking down people and office equipment. For example, any client can select the slide projector on the main board, and Office Tracker will alert him or her as soon as it is returned, by sounding an alarm and showing the whereabouts in a pop-up window. Unfortunately, you must reset the notification each time you need it, which keeps you from getting an automatic notification each morning when your boss signs in, for example. Notify works through System 7's publish and subscribe.

The program's support for Apple Open Collaboration Environment (AOCE) allows traveling client users to take advantage of AppleTalk Remote Access and track down coworkers at the home office. According to Milum, version 2.0 of Office Tracker will support AppleScript and voice annotation.

With its efficient user interface and internal organization, single-user Office Tracker can be handy for a small office. The network version lets all computing members of your office track people's locations and equipment availability without breaking a sweat. Nevertheless, someone has to sign people and things in and out-the program won't handle that for you. You still have to train your officemates or rely on a diligent receptionist.-MARISA DEFAY

#### Hello Music

#### MIDI Starter Kit

PROS: Compatible with General MIDI Level 1 and Roland MT-32; accepts external audio input; compact. CONS: Bare-bones software; additional hardware and software needed for MIDI composition. COMPANY: Yamaha Corporation of America (714/522-9240). LIST PRICE: \$449.95.



HEN YOU TAKE YOUR ACT ON THE road, it helps to have a partner who either sings or tells jokes. The Mac makes a lousy comedian (no sense of timing or delivery), but with the proper equipment, it can stand in for a small orchestra.

Nearly any Mac can digitize and play back sound files, but each minute of highfidelity sound takes a lot of disk space. MIDI files take up significantly less space than digitized sound files since MIDI files are just instructions for playback, not the actual sounds; but to turn instructions into music, you need an external MIDI device.

Hello Music bundles Yamaha's CBX-T3 MIDI tone generator with Passport Designs' Trax sequencing software and MIDI Jukebox playback software. The tone generator (a fancy name for a synthesizer without a keyboard) is a platinum-color box about 7 inches deep, 9 inches tall, and 1 inch wide. A plastic base holds it firmly on end, so you'll hardly notice it snuggled up next to your Mac. Connecting the unit to your Mac is easy, though you have to wade through a few pages of the manual to find the Mac-specific section. The CBX-T3 has 1/4-inch, line-level out jacks for taking the sound to an amplifier, as well as MIDI-in, -out, and -thru ports. Finally, you can plug an external source, such as a CD player or a microphone, into the mini audio-in jack, and mix the sound with the CBX-T3, using an external volume control.

The CBX-T3 has 192 voices, 10 drum kits, and digital reverb. It also comes with three instrument modes—one for General MIDI Level 1, one for Yamaha's Disk Orchestra Collection, and one that mimics the Roland MT-32. The modes don't give you any extra instruments-they just map the sounds differently. The ability to play tunes composed for other devices that follow the popular MT-32's instrument map without remapping the instruments by hand is a definite bonus.

While the Hello Music hardware is pretty cool stuff, the software included is functional at best. Trax is a Macintosh sequencing standard that's been around for years, and the clunky, black-and-white interface shows its age; the skimpy, jargony manual isn't much help for MIDI or music beginners. Also, Trax was made to put music tracks together, not create them; you need a keyboard or other MIDI instrument and/or composing software for that. However, many companies (including Passport Designs) sell libraries of MIDI songs and background tracks, fully licensed for presentation, so you don't need to be a maestro to benefit from this product. Also included is Passport Designs' MIDI Jukebox, which does exactly what its name suggests: plays MIDI songs. You can create a set of songs to be played sequentially, or use the loop key to play a song over and over again-a great feature for people who need background music.

By itself, the CBX-T3 is an impressive performer-plenty of voices and easy compatibility with at least two accepted standards. The included software adds some basic functionality. If all you want to do is play prerecorded MIDI tunes, Hello Music is a solid package. Creating a true music workstation, on the other hand, requires the purchase of a MIDI instrument (keyboard or otherwise, which-surprise-Yamaha sells) and composition software; external speakers wouldn't hurt either. Now, I wonder if I can get Van Halen on this thing.

-CAMERON CROTTY

# We're Redefining What You Should Expect From Office Printers.

#### ultraShield 1.252

#### **Security Software**

PROS: Integrates numerous security features; fast; includes both proprietary and DES encryption; excellent value. CONS: Poorly organized manual; incompatible with Mode32 INIT. COMPANY: usrEZ Software (714/756-5140). LIST PRICE: \$149.



SOPHISTICATED, FEATURE-PACKED security product, ultraShield combines practically every security feature you might need into one integrated package, including a lightning-fast version of the U.S. government data-encryption standard (DES).

ultraShield's approach to installation is a bit unusual. First you copy the master disk to an initialized unlocked floppy disk. You then launch the Administrator program from the floppy and create an installation script (really a master security profile containing all your security-feature and preference information and your user profiles). Then you use the floppy to install ultra-Shield on all the Macs you want to protect. The Access Controller, a virus-protection INIT, and the Administrator program are

optional. Installing ultraShield via a master disk makes it easy to ensure that every machine has the same security profile. To make changes, alter the master floppy disk and reinstall ultraShield on each machine.

ultraShield's user structure supports three levels of users—Administrator, Supervisor, and User—with no limit to the number of users at each level. Users can modify only their own profiles and those of lower-level users, and the administrator can set passwords to lapse after a certain number of days—useful for accommodating temporary employees and generally controlling access to protected files.

Administrators assign privileges to regular and guest users—including the ability to create, delete, or rename files and folders; rearrange the Finder desktop; access and format floppy disks and SCSI drives; and access debuggers. Additionally, you can



User Hierarchy Configuration ultraShield's user hierarchy resembles a corporate organization chart, although unlike corporate America, ultraShield permits an unlimited number of users at each level.

restrict access to desk accessories by user level, ultraShield also includes a screen saver that requests a user name and password upon waking from sleep mode.

The ultraAudit feature can log the history of operations such as start-ups; restarts; shutdowns; and use of applications, files, and DAs. You can view audit files from the Administrator program or export them to a text file. Thankfully, you can limit the size and detail in individual audit files to avoid filling up hard disks in busy systems.

Access privileges are identical to those used by System 7 file sharing and Apple-Share except that ultraShield provides encryption; you can specify usrEZ's proprietary ultraCrypt, DES, or none. Whichever you choose, the encryption/decryption process is virtually transparent.

ultraShield's biggest drawback is its poorly organized, poorly indexed manual. It takes quite a bit of reading just to understand the installation process. The program is also incompatible with the Mode32 INIT (the company says, however, that the product is 32-bit clean). usrEZ's knowledgeable tech-support staff went all out to identify the problem and help get me running again. At press time the problem is unresolved, but the developer assures me a fix is in the works. These problems aside, ultraShield is a great product at a great price.

-GARY T. KRATZER

#### LightningScan Portable

#### Hand Scanner for PowerBook

PROS: Battery operated; plugs into modem port or printer port; lightweight; includes OCR software. CONS: Bulky interface; incompatible with some desktop Macs. COMPANY: Thunderware (510/254-6581). LIST PRICE: \$459.



HE NEW LIGHTNINGSCAN PORTAble is a lot like Thunderware's other low-cost hand-held scanner, the Lightning-Scan 400. It provides the same black-andwhite scanning capabilities, the same adjustable 400-dpi resolution, and the same bundled image-editing and OCR software but is tailored especially for PowerBooks.

First, the LightningScan Portable plugs into either the modem port or the printer port, instead of the SCSI port. That's particularly good news for Duo owners, who, unless they snap on a MiniDock, don't even have a SCSI port. Second, in place of the heavy SCSI-interface box that accompanies the LightningScan 400, the Portable sports a lighter, slimmer interface unit that houses a rechargeable NiCad battery, so you can operate the scanner for up to 25 minutes

without having to plug it into an AC outlet. Third, it's a modest price to pay for the increased portability.

The LightningScan Portable is a good match for any PowerBook. The scanner with its interface-battery unit adds less than 20 ounces to your total PowerBook baggage. Even so, the 7-inch-long interface is still a bit clunky.

Setting up the LightningScan Portable is a matter of plugging the interface unit into the PowerBook (turning AppleTalk off in the Chooser if you use the printer port) and then connecting the interface to the scanner. From within the ThunderWorks image-editing software, you choose New Scan from the Scanner menu, and the LightningScan's LED light flickers to life; you're ready to start scanning.

Granted, 25 minutes of portable scanning might not sound like a lot, but remember, scanning a photo or a column of text takes only a few seconds. The Lightning-Scan's battery drains only when the scanner is active, not when it's sitting idle, so you can scan dozens of pages on a single charge. A DA monitors the amount of battery power remaining. Recharging a fully depleted battery takes about six hours, and Thunderware says that you will have to

replace the \$29.95 battery once a year.

Switches on the scanner let you adjust brightness, resolution (from 100 to 400 dpi), and the coarseness of dithering. The software lets you translate the LightningScan's black-and-white dithered images into 37 levels of gray. You can adjust the brightness and contrast of scanned images and apply filters to smooth, sharpen, diffuse, or posterize images. ThunderWorks also provides basic image-editing tools.

Though designed as a PowerBook peripheral, the LightningScan Portable also works with some, but not all, desktop Macs. The configuration of the serial ports makes the LC and LC II incompatible with the scanner; nor does it work with 68000-based desktop Macs, such as the SE and the Classic. It does, however, work with the 68000-based PowerBook 100 and even the old Mac Portable. (The LightningScan Pro 256 and the LightningScan 400 work with all desktop Macs from the Plus up and require only System 6.0.7. The LightningScan Portable requires at least System 7.0.)

If your PowerBook has a SCSI port, you can get exactly the same performance from the AC-powered LightningScan 400. However, most PowerBook owners will find the LightningScan Portable's modem- or serial-port connection, lightweight interface, and total portability well worth the extra \$60.—JOSEPH SCHORR

Flexibility (flek·sə·'bil·ət·ē) n.1, A feature previously not found in this category. example: For under \$800, TI microWriter™ printers with Adobe® PostScript® give you more networking and paper handling flexibility than Apple and HP, at a lot lower price.



THE
UNDER \$800
PRINTER,
REDEFINED.

		TI microWriter PS23	Apple LaserWriter Select 310	HP 4ML	
Print Speed		5~ppm	5ppm	4 ppm	
AppleTalk* Con	nection	Standard	Not Avail.	Standard	
Paper Trays	(std.)	250 sheet	250 sheet	100 sheet	
ruper trugs	(opt)	250 sheet	250 sheet	Not Avail.	
Auto Emulation	Switching	Standard	Not Avail.	Standard	
List Price		\$799	\$ 1079	\$1279	

If you're looking for a PostScript printer with a street price well under \$800, you'll have a hard time finding one with as many features as a TI microWriter.

Just look at the chart and compare it to our leading competitors, Apple and HP. Then, when you're ready for a full-featured printer that's truly flexible, at a price that's truly affordable, take a look at a TI microWriter. For more information or a dealer near you, call 1-800-527-3500.

EXTENDING YOUR REACH WITH INNOVATION"









Specifications in chart are based on information as of 9/93. microWriter and "Extending Your Reach With Innovation" are trademarks of Texas Instruments. Adobe, PostScript and the PostScript logo are registered trademarks of Adobe Systems, Inc. AppleTalk is a registered trademark of Apple Computer, Inc. © 1993 Tl.

Compatibility (kem.pat.e.bil.et.ē) n. l, A feature typically lacking in this category. example: The new 600 dpi TI microLaser Pro 600 printer gives you Mac, DOS, Windows, PostScript and PCL5 compatibility standard; Apple and HP charge hundreds more.





Specifications in chart are based on information as of 9/93. \*Estimated dealer price including manufacturer's rebate is under \$1400. Dealer prices may vary. †At 4% coverage. ‡Rebate applies to PS23 model. microLaser and \*Extending Your Reach With Innovation\* are trademarks of Texas Instruments. Adobe, PostScript and the PostScript logo are registered trademarks of Adobe Systems, Inc. LaserJet is a registered trademark of Hewlett-Packard, Inc. Mac is a registered trademark of Apple Computer, Inc. © 1993 TI.

If you're looking for a true 600 dpi printer with a street price under \$1400, you'll have a tough time beating the new TI microLaser Pro 600.

You see, when we set out to design the ideal office printer, we began by asking thousands of users what they wanted most. And then, instead of

> making those "key care-abouts" optional, we made them standard.

> Take print quality. We began with true 600 dpi resolution. And then enhanced it with 6MB of memory for improved graphics. Compatibility? We're Mac\*, DOS and Windows compatible right out of the box. With all the right languages and interfaces. And with the intelligence to switch these automatically, depending on the environment. Low maintenance? Our new toner cartridge typically gives you 15,000 pages between changes.

Paper handling? Two 250-sheet trays come standard. And finally, value. Take a look at the chart below, compare features and price, and your choice should be simple.

So if you're considering a new printer, we invite you to try the new TI microLaser Pro 600. For more information or a dealer near you, call 1-800-527-3500.

Ask About Our \$60 Introductory Rebate.

THE

**UNDER \$1400** 

PRINTER,

REDEFINED.

7	TI microLaser Pro 600	Apple LW Pro 600	HP LaserJet 4M	
True 600 dpi	Yes	Yes	Yes	
Speed/Processor	8ppm/RISC	8ppm/68030	8ppm/RISC	
Emulations	PCL5/ Adobe* PostScript 2	PCL4/ Adobe PostScript 2	PCL5E/ Adobe PostScript 2	
Compatibility	Mac/DOS	Mac/DOS	Mac/DOS	
Toner Cart. Life	15K pages'	6K pages	6K pages	
Paper Trays	250 sheet/ 250 sheet	250 sheet/ 100 sheet	250 sheet/ 100 sheet	
Auto Language Swi	itching Yes	No	Yes	
Auto Interface Swit	ching Yes	Yes	Yes	
List Price	\$1599*	\$2099	\$2399	

EXTENDING YOUR REACH WITH INNOVATION"



#### Falcon MC 1.0

#### **Jet Fighter Simulation**

PROS: Realistic cockpit depiction; heads-up display; bomb's-eye view. CONS: Fixed window size; requires fast CPU for adequate redraw rate. COMPANY: Spectrum HoloByte (510/522-1164). LIST PRICE: \$69.95.

 $MW \star \star \star \star$ 

HETHER YOU'RE AN ARMCHAIR jet-jockey or an experienced fighter pilot, you'll be impressed by this incarnation of the original Macintosh combat flight simulator, Falcon. The new release adds 4-bit color, enhanced graphics, and even more sophistication than its predecessor.

Falcon MC simulates the F16 Fighting Falcon jet fighter, the aircraft that achieved fame during the Gulf War for its television- and laser-guided bombs. The comprehensive manual includes a handy quick-start section, as well as thorough briefings on F16 systems, flying techniques, and fighter tactics. You can fly the simulator using the keyboard, the mouse, or an attached Gravis MouseStick or MouseStickII. The F16's complex controls make a MouseStick recommended equipment for serious play. You

can optionally connect a second MouseStick for use as a throttle—a welcome help during dicey dogfights.

Falcon MC flies in an imaginary world, where an aggressive country threatens its helpless neighbor. A dozen missions take you to various enemy targets; you're scored on your ability to complete the mission and on the number of bandits you take out in the process. Before takeoff you must load your stores, including missiles, bombs, fuel tanks, and electronic countermeasures. Your choices are limited by weight and mounting requirements, and each additional package increases drag, reducing your maneuverability. Once you're missionready, you proceed through an authentic jet-engine start sequence, complete with realistic sounds and the takeoff roll.

In the air, your primary flight instrument is the heads-up display (HUD). Found in all modern fighters, the HUD projects crucial information about altitude, airspeed, heading, and attitude directly onto your windscreen. Falcon MC's HUD is uncannily authentic in its depiction of flight data. You also have forward, left, and right views inside the cockpit to scan less-frequently-used controls and indicators. A radar display works as a moving-map readout and TV-guided weapon monitor. You can aim weapons using your eye, the radar display, or a missile-mounted TV camera. You can

even call up the missile-camera display after launch, replicating those stunning bomb'seye views seen during the Gulf War.

As you fly around Falcon's world, you're treated to a colorful 3-D view showing sky, plains, mountains, lakes, airports, and buildings. A voice message system alerts you to dangerous conditions, and you can listen to radio traffic for warning of nearby enemies. If you don't want to fly one of the preprogrammed missions, you can jump right into the middle of an ongoing dog-fight. And if you've got another Mac handy, two can play together head-to-head.

There is very little to dislike about Falcon MC. The disk is copy-protected, but it's a one-time-only copy protectionyou're asked to look up something from the manual upon initial installation. The program uses a fixed-size window small enough to fit a Mac Classic screen, even though the only small-screen Mac Falcon MC runs on is the Color Classic. Because it's so complex, the HUD would be well served by the ability to use more screen area. That same complexity also slows the screen redraw rate, which is unacceptable on a 16MHz Mac unless you turn off all scenery rendering. Even on an accelerated Mac IIci, the redraw rate is unexceptional, although acceptable. But those are minor inconveniences easily forgotten once you've got that MIG in your sights .- MEL BECKMAN

#### All Bernoulli® products up to Old SRP **New SRP** New SRP Old SRP Single 90MB Disk (in 5-Pack) 150M8 MacTransportable Drive and Disk \$699 \$975 N/A \$99 \$713 \$129 90MB MacTransportable Drive and Disk \$589 Single 65MB Disk \$59 Single 150MB Disk (in 5-Pack) \$159 \$109 Single 35MB Disk Single 105MB Disk

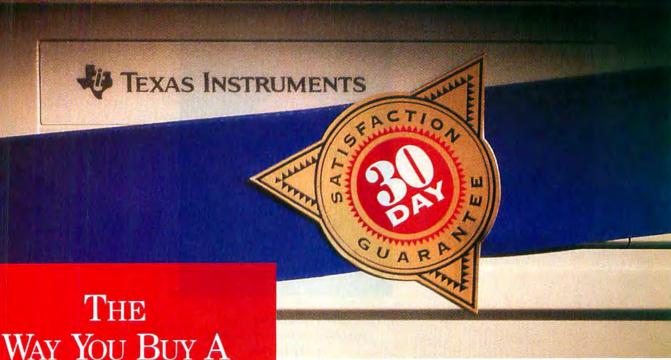


Iomega's just been tagged the new low price leader for removable storage. We've cut prices permanently on the most reliable storage devices around—including the high-performance MultiDisk™ 150 Drive\* See your dealer or call 1-800-777-4084.



<sup>\*</sup>The Bernoulli MultiDisk 150 Drive can use 150, 105, 90, 65 and 35MB disks interchangeably. ©1993 lomega Corp. The lomega Logo and Bernoulli are registered trademarks and MultiDisk is a trademark of lomega Corp.

**Satisfaction** (sates fak shen) n. l, A feature previously left to chance in the purchase of a printer. example: When you buy a new TI printer, your satisfaction is guaranteed or call TI within 30 days and we'll take it back.



In the past year, we've introduced a whole new line of office printers. And as you've seen in the previous pages, they're some of the most advanced models on the market today. But now, we're also going to change the way you buy a printer.

PRINTER,

REDEFINED.

When you buy one of these new TI printers, if you need any help at all, simply call us toll-free at 1-800-TI-TEXAS, and we'll work with you. Then, within 30 days from date of purchase, if you're still not completely happy, call TI and we'll take it back. It's as easy as that. That's how confident we are in each

and every printer we make. And even after the 30 days, you can continue to call the 800 number for any help you may need.

For more information about the TI microMarc, the TI microWriter or the new TI microLaser Pro 600 printers, and for the name of a dealer near you, call 1-800-527-3500. And see for yourself how TI is redefining what you should expect from an office printer.

EXTENDING YOUR REACH WITH INNOVATION™



# With Epson's 1-pass scanning, great images come easy.

#### **Epson ActionScanning System**

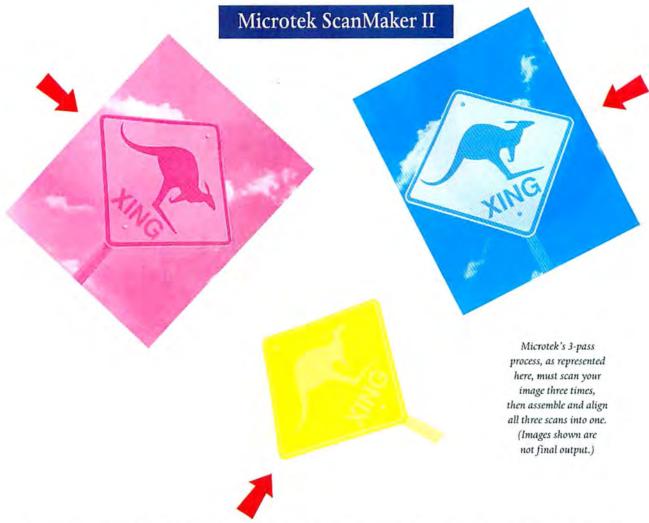


Epson's 1-pass system captures every detail and nuance of your image in one precise pass.



resolution, it gives you picture perfect results in one simple pass. Precisely adjusting your image is easy, too, thanks to Epson's unique built-in controls.

# With Microtek's 3-pass scanning, image assembly is required.



What's more, the ActionScanning System comes with everything you need to be a scanning expert right out of the box, including Adobe Photoshop 2.5 LE, one of the most versatile image editing programs around.

For our free booklet on scanning or to learn more about the easy-to-use ActionScanning System or our other scanners for Macintosh and PCs, call the Epson Connection at 1-800-BUY-EPSON (800-289-3776). This is one scanner you should jump at the chance to own.





Apple has Macs for all users.

# NEW ACS

We sort out the complex new lineup.

In a year that has seen more models come and go than ever, Apple continues to shore up its mainstream desktop product line to better compete in the Windows PC-dominated universe. As part of that effort, Apple has now simultaneously enhanced most of the current Mac line and revamped how it sells Macs. Here's what these changes mean.

- The 68040 CPU—the heart of the Quadra—is now also part of Apple's bargain-priced consumer and educational lines. Plus there's a new low-cost Quadra that rounds out the 040 business line.
- The midrange Centris Macs have been enhanced and renamed (they're now called Quadras).
- Several 030-based Macs have been enhanced; one result is the first 040-based LC.
- There are two new Duos and a new type of longerlasting PowerBook battery (see "New PowerBook Duos," in this issue).

Gone are the days when each new Mac was a totally new computer. That means lower development costs for Apple (and lower costs for customers), fewer hardware versions for third-party developers to support, and the possibility of cheaper upgrades.

Apple's new Macs also represent a realignment of Apple's models and of how the company thinks consumers choose computers. The results are meant to simplify new purchasers' decisions, but for a while at least, these changes may confuse current Mac owners.

#### New Macs in Detail

First, take a look at the Macintosh desktop offerings and see how they match up with your requirements. The table "Apple's Current Desktop Macintosh Lineup" shows the specifications for the new Macs. The sidebar "The Discontinued Macs" lists those that are being phased out, and the sidebar "New Apple System Upgrades" details the few system-board upgrade options available for owners of existing systems.

Professionals' systems The Centris 650 is now the Quadra 650, and that just means it uses a 33MHz 040 rather than a 25MHz version. Basically, it's a Quadra 800 in a Centris 650 case. It is a great computer at a great price. And because it rivals the Quadra 800 (and the Quadra 950) in performance, it's not surprising that the Quadra 800 will be phased out in early 1994. That leaves one general-purpose tower configuration in the Mac lineup: the Quadra 950. The 950's advantage is its capacious internal space for drives, dual-SCSI-port implementation for certain types of servers and storage systems, and high-level VRAM expansion (enough for 24-bit color, rather than the 650's 16-bit).

Functionally unchanged are the AV Macs introduced in July (see "The AV Macs," *Macworld*, October 1993), although the Centris 660AV is now called the Quadra 660AV.

The new center Four of Apple's new midrange Macs have 25MHz LC040 CPUs (the version of the 040 with no built-in FPU) and a single LC III-style Proces-

BY CHARLES SEITER



sor Direct Slot (which accepts boards designed for both the LC/LC II type and LC III PDS type). They're basically 040-based LC III's.

The Quadra 605 (not available in Europe), LC 475, and Performa 475 and 476 all use the same system board and come in slim cases. The LC 475 and

applications that demand a more capable system than these. But a typical business's Excel spreadsheets will gain little from an FPU.

A more significant omission for the Quadra 605 is Ethernet. The other Quadras offer built-in Ethernet ports; you will need to use the 605's one PDS

#### New 040-based LC III's now make up the midrange

Quadra 605 can be ordered with 80MB or 160MB hard drives; a Performa 475 has a 160MB hard drive; the 476 has a 230MB drive. By the way, the Quadra 605's case differs slightly from the case used in the other models, but that difference is only skin-deep. (Apple offered no convincing reason why it couldn't use the existing Centris 610/Quadra 610 case instead of coming up with yet another look.) Apple expects individual Quadra 605s to cost as little as \$1000, depending on hard drive and RAM capacities. The LC and Performa versions should be similarly priced.

In the PC world, the FPU-less 25MHz 486SX has become the standard small-office/home-office CPU, used in sub-\$1000 systems available at places such as Sears, CompUSA, and Circuit City. Apple's use of the 25MHz LC040 in similarly priced systems looks to be the same strategy.

But is the lack of FPU critical? For most people, the answer is no. All of these LC040 systems come close to a Quadra 700 in overall performance for common tasks, and are significantly faster than a comparable 030-based Mac—in fact, typically twice as fast. The FPU greatly speeds certain calculations used in rendering, modeling, and scientific analysis—

#### **NEW APPLE SYSTEM UPGRADES**

or people with LC II and LC III models, Apple will offer a system-board upgrade to the LC 475 for about \$499. Macworld Lab tests show that you will roughly double the performance of an LC III and triple that of an LC II. Apple promises that this upgrade will actually be available, unlike the hard-to-find upgrades to the LC III from the LC and LC II.

From the now-defunct Centris 610 and 650, Apple has no system-board upgrades to the Quadra 610 and 650, reasoning that the modest performance boost is not worthwhile. Apple earlier announced that the Centris Macs will have upgrades to PowerPC Macs sometime in 1994, and these will work in the Quadra 610 and 650 as well. But Apple would not say whether buyers of the new Quadra 605, LC, or Performa models would have system-board upgrade options to PowerPC.

#### Apple's Current Desktop Macintosh Lineup

Model	List Price (base model) ^	RAM/Hard Drive Capacity (base model)	СРИ	FPU	Maximum RAM	Base VRAM	Maximum VRAM	Number of NuBus Slots	Type of Processor Direct Slot
Quadra 950	\$3999	8MB/0MB	33MHz 040	included	256MB	1MB	2MB	5	Quadra
Quadra 840AV	\$4069	8MB/230MB	40MHz 040, 66MHz 3210	included	128MB	1MB	2MB	3	Quadra
Quadra 660AV	\$2489	8MB/230MB	33MHz 040, 55MHz 3210	included	68MB	1MB	1MB	10	Quadra <sup>D</sup>
Quadra 650	\$2000 <sup>€</sup>	8MB/230MB	33MHz 040	included	132MB	512K	1MB	3	Quadra
Quadra 610	\$1400 E	8MB/160MB	25MHz 040	included*	68MB	512K	1MB	1 <sup>B</sup>	Quadra <sup>D</sup>
Quadra 605	\$1000 E	4MB/80MB	25MHz LC040	none	36MB	512K	1MB	0	LC III
LC 520	\$1599 °	5MB/80MB	25MHz 030	optional	36MB	768K	768K	0	LC III
LC 475	\$1299	4M8/80MB	25MHz LC040	none	36MB	512K	1MB	0	LC III
LC III	\$1349	4MB/80MB	25MHz 030	optional	36MB	512K	768K	0	LC III
LC II	1.	4MB/80MB	16MHz 030 <sup>K</sup>	none	10MB	256K	512K	0	LC
Performa 550	\$1200°	5MB/160MB	33MHz 030	optional	36MB	768K	768K	0	LC III
Performa 476	\$1800 E	4MB/230MB	25MHz LC040	none	36MB	512K	1MB	0	LC III
Performa 475	\$1600°	4MB/160MB	25MHz LC040	none	36MB	512K	1MB	0	LC III
Performa 466, 467	\$1500°	4MB/160MB	33MHz 030	none	36MB	512K	768K	0	LC III
Performa 460	\$1300 E	4MB/80MB	33MHz 030	none	36MB	512K	768K	0	LC III
Performa 410	\$1000 E	4M8/80MB	16MHz 030 K	none	10MB	512K	512K	0	LC
Color Classic II	1	4MB/80MB	33MHz 030	optional	36MB	256K	512K	0	LC III
Color Classic	1.	4MB/80MB	16MHz 030 <sup>K</sup>	optional	10MB	256K	512K	0	LC III
Classic II	-1.	4MB/80MB	16MHz 030 <sup>K</sup>	поле	10MB	OK	ок	0	none

All Performa and LC prices include a keyboard and monitor. LC prices are for institutions; individual prices at campus stores will be about 10 percent higher. For additional drives have a stripe pitch of 0.26mm, which is equivalent to a tridot monitor's dot pitch of 0.28mm. Requires a \$99 adapter to hold either a 7-inch NuBus board or a 7-inch PDS board, internal CD-ROM costs \$1300. Taken up by a bundled CD-ROM drive. Also available without bundled monitor. Not sold in the U.S. or sold only to limited markets. Prices vary.

to add this capability in an Ethernetbased office.

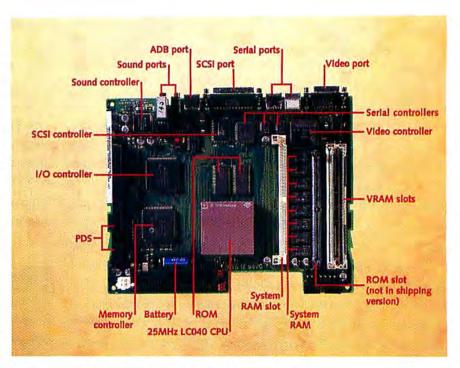
Like the other new midrange Macs, the Quadra 610 has a 25MHz CPU, but (except for the base model) it's the full 040 (with FPU); the Centris 610 it replaces used a 20MHz LC040. The Quadra 610 also has a built-in Ethernet port (which was optional on the Centris 610) and one slot, which takes only the still-rare 7-inch NuBus or Quadra PDS cards (you'll need a \$99 adapter for either type). Basically, it's a Centris 650 in a Centris 610's case.

Centris 610 owners will feel the most upset by these new Macs, since the Quadra version of the 610 (for which Apple has no upgrade board) noticeably outperforms what they bought earlier this year. But, with a PowerPC upgrade for Centris 610s planned for sometime next year, Apple decided it was better for Centris 610 (and 650) owners to wait until then for a significant performance boost. That's actually better in the long run.

But there is a complication for Centris 650 owners: the first PowerPC upgrades are likely to support NuBus, so if you have NuBus boards, you don't lose that investment. But Apple intends to switch from NuBus to Intel's PCI bus (probably in 1995), so you'll have to decide if you can put off the purchase of add-on boards until then and forgo the initial PowerPC upgrades (and perhaps buy the inevitable DayStar Digital accelerator in the meantime).

Number of Drive Bays <sup>B</sup>	Built-In Ethernet	Monitor Type <sup>c</sup>		
3	yes	none III		
2	yes	none		
1	yes	none		
1	yes	none		
1	yes	none		
0	optional	none		
1"	none	14-inch Trinitron		
0	none	14-inch Trinitron		
0	none	14-inch Trinitron		
0	none	none		
14	none	14-inch Trinitron		
0	none	14-inch 0.28mm tridot		
0	none	14-inch 0.28mm tridot		
0	none	14-inch 0.28mm tridot		
0	none	14-inch 0.39mm tridot		
0	none	14-inch 0.39mm tridot		
0	none	10-inch Trinitron		
0	none	10-inch Trinitron		
0	none	9-inch monochrome		

(excluding internal hard drive and floppy drive). SAll Trinitron monitors Estimated dealer price. Not included in base model. Version without Has a 16-bit system bus (which slows performance).



New System Board The Quadra 605, LC 475, and Performa 475 and 476 all share this new system board.

Basic workhorses The new 030-based Macs come in two main breeds: the LC III and Performa 460 series, and the LC 520 and the Performa 550.

The three Macs in the Performa 460 series—the 460, 466, and 467—are basically an LC III with a faster CPU (33MHz versus 25MHz). The Performa 466 and 467 offer a better monitor than the 460 (0.28mm dot pitch versus 0.39mm), and all three have different sets of software preloaded on their hard disks. This perhaps represents the Apple definition of simplification at its most acute-these computers have different model numbers because they are sold in slightly different consumer outlets and because one offers Super Munchers and Mario Teaches Typing, and the other offers Monopoly and the Apple Font Pack.

These new 030 Performas all beat the performance of 1992's business standard: the IIci. The price is competitive, too; the suggested retail price for the 460, including the mediocre-quality 14-inch Performa Display, is \$1300-an amazing bargain for the Mac home-office market. Meanwhile, Apple plans to keep offering the LC III for educational sales.

The LC 520 and Performa 550 are basically allin-one multimedia LC III's. The 520 is a 25MHz 030-based system with an internal CD-ROM drive (see "The Macintosh LC 520," Macworld, September 1993). The Performa 550 is the corresponding consumer-channel box: it has a 33MHz 030 for a slight performance improvement. If you want a system with a CD-ROM, the base price of \$2000 (which includes a high-quality Trinitron monitor) makes the 550 a wonderful choice.

#### A New Desktop Lineup

Apple has been criticized during the last couple of years for introducing and then dropping various models-the IIvx is a notorious example. The name

Centris didn't even last as long as the IIvx—nine months after the Centris Macs were introduced, that nameplate is gone (the IIvx hung around for a year).

Because of the resulting customer confusion, Apple began developing a product line that it can market for at least a year at a time. That quest has for workstation-level systems. Apple has no direct competition, but since it sells computers in the same universe as the PC vendors, it's obliged to make similar performance leaps in its new models. In fact, Apple's current strategy is nearly identical to that of leading PC maker Compaq. It's not a bad business

#### In a way, Apple has introduced its own Mac clones

led Apple not just to introduce some new models, but also to describe the new models and their variants for different markets as "product-line simplification."

To the rest of us, simplification usually suggests a smaller rather than a larger assortment of objects, but this particular example of Cupertino-speak has at least some justification. The new 68040 series is the beginning of a new Macintosh world organized around five rules:

1. The CPU for midrange desktop Macs is the 68040. Apple will keep selling 030 products such as the Performa 460 as long as there's enough demand, but new midrange Macs will be 040s.

Higb-end office Macs will use PowerPC chips.
The next step beyond a fast 040 isn't a faster 040, but high-speed RISC architecture in the form of the PowerPC series of chips, starting with the 601 (see "Making the Quantum Leap to PowerPC," Macworld News, November 1993).

3. Portable Macs will still use 68030s. The 68040 is simply too power-hungry for portable use, especially at high clock speeds. Not only would battery life be unacceptably short, but all those dissipated watts of power would apply themselves in close confinement to melting holes in the plastic case.

4. Macs will be named based on what kind of customer Apple is targeting, not on the machines' capabilities or relative performance. That means that there are four basic nameplates: Quadra for business customers, LC for education customers, Performa for home customers, and PowerBook for portable customers. The Performa and LC models will come as complete systems, with monitor and keyboard; the Quadra line will be sold modularly (no keyboard or monitor).

5. Not all Macs will be sold in all nations. Apple has long let each geographic region decide what to sell and how to price it, but this year marked the first availability of more powerful Macs outside the U.S. than in it. First, the LC 520 was made available this summer to Japanese and Canadian consumers but restricted to U.S. educators. Now, Apple is releasing the Color Classic II to just Far East customers. As Macworld Lab tests show, the Color Classic II's 33MHz 030 and 32-bit system bus make it two and one-half times as fast as the Color Classic, which will still be sold in the U.S.

#### Macs by Many Names

Apple has been forced, as the only vendor of Macintoshes, to do what normal market forces have done for other personal computers: slash prices and improve models frequently. IBM and the other PC makers have migrated their product lines toward the powerful Intel 486DX and 486DX2 CPUs for mainstream desktop use, toward the midline Intel 486SX for home users, and toward the new Intel Pentium

model—Compaq has emerged from a year of brutal price-cutting competition with record profits.

Like Compaq, Apple has named its lines of computers based on the market it is selling them to. The table "Keeping Mac Models Straight" shows which Macs in each line are actually the variants of the same

#### BEHIND OUR TESTS

To gauge the latest Macs' basic performance, Macworld Lab ran three sets of real-world tests. The Core-Performance set let us gauge relative performance against all other Macs by using core applications that test basic performance attributes, which we report in terms of times as fast as a Classic. These core rankings may differ from what we reported in our June issue; differences are based on refinements made since then to our core tests.

A second set—Business Systems—is a mix of tasks typical of professional business users—people who would want or need an 040-based system. The programs used include Adobe Photoshop, Aldus FreeHand, Claris FileMaker Pro, Microsoft Excel, Microsoft Word, QuarkXPress, and Specular Infini-D.

The third set—Entry-Level Systems—is a mix of tasks typical of less-ambitious users—people looking for an 030-based system for their home or small office. The programs used include Claris FileMaker Pro, ClarisWorks, Deneba Software's UltraPaint, and Microsoft Excel and Word. This approach lets you compare Macs doing the kind of work you're likely to do. You can compare results for Macs tested with the same set of tasks, but you cannot compare results for Macs tested with a different set of tasks.

For all the new Macs, we tested preproduction systems, although our experience in recent years has been that they perform very much like final shipping versions. In all cases, we used an external 230MB Quantum-based hard drive from APS, whose speed ensures that we're consistently measuring the Mac bus's performance. We also used the standard Apple Trinitron 14-inch color monitor for all systems that don't have a built-in monitor; this ensured that we measured only the video circuitry's performance.—Macworld Lab testing supervised by Mark Hurlow and Danny Lee



#### Comparing the New Macs' Performance

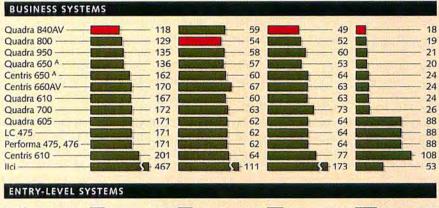
Tested with Core Tasks suite. Best result in each test. Tested with Business Tasks suite. Tested with Entry-Level Tasks suite. Products are arranged in decreasing order of overall performance.

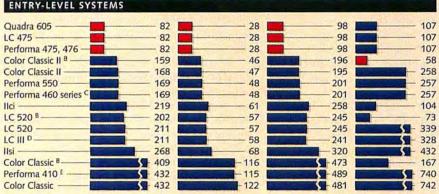
#### TASK-PERFORMANCE TIMES (by system class)

#### Times are in seconds. Shorter bars are better.

Use these results to compare the performance of systems within a class, such as business and entry-level. For each class, we used a test suite made up of real-world tasks routinely performed by the class's typical user. Thus, the results for one class cannot be compared with results for another class. The sidebar "Behind Our Tests" details the applications used.

Processor	Drive-Access	Video-Display	Floating-Point
Indicates raw pro- cessing power, which affects almost all as-	Indicates perfor- mance on tasks that rely heavily on the	Indicates perfor- mance on tasks that depend heavily on	Indicates perfor- mance on tasks that heavily use a math
pects of performance.	hard drive.	screen-redraw speed.	coprocessor.





#### CORE-PERFORMANCE INDEX

Times as fast as a Classic (Classic = 1.0). Use these standard ratings of overall performance, based on a core test suite, to compare systems across classes. Common and Scientific ratings indicate overall performance for common applications and the Mac System, and scientific applications, respectively.

	Common	Scientific
Quadra 840AV ———	16.5	26.8
Quadra 800 —	16.4	26,8
Quadra 950 ———	14.7	24.6
Quadra 650 A	14.6	24.9
Centris 650 A ———	12,8	27.8
Centris 660AV ———	12.4	21.4
Quadra 610 ———	12.1	20.9
Quadra 700 ———	11.9	19.4
Quadra 605	10.3	10.8
LC 475 ———	10.3	10.8
Performa 475, 476 —	10.3	10.B
Centris 610 —	8.8	9.0
Color Classic II B ———	5,9	11.4
Color Classic II	5.5	5,3
Performa 550 ———	5.0	5,2
Performa 460 series C	5.0	5.2
Ilci ———	4,9	9,2
LC 520 B	4,6	9.0
LC 520 ———		4.2
LC III D	4.0	4.1
Ilsi —	3,3	3.3
Color Classic B ———	3.1	4.0
Performa 410 E	1.9	1.9
Color Classic ———	1.9	1.9

A Tested without memory interleaving active; when in use, interleaving typically boosts performance by 5 percent. B With optional FPU. C Includes Performa 460, 466, and 467. D Also sold as the now-discontinued Performa 450. E Also sold as the now-discontinued LC II and Performa 400, 405, and 430.

basic machines. It's simpler than it looks. Let's call all the new 040 models simply Model C (my label, not Apple's): a 25MHz LC040 Mac. If you buy Model C at Circuit City, the box says Performa 475 or 476, depending on what software is bundled with it. If you're a school or university, you can fill a computer lab with Model Cs, but your education-market sales rep will call this computer the LC 475. If you wander into a computer store, you'll find the Model C called a Quadra 605. Apple wants to provide each marketing channel with something, even if it's the same thing, with essentially the same price.

While the performance of the Model C is the same across the board, there's a different set of bundled software or a different support program, or some other marketing distinctions. For example, if you buy your Model C for home use in the consumer

channel now, as a Performa, you will take home a single box from the store, since the bundle includes a monitor. The box will contain a simplified road-map reference guide for connecting your components, and your software will include basic training that assumes you might not know what an icon is (Apple's been through a learning experience at Sears). By contrast, site-licensed education buyers get lots of direct support from Apple. Finally, if you buy a Quadra Model C through a traditional computer store, the dealer is primarily in charge of hand-holding for installation and support follow-through.

This might not be the way you would set up a product line, but Apple is convinced that the people who buy computers from appliance retailers and the people who buy them from computer dealers are in fact not the same people. The strategy has worked in

#### **Keeping Mac Models Straight**

		SALES CHANNEL -				
Generic Class	Basic Characteristics	Business	Home	Educational	Only Outside U.S	
Model A	16MHz 030	none	Performa 410	none	LCII	
Model A Plus	adds color display, all-in-one unit	Color Classic	Color Classic	Color Classic	none	
Model B1	25MHz 030	none	none	LC III	none	
Model B1 Plus	substitutes 33MHz 030	none	Performa 460, 466, 467	none	none	
Model B2	all-in-one unit	none	none	none	Color Classic II	
Model B2 Plus	adds CD-ROM, larger monitor	none	Performa 550	LC 520	none	
Model C	25MHz 040	Quadra 605	Performa 475, 476	LC 475	none	
Model C Plus	adds FPU, drive bay, and Ethernet	Quadra 610	none	none	none	
Model D	33MHz 040	Quadra 650	none	none	none	
Model D Plus	adds drive bays, fast SCSI, tower case	Quadra 950	none	none	none	
Model E	25MHz 040, 55MHz 3210 DSP	Quadra 660AV	none	Quadra 660AV	Quadra 660AV	
Model E Plus	40MHz 040, 66MHz 3210 DSP	Quadra 840AV	none	none	none	

#### THE DISCONTINUED MACS

- n the process of relabeling and redesigning boxes, Apple has decided that six earlier models need to be buried immediately:
- The Centris 610 and 650, which are replaced by the Quadra 610 and 650. The Centris 660AV is now the Quadra 660AV.
- The IIvx, IIvi (a lower-performance version of the IIvx sold only outside the United States), and the Performa 600 (another lower-performance variant of the IIvx).

Another set of Macs are being phased out, which means that when dealers run out of stock, there will be no more:

- The Quadra 800.
- The Performa 400, 405, and 430 (relabeled LC II's), which are being replaced by the Performa 410. The LC II will be sold only outside the United States.
- The Performa 450 (a relabeled LC III), which is replaced by the Performa 460 series. And the LC III will no longer be sold outside the education market once dealers run out.
- The Classic II and the Performa 200 (a relabeled Classic II).

Apple is making deals with volume resellers for discounts on the remaining stock of many discontinued Macs. For example, Circuit City will get the bulk of the remaining Performa 430s (renamed LC III's) and sell them for \$999. The price of the Performa 600 with CD-ROM drive (a relabeled IIvx) will drop to \$1799 as a closeout deal. Apple expects stocks to run out by the end of the year.

the sense that the Mac is now carried by three times more retail outlets than it was just a few years ago. In a way, Apple has introduced its own Mac clones.

#### Making Sense of It All

Despite the name-juggling and package-tweaking, it's possible to make sense of the new lineup. Here's some advice.

If you are a first-time computer buyer, you may as well do what Apple wants you to do and go check out the Performas at a retail store's electronics department. They are aggressively priced, and your main decision will hinge on whether you're comfortable with Apple's coarser-pitch monitor in the lower-priced variants (be sure you look at both monitors before buying the coarser one). A secondary decision is this: Are you going to want a CD-ROM player some day? If you will, you can't match the system price of the Performa 550 by assembling any other combination of components on your own.

If you have special interests in multimedia and interactive educational material, the AV Macs are the obvious move. If you've managed to live with an SE or a Classic for years, you may find that the CD capabilities of a Performa 550 or LC 520 are plenty dazzling in their own right.

If you already own an 030-based Mac running at 25MHz or higher, the decision is tougher. You get two to three times the performance by migrating to one of the newer Quadras. Or you could wait for a year to see what the price/performance situation is for the first PowerPC Macs, with inevitable downward price pressures on the Quadra line.

Apple obviously had to take drastic measures recently, just to hold market share on the desktop, and Mac owners can't be blamed for thinking "wait and see" might be a prudent policy. If, however, you're working with large databases or high-resolution color files, you're already waiting during a large chunk of your workday-and your time has its own costs. To make a serious evaluation, first look at the prices in a Macworld issue from two years ago and figure out how you would have justified a purchase then. Now look at the prices in "Apple's Current Desktop Macintosh Lineup" and rethink the same arguments. No matter how many times the names and processors change, the inexorable trend toward more power at lower prices makes this hypothetical two-year decision simpler: Get the most power you can afford now and expect to need later. m

Macworld contributing editor CHARLES SEITER, who was personally tormented during 1993 by Apple price cuts on the system he bought for Christmas 1992, does software and electronic design for bioanalytical instruments.

## HOW TO USE PC DATA WITHOUT LOSING DUR COOI

ou asked them to give you the file on a disk. But the floppy they handed you was formatted for an IBM PC. Worse yet, the file was created by a

program you don't have.

So what kind of gyrations do you have to go through now? None at all, if you've installed AccessPC." >

All you need to do with the disk is pop it into your Mac's floppy drive.

And all you need to do with the file is double-click.

You see, AccessPC makes PC disks look just like Mac ones.

And it makes PC files instantly accessible to your Macintosh applications. ->

It even lets you write PC files back to disk from your Mac programs.

How, you ask, does AccessPC do this?

Unlike other packages that only provide disk compatibility, AccessPC also includes dozens of translators.

So when you try to open a file ?

your Macintosh doesn't recognize, AccessPC opens it anyway - and asks you which Mac format to convert it to. 

✓

> And when you go to write a Mac file to a PC disk, AccessPC lets you choose which PC format you want.

Speaking of choices, Access-PC works with all kinds of PC media—from floppies and flopticals, to Bernoullis, SyQuests and mageto-opticals. It lets you format and partition them, too.

Dial 800-848-7677. Or visit your dealer for a demo. \(\mu\)

And discover the words that best describe AccessPC.

No sweat.



\*\*\* III In Europe, call (44) 494 459426

Insignia

# The best thing next to the Macintosh.

When we say Citizen works where you work, we mean it. On your desktop or on the road, the Notebook Printer II<sup>™</sup> is the perfect companion to your Macintosh. With its built-in, 5-page CITIZEN sheet feeder or optional 30-page sheet Your PowerBook Printing feeder and NiCad battery, you'll get laser-

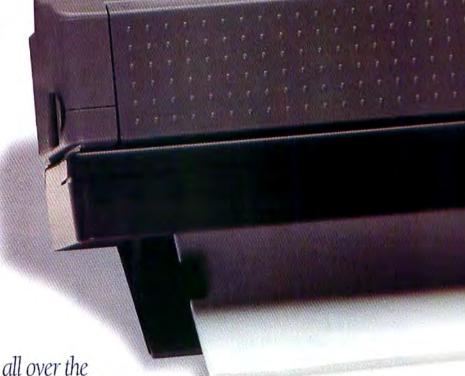
quality text and graphics wherever your

work takes you. You'll also get two pages

per minute output and Special-Image Color. All for a surprisingly low price.

Think of it. Now you





With laser-quality text, graphics, and s

color, the Notebook Printer II is your

printing partner.

Mby business takes me all over the world and the Notebook Printer II goes with me.



artner.

l-image

business

Tt's a great printer...
it's compact, reliable, and the output looks as good as an expensive laser.

can use your printer at your desk or in just about any location, use color when you need it, and produce professional-looking results. The

Notebook Printer II really is the perfect plug and play companion to your Macintosh.

And all Citizen printers come with Citizen's two-year warranty and exclusive Service Select Program:

\*\*The Company of the Citizen's two-year warranty and exclusive Service Select Program: \*\*The Citizen's two-year warranty and exclusive Service Select Program: \*\*The Citizen's two-year warranty and exclusive Service Select Program: \*\*The Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen's two-year warranty and exclusive Service Select Program of the Citizen Select Program of the Citizen

For more information on the printer that works where you work, call 1-800-4-PRINTERS for a Citizen Notebook Printer II dealer near you.



Citizen America Corporation, All other trademarks are the property of their respective owners. Printer shown with optional 30-page sheet feeder





The Notebook Printer II. It works where you work.

The 270c is a Duo of a different color—up to 32,768 of them. The 270c's 16-bit color is a first for any notebook computer, but it works only in a 640-by-400-pixel screen mode. At its full 640-by-480 screen size, the Duo 270c shows 256 colors (8-bit). The capacity of video RAM dictates the limitation. Although 16-bit color represents an improvement over 8-bit, color LCDs don't have the tonal range of CRTs, so you can't actually see all 32,768 colors. In the 16-bit, 640-by-400 mode, the image is centered on the screen with a black band at the top and bottom, similar to the look of a letterboxed movie. The 270c screen is the same size as the PowerBook 180c screen: 8.4-inch diagonal at 94 dpi, which produces

#### NEW POWERBOOK

The past year hasn't been an easy one for Apple's PowerBook Duos. Introduced in October 1992, the lightweight (4.2-pound) notebook computers—which transform into fuller-featured Macintoshes when plugged into a docking station—didn't deliver the sales Apple anticipated. According to the market research firm International Data Corporation, Apple sold about 100,000 Duos through June 1993.

Despite the modest sales of the Duo 210 (now discontinued) and 230 (\$1499), Apple hopes to generate new interest in the product line with the Power-Book Duo 250 and 270c, which feature gray-scale and color active matrix displays, respectively; improved battery technology; and, in the case of the 270c, a math coprocessor and more RAM capacity. These improvements, combined with a flurry of third-party docking-station introductions, should convince even skeptics that the Duo line represents flexibility that's unmatched among notebooks.

#### Why a Duo?

PowerBook Duos represent a trade-off between flexibility and all-in-one functionality. You give up common amenities such as a floppy disk drive, a full-size keyboard (the Duo's is 88 percent of full size), and a large PowerBook trackball. In return, the Duo is about two pounds lighter than a PowerBook, has longer battery life than a PowerBook, and really can turn into several kinds of computer based on the docking station it connects to. What has been missing until now is a range of docking-station options that take advantage of the Duo's design. Even Apple's own Duo Dock was late, shipping several months after the Duo 210 and 230 debuted.

If you're already familiar with the Duos, the new Duo 250 is easy to picture; except for its active matrix screen, the 250 is the same as the 230. The 68030 processor runs at 33MHz (without a math coprocessor); you can expand the standard 4MB of RAM to 24MB. The Duo 250 will be sold in two configurations, with a 200MB hard drive for \$2500, and with a 200MB hard drive, 12MB of RAM, and an Express Modem for about \$3000 (prices are estimated street price). The 9-inch-diagonal, 640-by-400-pixel screen shows 85 dpi, compared with the 10-inch-diagonal, 77-dpi screen on the PowerBook 180.

# DUOS

We look at

Apple's

new Duos and

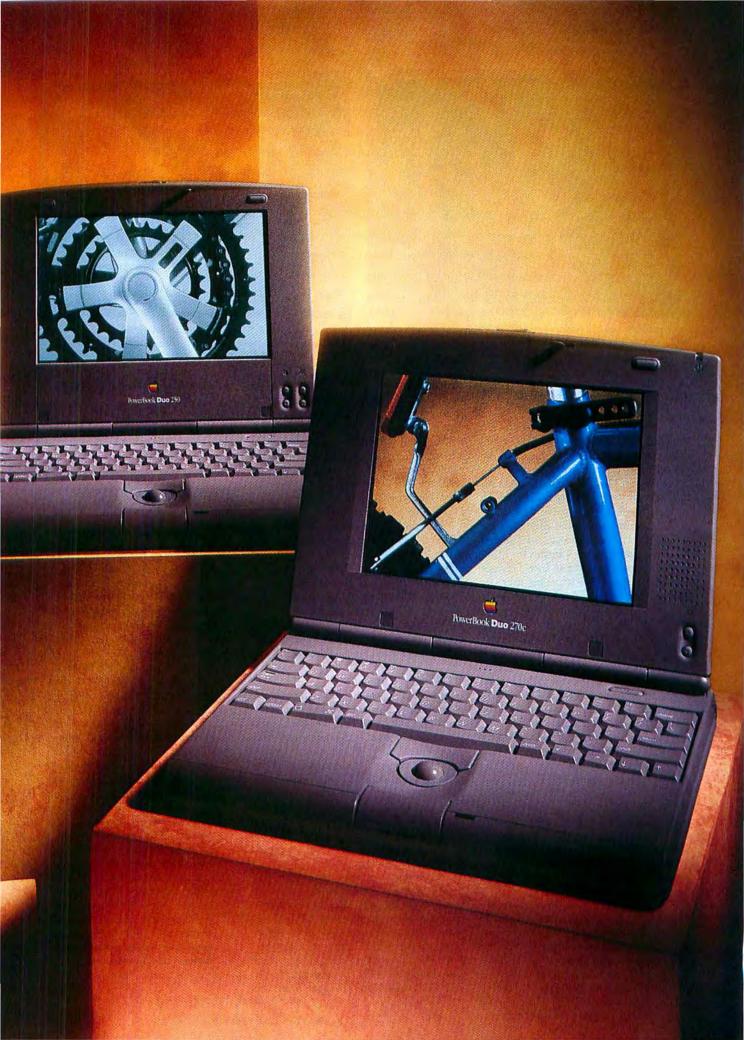
compare

10 docking

stations

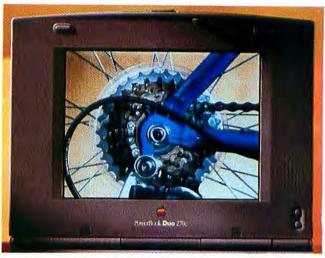
BY CARY LU







The PowerBook Duo 250 features a monochrome active matrix display (above left). The 270c (above right) uses a color active matrix screen; here, it is display-



ing 256 colors (8-bit) in 640-by-480-pixel resolution. The 270c has the capability to display up to 32,768 colors (16-bit), but only in 640-by-400 mode.

a shrunken image compared with other Macintoshes.

Like all color LCD screens, the 270c screen burns power, and that takes its toll in battery life. The additional color circuitry brings the 270c's weight up to 4.8 pounds, about a half-pound heavier than other Duos. (That's more than 2 pounds lighter than the PowerBook 180c, which also uses a color active matrix LCD.)

To accommodate the thicker color screen, the 270c now measures 1.5 inches high, compared with 1.4 inches for other Duos. An extra tenth of an inch may not seem important, but it means that the 270c does not fit into Apple's Duo Dock, so Apple has an upgraded docking station, the Macintosh Duo Dock, that allows for the taller Duo. The new Dock's higher door accepts all Duos. Duo Docks shipped after the introduction of the 270c will have the new case cover with a hinged door; an upgrade for older Duo Docks costs \$69. The extra height of the 270c won't affect other docking stations.

Beyond the screen, the 270c has a redesigned motherboard: the 33MHz 68030 has a math coprocessor, and the system accepts up to 32MB of RAM (4MB is standard). If the 270c is plugged into a Duo Dock equipped with a coprocessor, the system turns off the Dock's coprocessor. The 270c comes with a 240MB hard drive and costs about \$3000, \$3500 with 12MB of RAM and an Express Modem. (See "Duo Speed Check" for test results.)

With the Duo 250 and 270c, Apple will ship a new high-capacity Type II nickel-metal-hydride (NiH²) battery with about 25 percent more capacity. For the 250, Apple says, the battery will last two and a half to five hours; for the 270c, two to four hours. The \$85 Type II battery

also works in older Duos. Software that comes with the battery (when the battery is purchased as a replacement part) will reprogram the EverWatch Battery Saver software built into the older Duos to adjust the charging rate for a higher-capacity battery. Duos sense which battery type is in use. Apple will continue to ship the earlier Type I battery with the Duo 230.

You can upgrade your Duo 210 and 230 to the active matrix gray-scale screen for \$1299. An upgraded 230 is functionally the same as the 250, but an upgraded 210 will still run at 25MHz instead of 33MHz. The more comprehensive conversion to a 270c (a system upgrade) costs \$1999 for a color screen, new mother-board, and case lid. As usual, the upgrades offer little or no financial advantage.

#### Docking a Duo

All Duos have just two ports built in—a printer serial port for printing and connecting to a LocalTalk network, and space for a modem with a telephone-line connector. Any further expansion requires a docking station that connects through a thin, wide 152-pin connector at the back of the Duo. Just about every circuit in the Duo can be tapped through the connector—the 32-bit-wide data bus and address bus, power at several voltages, the telephone-line connection for the internal modem, and more.

Deciding on an internal modem has been easy for Duo owners: Apple's PowerBook Express Modem (\$319) has been the only one available. Global Village Communication (415/390-8200) now offers an alternative, the Power-Port/Duo fax modem (\$129). The Power-Port/Duo uses AT&T's modem chip set and offers 14.4-Kbps fax capabilities; the

Express Modem's Rockwell chip set handles faxes at 9600 bps.

#### **Docking-Station Options**

Apple's new PowerBook Duos are capable traveling companions, but that's only

#### BEHIND OUR TESTS

LAB Two features affect Duo Dock performance: SCSI and video. We used our standard suite of video tests, which include Word and Excel scrolling processes, to determine the rate at which the dock feeds video to the CPU. These tests were performed in 8-bit mode (256 colors) on both a 14-inch and 16-inch Apple color monitor (see

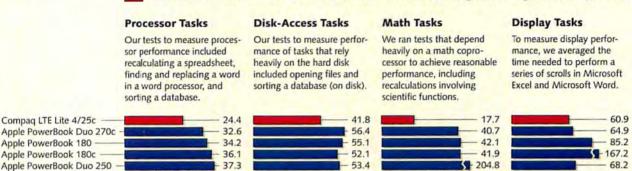
"Testing the Docks").

To test SCSI performance, we opened and saved a 5MB Photoshop 2.5 file to an external hard drive connected via a standard SCSI cable. This test determines the rate at which hard drive data is passed through to the CPU. SCSI performance didn't vary significantly, so we have not included those results. To gauge the performance of the PowerBook Duos, we measured processor, disk-access, math, and video tasks (see "Duo Speed Check"). We ran the same tests on the PowerBooks 180 and 180c and the Compaq LTE Lite 4/25c.-Macworld Lab testing supervised by Matthew Clark and Mark Hurlow



#### **Duo Speed Check**

Fastest result for each test. Times are in seconds. Shorter bars are better. Products are arranged in decreasing order of overall performance.



All notebooks were configured with 4MB of RAM. The PowerBook Duos 250 and 270c had 200MB internal hard disks. The 180 and 180c had 80MB internal hard disks. The Compaq notebook had a 120MB hard disk. We tested color notebooks (indicated by a c in the model name) in 256-color mode.

half of the PowerBook Duos' appeal. The other half lies in the capabilities you can add via docking stations.

Ten docks are now available and a few more are coming. Macworld Lab tested several docks for their SCSI and video performance. Essentially, all products performed equally, so you should choose by features and price rather than performance. SCSI performance was not significantly different among docks, so no testing results are listed. See "Testing the Docks" for video performance. Because overall performance differences are minimal, we have awarded no Editors' Choice for this article. Before you decide which, if any, docking station you need, you should weigh some key factors.

Power The smallest docks don't interfere with the Duos' power connector. The larger docks cover it and contain a pass-through connector for the Duos' AC power adapter. Either way, all docks (except for Apple's big Macintosh Duo Dock) get their power from the Duo and can operate without AC power. Although you're unlikely to connect to devices such as external monitors in the absence of AC power, the capability to operate from battery power is handy for accomplishing short tasks without fussing with extra cables. In "Comparing the Docks," the power-consumption figures are maximums, with all circuits running full tilt; average use may be much less.

scsi operation Many docking stations include a SCSI port; most use the squarish HDI-30 connector. Apple and third-party companies sell two types of cable adapters: a 29-pin SCSI system cable to connect to SCSI devices such as hard disks, CD-ROMs, and scanners; and



The PowerBook Duo line now boasts several docking-station options from Apple and third-party companies, including (clockwise from top left) the Apple Macintosh Duo MiniDock, RasterOps DuoMate 16sc, Apple PowerBook Duo Floppy Adapter, Lapis SCSI Dock, and E-Machines Presentor.

a 30-pin SCSI disk adapter that lets you use the Duo in SCSI disk mode, so the Duo's hard disk becomes a SCSI disk for another Mac. Several docks can make the SCSI system cable behave like a SCSI disk adapter. Newer Technology's SCSI Micro Dock can also do the reverse. Another option is the SCSI DOC from APS (816/373-5800); this adapter converts the HDI-30 to the standard DB-25 SCSI connector used on all desktop Macs. Among the docks, only the RasterOps DuoMate 16sc and the desktop-size Apple Macintosh Duo Dock have a SCSI port with a DB-25 connector. The Duo-Mate 16sc supports SCSI devices and SCSI disk mode. The Duo Dock does not support SCSI disk mode.

Floppy disk All docks with a floppy drive port are compatible with Apple's Macintosh HDI-20 External 1.4MB Floppy Disk Drive (\$139), originally introduced for the PowerBook 100. All other Apple floppy disk drives are incompatible. The Macintosh Duo Dock has a floppy disk drive built in.

Video All the video ports on the docks use Apple's standard 15-pin D connector, not the special small video connector on standard PowerBooks. "Comparing the Docks" shows color depth for different screen sizes. All except the Duo

#### **Comparing the Docks**

	Apple	Apple	Apple	E-Machines	E-Machines	Lapis
Product	Macintosh Duo Dock	Macintosh Duo MiniDock	PowerBook Duo Floppy Adapter	EtherDock	Presentor	Lapis SCSI Do
Price	\$1079	\$589	\$109	\$699	\$499	\$199
Phone	408/996-1010	408/996-1010	408/996-1010	408/541-6100	408/541-6100	510/748-1600
Toll-free phone	800/776-2333	800/776-2333	800/776-2333	800/344-7274	800/344-7274	800/435-2747
Shape	desktop case	wedge	in-line	wedge	in-line	in-line
Weight (in pounds)	13.1	1.24	0.25	1.25	0.63	0.29
Number of serial ports	2	2	NA	2	NA	NA
SCSI port	•	•	NA	•	NA	•
Cable compatibility	use DB-25 plug	HDI-30	NA	HDI-30	NA	29 as 30
Floppy drive port	floppy drive built in	•	•	•	•	NA
Sound-in port	•	•	NA	•	NA	NA
Sound-out port	•	•	NA	•	•	NA
Ethernet port	via optional card	NA	NA	10BaseT	NA	NA
Video/color depth	8-bit to 16-inch (512K VRAM); 16-bit to 16-inch (1MB VRAM)	8-bit to 16-inch	NA	8-bit to 16-inch; 4-bit to 19-inch	8-bit to 16-inch; 4-bit to 19-inch	NA
Override monitor sense	0	0	NA	•	•	NA
VGA/SVGA support (maximum refresh rate in Hz)	VGA (60), SVGA (56)	VGA (60), SVGA (56)	NA	VGA (75), SVGA (75); cable adapter \$19	VGA (75), SVGA (75); cable adapter included	NA
Composite television output	with encoder	with encoder	NA	with encoder	NTSC/PAL	NA
Security slot for locking dock/Duo	0/0	0/0	0/0	•/0	0/0	0/0
Power consumption (max. in watts)	87 *	4.5	1.5	2.5	2	1.5
Tested by Macworld Lab	•	0/10	•	0	•	•
Tech-support rating	very good	very good	very good	unacceptable**	unacceptable**	acceptable

■ = yes; ○ = no; NA = not applicable. Technical-support ratings are based on a series of calls made to each company by Macworld staffers (posing as customers) to gauge the accessibility, helpfulness, and accuracy of the company's support technicians. Macworld uses a point system, including bonuses and demerits, to derive the final rating. Ratings are for com-

panies, not individual products, and we call only those companies whose products Macworld

Lab tests. \*Power-consumption figure is for the combined Macintosh Duo Dock and a

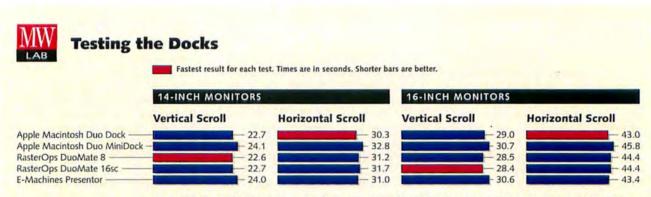
PowerBook Duo. \*\*SuperMac Technology owns E-Machines and provides technical support

for E-Machines products.

Dock support using the Duo screen simultaneously with an external monitor. The two screens can show different images or be mirrored to show the same thing. All the docks sense the monitor size through the cable to select the pixel count (640 by 480, 832 by 624, and so on). Some can override this option for more flexible operation with multisync monitors. Many docks support the VGA and SVGA monitors common to DOS- and Windows-

based PCs, but most do so at the flickerprone refresh rates of 60Hz (VGA) and 56Hz (SVGA), producing an irritating image. Only the two E-Machines docks support the flicker-free 72Hz and 75Hz refresh rates of many current VGA monitors. The Newer Technology Color MicroDock does VGA at 72Hz.

The E-Machines Presentor is the only dock that can drive a standard color television monitor (NTSC or PAL) directly. Its convolution circuit does a reasonable job of minimizing the flicker inherent in the interlaced television displays. The Newer Color MicroDock has an NTSC encoder option (less than \$100) that does not suppress flicker. The other docks with video output require a standard encoder (prices start at about \$400) to produce a TV image. Of these, only the RasterOps docks offer software that supports television format images.



We tested video performance using an Apple PowerBook Duo 210 and Apple 14- and 16-inch monitors. As our results indicate, there is little variation in video performance. Our tests involved calculating the average speed for a series of vertical and horizontal scrolls in Microsoft Excel and Word documents.

Newer Technology	Newer Technology	RasterOps	RasterOps
Color MicroDock	SCSI MicroDock	DuoMate 8	DuoMate 16sc
\$345	\$175	\$499	\$649
316/685-4904	316/685-4904	408/562-4200	408/562-4200
800/678-3726	800/678-3726	800/729-2656	800/729-2656
n-line	in-line	wedge	wedge
0.34	0.28	1.08	1.08
NA.	NA	NA	NA
NA	•	NA .	•
NA.	29 as 30, 30 as 29	NA	uses DB-25 plug
NA	NA	•	•
NA	NA	NA	NA
•	NA	•	•
NA	NA	NA	NA
8-bit to 16-inch; 4-bit to 19-inch; 1-bit to 21-inch	NA	8-bit to 21-inch	16-bit to 14-inch; 8-bit to 21-inch
•	NA	•	00
VGA (72), SVGA (72); cable adapter included	NA	VGA (60)	VGA (60)
with encoder	NA	with encoder	with encoder
0/0	0/0	●/○	0/0
1	0.4	6.8	6.8
01	0		
not rated	not rated	unacceptable	unacceptable

Shape and durability All the portable docks are awkward to carry while attached to a Duo. The small in-line models do not raise the back of the Duo and also fit in almost any carrying case (see "Comparing the Docks"). The bulkier wedge models do raise the Duo's back and don't fit into most carrying cases.

Security Many docks use the Kensington security slot, a small opening in the docking station that accepts a security cable. The Duo itself has no such slot. A few docks have a pass-through slot; installing a lock in this slot blocks the release button so no one can remove the dock from the Duo. Many slots aren't pass-through, so a thief can steal the expensive Duo and leave the dock behind.

# A Choice of Docks

Whether you want to attach your Duo to an external floppy disk drive or connect it to an Ethernet network, there's a docking station for the job. Here's a quick tour of docks available now, roughly in order of increasing price.

 Apple's PowerBook Duo Floppy Adapter (\$109) provides an ADB and floppy disk port, a minimum for the Duo owner who wants to install software and perhaps use a mouse or external keyboard.

 The Lapis SCSI Dock and Newer Technology SCSI MicroDock (\$199 and \$175, respectively) are nearly identical models that use the same plastic housing as Apple's Floppy Adapter. The only difference between the two docks is that Newer's version supports using the SCSI disk mode cable as a standard SCSI cable. The Lapis dock doesn't offer this option.

 The Newer Color MicroDock (\$345), which weighs in at less than half a pound, should appeal to you if you don't want to carry a lot of weight but need to use a CRT monitor on the road and perhaps make presentations with sound.

• E-Machines' Presentor (\$499) boasts distinctive features for presentations, with its television output and robust support for monitors of all kinds. Its lack of a power switch is puzzling. If the Duo freezes, the only alternative is to remove the Presentor with the power on. E-Machines says removal should cause no damage. The Presentor's flat, deep case with no base support can exert considerable force on the docking interface; it's the only dock that could create inadvertent trouble if something dropped onto or pulled hard on its back edge.

• Of the two RasterOps docks, the DuoMate 8 (\$499) makes sense only if you need to drive 19-inch (1024-by-768 resolution) or 21-inch (1170-by-870) monitors. Otherwise, you're better off spending an extra \$90 for the more capable Macintosh Duo MiniDock from Apple (which supports up to 16-inch

monitors). The RasterOps DuoMate 16sc (\$649) is the only portable dock that supports 16-bit color, but only on 13- and 14-inch monitors. Both RasterOps docks have some nice extras, such as hardware pan and zoom for the monitor, image centering, and adjustment utilities.

 Apple's Macintosh Duo MiniDock (\$589) provides all the input and output features of a standard PowerBook, with two slight differences—you need to buy an external floppy drive for your Duo, and the video connector is conventional.

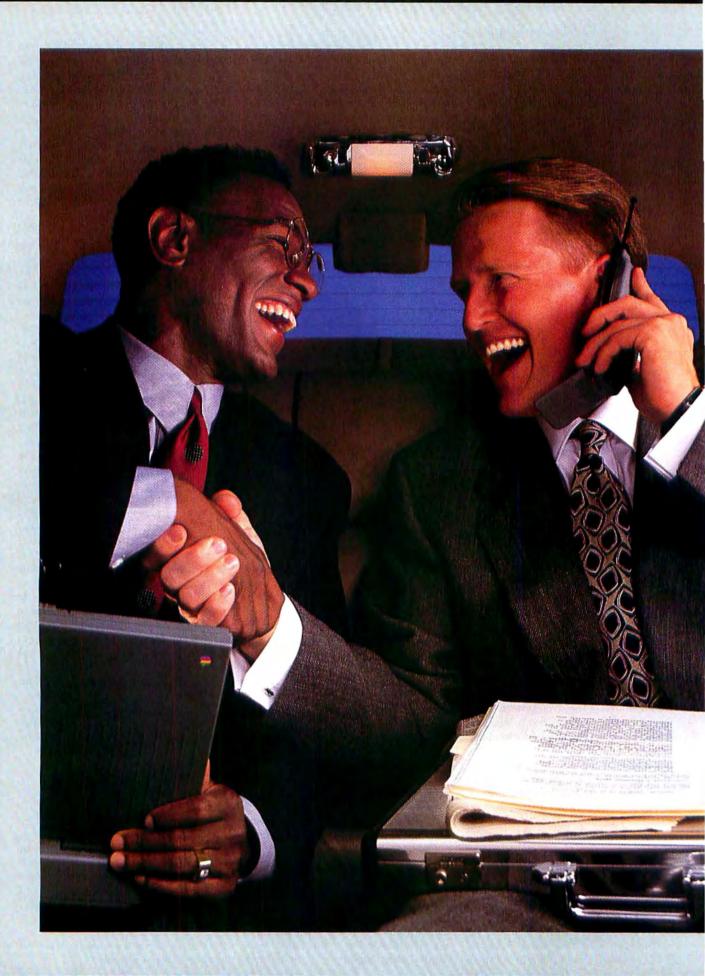
 E-Machines' EtherDock (\$699) uses the same case as the Apple Duo MiniDock (SuperMac Technology, which owns E-Machines, makes the Apple MiniDock). In addition to better VGA/SVGA monitor support, the main difference is the Ethernet connector, which replaces the telephone-line connector of the MiniDock. You cannot use an EtherDock and your internal modem at the same time-fine if you have a modem server, a nuisance if you don't. The EtherDock supports only 10BaseT twisted-pair wiring. SuperMac says it is looking into converters for Ethernet thick and thin coax. Macworld received a preproduction EtherDock too late to run performance tests, but its Ethernet interface should work faster than Ethernet adapters that attach via the SCSI port.

· Finally, Apple's Macintosh Duo Dock (price starts at \$1079) turns the Duo into a full-fledged desktop computer, complete with internal floppy disk drive, space for another hard disk, two NuBus slots, and all the standard ports. A combined Duo and Duo Dock are essentially the equivalent of a Mac IIvx. Installing a NuBus card is a multistep process; you have to take apart and reassemble the Duo Dock in the process. Some older NuBus cards will not fit, although the slots are full length. When docked to this station, the Duo's keyboard and monitor are inaccessible, and you will need to buy replacements (a mouse comes with the Duo Dock). For many users, a separate computer makes more sense.

## A Duo in Your Future?

By filling out its Duo product line with the 250 and 270c, Apple makes your buying decision more interesting—and more difficult. Buying a Duo no longer forces any compromise in screen quality or in connectivity. And the new docks give the Duos more flexibility than any other computer. If you don't find portability and flexibility enticing, you probably won't be convinced to buy a Duo. **m** 

CARY LU is a Macworld contributing editor who now plans to buy a PowerBook Duo.



Now Up-to-Date's Reminder menu gives you an immediate overview of your day's commitments.

ent Contact pm Now Contact\*\*

NowContact's Quick
Contact menu gives
you instant access to
your frequently called
names and numbers.

φ.	- 1 to 1	July 199.	Tweety Mary	r-m 11	-
-		1	70		
-	Ti name		H-GE-	18	-
17	11	1272	. 29	200	and .
-	B	P	Salaries .	2	-1
	T-china				
			OT	-	-6

Now Contact keeps a complete record of all phone numbers, addresses, correspondence and appointments for your contacts.

(3) to a real team   C  +	Estate Tendent T
The facing to the better to the facing to the best of	100 (100 (100 to 10 
16.342 Authors' Surgery Park Parks' Plant Story sairs Bruk 'Ny Santony Story Sa It's same Santon Sta	All Parl Grouples (III prescript, part) (III a
To see the second see	(name ) (name felorous 21, 1914
Auc. Combined Layouthing Services Frontier Services Fourteen Fourteen Fourteen Services Fourteen Fourt	Taritation of all and

▲ Now Up-to-Date lets you schedule appointments, to-do items and reminders instantly – simply click on the date you want and then enter your information.

# NOW YOU CAN GET AS ORGANIZED AS YOU PRETEND TO BE.

Ah, it's been a masterful charade—an Academy Award performance. That confident smile and firm handshake covering up the fact that chaos rules your life and you're just one more lost memo, forgotten name and misplaced schedule away from total disaster.

Well, now you can actually be that buttonedup, on-top-of-it dynamo you've been pretending to be. Introducing Now Contact™, undoubtedly the most

complete contact manager available. When used together with the award-winning Now Up-to-Date™, it's the ultimate personal organizer.

Now Contact

Now Contact is built around

the philosophy that it's no use getting organized if you can't find stuff faster. It gives you instant access to all your names, numbers and addresses, retrieving information quicker than any competitive product, actually as fast as your screen can draw. Complete

makes printing form letters, labels, faxes, envelopes and address books painless. If time, as they say, is money,

you'll be a bit richer every time you write a letter.

Now Up-to-Date, the best-selling calendar software, makes scheduling events, setting reminders, managing to-do lists, and printing calendars amazingly simple. Display your calendar by month, week or day—you choose the view that's right for you. Plus, if you are on a network, you can also keep your associates informed of your schedule.



Together, Now Contact and Now Up-to-Date put a complete record of all appointments and correspondence with your contacts at your fingertips. You can even

create new appointments without pausing to open your calendar. Similarly, you can include contact information in your calendar without opening your contact file.

So, how productive would you be if you were as organized as you've been pretending to be? Get Now Up-to-Date and Now Contact and find out. Or give us a call for more information at 1-800-275-5669.

Put it on your to-do list right away.

That is, of course, if you can even find it.







# Worlds

A GUIDE TO

USING THE SAME

APPLICATIONS ON

MACS AND

WINDOWS PCs

When Microsoft finally produced a fast, stable version of Windows in 1991, the world opened up for Macintosh software developers. They could begin to share their precedent-setting wares with millions of DOS-based users. Before then, some corporate systems managers who did not want to support multiple computers and applications throughout their organization restricted Macs to the art department. But Windows 3.1 made the excuse for ghettoizing Macs obsolete.

The pioneering Mac programs—from Microsoft Excel to Aldus Page-Maker, from Adobe Photoshop to Claris FileMaker Pro—are now available in Windows versions designed to let Mac and Windows users work on the same files. A few DOS standbys, such as Lotus 1-2-3 and WordPerfect, have reached out to the Mac market the same way.

Developers have done well in making these programs work easily in both environments. (Some confidently use one manual for both platforms; Aldus Page-Maker 5.0 and Microsoft Excel 4.0 are examples.) But there are still hurdles and bumps on the road to seamless cross-platform computing.

This article details how to overcome most such problems for the most recent versions of popular cross-platform programs. (Another article in this issue, "Cross-Platform File Transfer," covers what is involved in actually moving data between computers.) I looked at common features in these applications, but there may be other incompatibilities.

A few popular programs are missing from this feature; these were from companies who declined to provide review copies, typically because of in-progress upgrades. These include Aldus FreeHand and Aldus Persuasion (206/628-2320), Fractal Design Painter (408/688-8800), and QuarkXPress (303/894-8888). Others were not yet shipping, including Deneba Software's Canvas for Windows (305/596-5644) and Corel Corporation's Corel-Draw for the Mac (613/728-8200). But you'll find that the techniques I describe will still help you use those and other cross-platform products not covered here.

# Common Issues

Even though Microsoft Windows 3.1 has brought a more Mac-like facade to DOS, Windows is not a Mac work-alike. Some of the differences are due to DOS, some to Windows (which, sort of like the Finder, runs on top of the operating system).

Version Compatibility Software does not stand still, so today's cross-platform compatibility may be sacrificed for newer features on one platform. For example, when Quark delivered Quark-XPress 3.1 for Windows in November 1992, the Windows version could read QuarkXPress 3.1 for Mac files—but the reverse was not true. Quark fixed that when version 3.2 for Mac came out—nine months later.

Even if both platforms' compatible versions ship at the same time, there's no guarantee that, say, a Mac service bureau's Windows clients will upgrade when it does. That's why it's important for pro-

grams to support the previous version through a Save As option. But not all do. The table "Cross-Platform Capabilities" shows which programs support saving in the previous version's formats.

At worst, the application on one platform may be all but abandoned. Ventura Publisher was compatible across platforms in 1990 with version 3.0, but Ventura Software (recently acquired by Corel) stopped Mac releases with version 3.2 (which merely added System 7.0 compatibility). The Windows version has had two

major revisions since then. While there's a DOS utility bundled with the Windows version to create version 3.0 PC (this, and future references to PCs pertain to Windows machines) files (which the Mac version can read), Macintosh users have no access to the new capabilities, such as color separation. Worse, Ventura Publisher is incompatible with System 7.1.

And be warned—just because a company offers a product with the same name for both the Mac and Windows doesn't mean it's a cross-platform program. Examples include Microsoft Works, ClarisWorks, and Peachtree Software's Peachtree Accounting programs.

File Names The Mac supports file names with as many as 31 characters, while DOS (and thus Windows) uses the so-called 8.3 format of an eight-character name optionally followed by a period and an extension of up to three characters used to identify the file type.

Because the 8.3 format works on Macs, cross-platform users should standardize on this format for cross-platform files. Otherwise, when you move files from the Mac to the PC, you get unrecognizable names created by your transfer method. The 8.3 names can be obscure, but the names generated by transfer programs are worse.

The two systems also work differently when identifying files. The Word icon most Macintosh users know becomes the .DOC extension most PC users know. Fortunately, you can configure your transfer application to automatically assign the correct Mac icons to files created on a PC (see the sidebar "Whys and Hows of Extension Mapping").

Fonts Although they both support Adobe PostScript Type 1 and TrueType fonts, Windows PCs and Macs don't always handle these fonts the same way. This is particularly true for Type 1 fonts; since the character sets on the two platforms are different, the character widths

Same Font, Different Characters These two samples (Windows, top; Mac, bottom) of international and symbol characters for the TrueType font Century Schoolbook show that the character sets vary.

are often slightly different. The font names also sometimes differ for the same font (the classic example, Futura Medium on the Mac, is simply Futura on the PC). This means a printer or application will think it lacks the font required for output. Newer Type 1 fonts share the same character widths and font names, however, because type developers have begun to design them for cross-platform use.

TrueType suffers fewer of these problems because it was jointly developed by Microsoft and Apple. The most common characters—the letters, numbers, and symbols on all keyboards—are the same. Special characters vary. These include some foreign letters (the Mac has several Greek letters that Windows doesn't, such as Ω, while Windows has several special characters, such as Š and þ, which the Mac doesn't); ligatures (such as fi, not available on Windows); and special symbols (you can get ¾ and 🍎 in some fonts on the Mac but not on Windows, and you can usually get ± in Windows but

not usually on the Mac) (see "Same Font, Different Characters").

There's nothing you can do to access the missing characters short of using a symbol font; but to address the mismatched character maps and font names, you can use software that translates True-Type and Type 1 fonts across platforms. Two such translation packages—Ares Software's FontMonger (\$149.95, 415/578-9090) and Altsys's Fontographer (\$495, 214/680-2060)—are available in Mac and Windows versions. (They also let you modify fonts or create your own.)

The latest versions of PageMaker and QuarkXPress also automatically remap characters when transferring files across platforms. This takes care of the most common characters in the most popular fonts. Unfortunately, you can't create your own translation map for unsupported fonts.

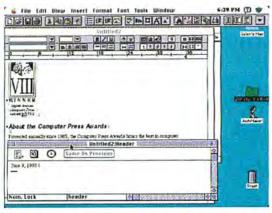
Both programs also automatically translate the names for those fonts whose names differ on each platform (such as Futura). PageMaker goes a step further by incorporating ElseWare Corporation's Panose technology, which categorizes typefaces stylistically and lets applications suggest equivalent or similar fonts when the original is not available.

Consistent character widths ensure that a document does not reflow when it changes platforms; the slight differences between some versions of the same fonts (again, mostly older Type 1) can be devastating in a cross-platform publishing environment. Using translated fonts usually solves the problem.

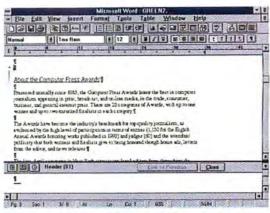
Common Formats Although most programs use their own file format, some formats transcend a particular application. These are mostly graphics formats, such as EPS, CGM (an object-oriented format found mostly on workstations and non-Mac PCs), PICT, TIFF, and PCX (a widely used bitmap format on non-Mac PCs). But these common formats are not always the same across platforms—and not even within a platform.

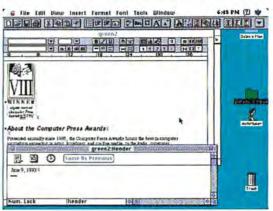
 Graphics The EPS format has the most variance. On the Mac, Adobe and Aldus have different types of EPS files. Although publishing programs can load both, illustration programs usually cannot. In Windows, the Adobe Illustrator 1.1 version of EPS is the de facto standard. If you need EPS reliability, buy Altsys's \$89 EPS Exchange, which translates between Illustrator EPS and Aldus EPS.

The preview header—the image that displays on screen, which is a bitmap representation of the EPS file's underlying PostScript code—can also create problems. Mac applications tend to use TIFF or PICT for the preview, while Windows applications tend to use TIFF or Win-









Not the Same Word Microsoft Word is better at moving documents from Windows to the Mac than the other way. Notice how the graphic and the date in the header were lost going from Mac to Windows (top) but not in the other direction (bottom).

dows BMP. Thus, if you load a Windowscreated EPS file into a Mac program, you may get a gray box that lists the file name and creation date. The same is often true if you bring a Mac EPS file into a Windows program. The image prints correctly, since the PostScript code needed by the printer is platform-independent, but you can't easily size or crop the graphic since you can't see it on screen.

For example, you can view Corel-Draw's previews on a Mac, but not previews from the Windows version of Adobe Illustrator. Both PageMaker and QuarkXPress (on a Mac or PC) now recognize the Mac EPS headers and Corel-Draw's PC EPS header, but neither recognizes the PC EPS header generated by Illustrator or Computer Support Corporation's Arts & Letters Graphics Editor (a Windows technical-illustration program).

There are two solutions to translating the previews:

- 1. Explicitly save the EPS file with a Mac or PC preview (as appropriate). QuarkXPress is one of the few programs that offers this feature. Mac Illustrator does have an option to save EPS files with a PC preview, but PC programs still can't read that preview.
- 2. Use a translator program. The general-purpose MacLinkPlus/Translators Pro, \$169 from DataViz (203/268-0030), can convert between Mac EPS and PC EPS, but it does not always translate the previews correctly, particularly for color files. TechPool Studios' graphics-

only Transverter Pro (\$395, 216/382-1234) does better.

The TIFF format also has several variants, including compressed versions and a different internal data format for Mac and Windows. Fortunately, most programs can read both internal data formats, making translation rarely necessary. If it is, MacLinkPlus/Translators Pro can usually do the trick. Some programs, notably Photoshop, also offer a save-to-PC (or save-to-Mac) option.

While Mac applications usually have no trouble reading compressed TIFF files (especially the popular LZW type), some Windows applications do (for example, QuarkXPress for Windows 3.1). If you get a partial or corrupted image when loading a TIFF file, save the original as uncompressed and load it again.

• Text Even the common ASCII text-only format varies. Although it doesn't support formatting such as bold-face and indents, ASCII was for years the only sure way to move data between applications and across platforms. There are two main ASCII variants: Apple's text-only version and IBM's extended version.

Based on the needs of teletypewriters, ASCII uses two characters to end each line: a carriage return (to move the print head to the beginning of the line) and a line feed (to move the print head down to the next line). Apple decided one character (the carriage return) would do, so ASCII text on the Mac lacks the line feed that PC programs expect to see.

The ASCII standard is defined with 128 characters, but because computer data is 8-bit, there's room for 256. In the days of the original PC, IBM added 128 characters, called extended ASCII. So did Apple, but not the same 128. (This is one reason special symbols and accents often don't transfer correctly.) If you must use ASCII, stick with the 128 standard characters imprinted on your keyboard.

applications embed other files in their documents, such as graphics in a word processing document. But these embedded files don't always transfer across platforms. For example, when I transferred a Windows Word file with an embedded EPS file, the EPS file was replaced with a PICT preview (a translation of the Windows metafile preview for the embedded EPS file), and the file would not print because of a PostScript error. When I returned that file to Windows Word, both the PICT preview and the originally embedded EPS file disappeared completely.

Beware of more complex links, such as publish and subscribe on the Mac and Microsoft's OLE (Object Linking and Embedding) in Windows and in some Mac applications. These technologies make it easier to create composite documents, but most application developers haven't designed their implementations with cross-platform use in mind.

Individual programs have their own idiosyncrasies and strengths that you must also take into account when working cross-

platform. The following evaluations describe these issues for popular programs.

# **Editing Programs**

Microsoft Word With each revision, Microsoft has moved its DOS, Windows, and Mac versions of Word closer together. Their interfaces are now nearly the same, and they read and write each other's formats. (I tested version 5.1a for Mac and 2.0 for Windows. Version 6.0 is due for both platforms by early 1994.)

Generally, files translated well across platforms: tables, character formatting, and styles maintained themselves. But embedded pictures were lost, leaving behind a preview that often prevented the file from printing. In fact, Windows Word could load no embedded graphics from a Mac Word file. To keep the embedded

graphics, you must save the file as a Windows Word file first. For EPS graphics, you also lose the underlying PostScript code, retaining just the preview.

Word was also uneven in importing graphics files. The Windows version, for example, could not open Mac-created compressed TIFF files, although the Mac version could read PC-created compressed TIFF files.

# WHYS AND HOWS OF EXTENSION MAPPING

major difference between Macs and DOS PCs is how they identify their files. Mac files have attributes that contain information on the program's creator and file type, which tell the Mac what icon to use for the file and what application to launch if someone double-clicks on the file (or what files to display in the Open dialog box). Inside each file is a four-letter code for the creator and another four-letter code for the type.

DOS has no such counterpart to Mac file attributes, instead relying on each application to know whether a file is readable or not. Usually, DOS applications rely on the three-letter extension (the part of the file name after the period) to identify the file type.

When you move files from DOS to Mac, there is no attribute, so the Mac doesn't know what applications the file is compatible with. Usually, the file type is marked as text (TEXT) or binary (BINA) and the creator as unknown (????) or DOS (MDOS). Mac applications now often recognize this fact and display these files in their Open dialog boxes in addition to their own file types. Adobe Illustrator is one of the exceptions.

When you move files from a Mac to a PC, the attribute is superfluous and often gets stripped out during transfer. But you typically need to rename the file with the appropriate extension once it's on the PC. "Extension Mapping" shows the equivalent DOS extensions and Mac creator and file types.

To get around this translation issue, most transfer products automatically add the appropriate attribute to a PC file transferred to a Mac, and many add the appropriate extension to a Mac file transferred to a PC.

Network-transfer products that handle the DOS-to-Mac mapping include Coactive Connector for Coactive networks, Miramar Systems' Personal MacLAN Connect, Farallon Computing's PhoneNet PC (bundled with Timbuktu) for AppleTalk networks, and Dayna Communications' NetMounter for NetWare (a version of which comes with the \$99 DOS Mounter Plus). For disk transfer, the three Mac-based products (DOS Mounter Plus, Macintosh PC Exchange, and AccessPC) do the same. The PC-based products (MacDisk, Mac-in-DOS, and Mac-to-DOS) do not. (See "Cross-Platform File Transfer" in this issue for details on these products.)

Farallon's PhoneNet PC, the network operating system used by Timbuktu, supports only predefined extension mapping. Unfortunately, Farallon's extensions do not reflect current software versions (such as Excel 4.0), and you can't add new extensions or modify file type and creator assignments. Therefore, few if any of your transferred PC files will display the appropriate Mac icon.

If your transfer method does not handle extension mapping, there are three ways to map the DOS extensions to the Mac's file and creator type attributes after the transfer.

 Use a product like the shareware utility ResEdit to enter the attribute information manually. This can be dangerous, since it lets you change attribute information that might corrupt the file.

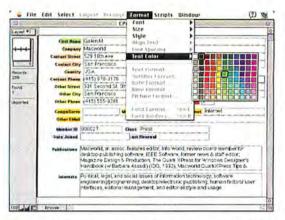
- Use DataViz's MacLinkPlus/Translators Pro (\$169; 203/268-0030) to translate the file (even if that translation amounts to little more than modifying the attribute, such as in translating a DOS TIFF file to Mac TIFF format).
- Rely on the program that will open the file to see files without the standard type attributes. For example, Word and Excel will display all files and attempt to open them. Both give you a list of formats they think the file may be in. This is the best approach. Older versions of many cross-platform programs would see only files with the attributes they recognize. Fortunately, this appears to be a limit of the past.

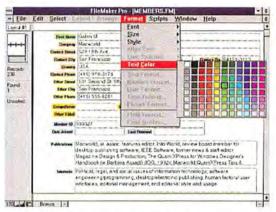
Even outside a network, these methods come in handy—if, for example, you get a file via electronic mail or your transfer program doesn't happen to recognize a particular extension.

# **Extension Mapping**

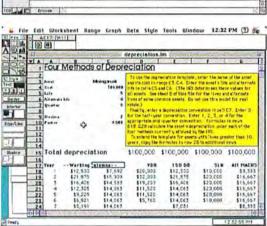
File Format	Mac Creator	Mac File Type 1	DOS Extension
Adobe Illustrator	ART3	TEXT, EPSF	Al
Adobe Photoshop	BBIM	8BIM	PSP
Aldus FreeHand	ACA3	ACF3	FHA
Aldus IntelliDraw	SPCK	sDoc	IDW
Aldus PageMaker 5.0	ALD5	ALB5	PM5
Aldus Persuasion	PLP1	PRS1	PRS
Claris FileMaker Pro	FMPR	FMPR .	FM
Deneba Canvas	DAD2	drw2	CVS
Encapsulated PostScript	1	EPSF	EPS
Fractal Painter	FSPS	TIFF <sup>3</sup>	TIF1
FrameMaker	Fram	FASL	none
Lotus 1-2-3 Release 4 data	L123	LWKs	WK4
Lotus 1-2-3 format file	L123	1231	FM3
Microsoft Excel 4.0 data	XCEL	XLS4	XLS
Microsoft Excel chart	XCEL	XLC3	XLC
Microsoft PowerPoint	РРТ3	SLD3	PPT
Microsoft Ward	MSWD	WDBN, WDPC	DOC
PICT	2	PICT	PCT
QuarkXPress	XPR3	XDOC	QXD
Text only (ASCII)	2	TEXT	TXT
TIFF	2	TIFF	TIF
Ventura Publisher	VPUB	VCHP	CHP
WordPerfect	WPC2	WPD2, WPPC	WP5, WP

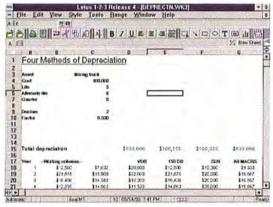
<sup>&</sup>lt;sup>1</sup> If two types are listed, the second is used for Windows files. <sup>2</sup> Use the creator for the program you want to load when you double-click on a file with this type. <sup>2</sup> Supports other common Mac and Windows bitmap formats as well.





Software Twins It's hard to distinguish File-Maker Pro for Mac from FileMaker Pro for Windows. Only the size of the color bars behind the field labels differs noticeably.





Lost in Translation
Fonts, notes, and spacing often do not transfer
between the Mac and
Windows versions of
Lotus 1-2-3. Other
applications that keep
essential information
but not all formatting
include WordPerfect.

Windows Word has several formats for date and time stamps in documents, while Mac Word has just one for each. The Windows formatting imports into Mac Word, but only the time format from Mac Word imports into Windows Word—any dates disappear. But a date created in Windows, moved to the Mac and back to Windows, does not disappear. (See "Not the Same Word" for a look at this uneven transfer.)

WordPerfect WordPerfect reflects the old approach to cross-platform compatibility: the Mac version must do most of the work. For WordPerfect, the Mac version can read and write the Windows format, but not vice versa. (I tested version 2.1.3 for Mac and 5.2 for Windows. Version 3.0 for Mac and version 6.0 for Windows are due by early 1994.)

In WordPerfect, fonts simply do not map correctly across platforms, even when the same fonts reside on both computers. The mismatch occurs both for the font itself and the type size, which can vary a point or two from the original. Other formatting transfers successfully. Also, EPS files disappear during cross-platform transfer, although the picture box remains. TIFF files transfer successfully.

# **Data-Oriented Programs**

Claris FileMaker Pro FileMaker Pro marked Apple's foray (through its Claris subsidiary) into the Windows market and shows that Apple can create Mac-quality software on other platforms. FileMaker is virtually identical across platforms, with the only differences being those imposed by the Mac or Windows, such as different font metrics (see "Software Twins"). (I tested version 2.1v1 for both platforms.)

The program is also network-savvy, letting you access FileMaker files across an AppleTalk, Novell IPX (NetWare), or NetBIOS network simply by opening the files. If the file is marked as multiuser, users on different platforms can simultaneously view it (only the first user to open the file can edit field settings). This network access is great, but the unintended shutdowns that often occur in a multiplatform configuration can damage your database files, since FileMaker can lose data when a file is not closed properly.

Lotus 1-2-3 The dominant DOS spreadsheet is very graphical in its Mac and Windows versions, but files transferred between the two platforms lose much of their graphical formatting (see "Lost in Translation"). The most important parts of the files—the data, calculations, and relations—are maintained, however. (I tested Mac version 1.1 and Windows version 4.0.)

Fonts in Lotus documents are among the first elements to disappear; most translate to the system defaults (like Helv and Tms Rmn in Windows and Times and Helvetica on the Mac), although attributes such as boldface, italics, and point size remain. If you copy the file back to the original platform, the original fonts are restored. This is also true for other

features that don't translate, such as notes and some forms of cell borders.

Moving files back and forth is tricky. Windows treats Mac files like .WK3 files (Release 3 format) without any associated formatting unless you use the Save As dialog box in Mac 1-2-3 and select the 123 DOS (.WK3,.FM3) option, which saves both the worksheet file and the format file; don't use the 123 DOS (.WK3) option. When moving files from Windows to the Mac, you also need to save in .WK3 format (which means you lose Release 4-specific features) and copy over the .FM3 file as well.

Microsoft Excel With Excel 4.0, Microsoft shows how seamless a cross-platform application can be. The file format for the two versions is the same, and the interface is almost identical. I encountered no problems with graphics, fonts, macros, or other ancillary elements.

The only difficulty I had was in using OLE-embedded objects. I embedded a small Word document into Excel spreadsheets to see if OLE worked across platforms. Using a Mac Excel file with an embedded Mac Word file, Windows Excel was able to launch Windows Word and properly display the text document. But the reverse was not possible: using a Windows Excel file with an embedded Windows Word file, Mac Excel was unable to launch Mac Word and display the text document. The system would lock up when I tried to close the Excel file. (I used a Centris 610 with 12MB of RAM

for testing and an 80486DX-based PC with 16MB of RAM.) But I didn't expect it to work at all, given the system peculiarities that OLE must contend with.

# **Graphics Programs**

Adobe Illustrator Cross-platform illustration software has suffered from halfhearted compatibility, as Illustrator well demonstrates. The Mac and Windows versions have historically leapfrogged each other, keeping features and file formats out of sync. With the new Mac version 5.0, there's still the extra step of saving Mac files in 4.0 (or earlier) format to make them usable by Windows Illustrator. When you transfer a file, you lose access to new features, such as version 5.0's new plug-in modules, and your custom spot colors translate to process (CMYK) equivalents. (I tested version 5.0 on the Mac and version 4.0 on Windows.)

People also need to be able to use the graphics in other programs, such as page-layout software. For several versions, Mac Illustrator has had a Save As option to give files a PC preview header. But no PC program tested could understand that preview, resulting in the gray box that symbolizes a printable but unviewable EPS file—that's the same result you get if you use the Mac preview in the first place. The Windows version has no Save As option,

and its files show up as the same gray box when loaded into Mac applications.

The leading illustration program for Windows, CorelDraw, has difficulty importing Mac Illustrator files (in the versions it supports: 88, 1.1, and 3.0). That means you can't use it as a way station between Mac illustrators and PC publishers, nor can you set up a Mac Illustrator/ Windows CorelDraw environment.

Adobe Photoshop All of Photoshop's file information is stored internally in an uncomplicated format, so designers working on images across platforms see no differences. The two versions offer virtually identical tools and internal formats (see "Carbon Copies").

Photoshop benefits from the fact that it relies on industry-standard formats—JPEG, DCS, EPS, and TIFF—although it does have its own internal format, too. (I tested version 2.5 on both platforms.)

The only flaw is that there is no choice between Windows and Mac format for the preview header when exporting to EPS format. That will affect you when you import the EPS file into a program that can't read the preview (the image will still print correctly). Photoshop itself can read either EPS preview.

Microsoft PowerPoint With version 3.0, this presentation-graphics program has become a true cross-platform program.

You no longer need to use a separate translator with the Apple File Exchange utility: the Mac and Windows versions both read each other's formats. All materials—including imported graphics—transfer across platforms, except that the Windows version does not support QuickTime.

The only problem I had was that the leading changed slightly between platforms. It grows from Windows to Mac and shrinks in reverse. This can change the length of text, which means text may leak out of boxes or fall off the screen.

# **Publishing Programs**

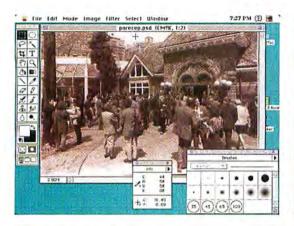
Aldus PageMaker PageMaker was one of the first applications to tackle cross-platform compatibility. This is impressive, because page layout is one of the hardest areas to maintain compatibility in, due to the multiple formats of text and graphics documents imported. The latest version of PageMaker enhances an already solid cross-platform product. (I tested version 5.0 on both platforms.)

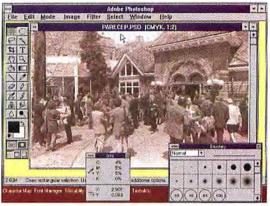
PageMaker can now translate the names of linked files—important because of the differences in Mac and DOS file names. Previously, you had to ensure that you used DOS's 8.3 format to name linked files if you planned to move your Mac layout file to a PC. PageMaker also supports OLE links across platforms.

# **Cross-Platform Capabilities**

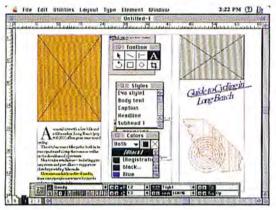
Company	Program	Version Tested	Phone	Toll-Free Phone	List Price	Opens Cross- Platform Files Directly	Saves to Previous Version
Adobe Systems	Adobe Illustrator	Mac 5.0	415/961-4400	800/833-6687	\$595	•	•
		Windows 4.0	415/961-4400	800/833-6687	\$695	•1	•
	Adobe Photoshop	Mac 2.5.1	415/961-4400	800/833-6687	\$895	•	•
		Windows 2.5	415/961-4400	800/833-6687	\$895	•	2
Aldus Corporation	Aldus PageMaker	Mac 5.0	206/628-2320	800/627-8880	\$895	•	0
		Windows 5.0	206/628-2320	800/627-8880	\$895	•	Ò
Claris Corporation	FileMaker Pro	Mac 2.1v1	408/727-8227	800/325-2747	\$399	•	.).
		Windows 2.1v1	408/727-8227	800/325-2747	\$399	•	1
Frame Technology	Frame/Maker	Mac 3.0	408/433-3311	800/843-7263	\$795	•	D
		Windows 3.0	408/433-3311	800/843-7263	\$795	•	3
Lotus Development Corporation	Lotus 1-2-3	Mac 1.1	617/577-8500	800/343-5414	\$495	0	2
		Windows 4.0	617/577-8500	800/343-5414	\$495	• 1	•
Microsoft Corporation	Microsoft Excel	Mac 4.0	206/882-8080	800/426-9400	\$495	•	•
		Windows 4.0	206/882-8080	800/426-9400	\$495	•	•
	Microsoft PowerPoint	Mac 3.0	206/882-8080	800/426-9400	\$495	•	0
		Windows 3.0	206/882-8080	800/426-9400	\$495	•	Ó
	Microsoft Word	Mac 5.1a	206/882-8080	B00/426-9400	\$495	•	3
		Windows 2.0	206/882-8080	800/426-9400	\$495	•	•
Quark	QuarkXPress	Mac 3.2	303/894-9922	800/788-7835	\$895	•	0
		Windows 3.12	303/894-9922	800/788-7835	\$895	•	2
WordPerfect Corporation	WordPerfect	Mac 2.1.3	801/225-5000	800/321-4566	\$495	•	•
		Windows 5.2	801/225-5000	800/321-4566	\$495	Q	,

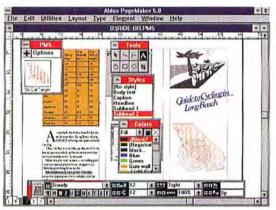
<sup>• =</sup> yes; C = no. Must be in version 4.0 or earlier format. There is no previous version on this platform. Previous version uses same file format as current version. Without color and font formattine: Save As needed to retain formattine.





Photoshop uses industry-standard formats and an identical feature set across platforms. The difference in image clarity here is a result of the use of 16-bit color on the Mac (left), compared with 8-bit on the PC.





Dealing with Differences A PageMaker layout looks virtually identical across platforms, with colors, formatting, and graphics transferring smoothly. Only the previews for graphics that were not copied along with the Windows layout file are missing in the Mac screen (left).

PageMaker translates its internal preview headers between PICT and Windows metafile format; it uses this preview for all graphics copied into or linked to the layout. If the linked graphic no longer exists, however, the preview is not translated. But if you move the same layout back to the originating platform, the internal preview is reinstated (see "Dealing with Differences").

However, one important feature does not transfer: library files, commonly used for graphics and text blocks. (QuarkXPress, which has a similar feature, likewise does not support cross-platform libraries.)

QuarkXPress When QuarkXPress for Windows was introduced a year ago, the Windows 3.1 version could read Mac 3.1 files but not vice versa. With the recent release of Mac version 3.2, both versions can now read each other's files. (I tested version 3.2 on the Mac and 3.12 on Windows.)

The Windows version lacks the new Mac features, such as EfiColor color calibration, flip controls for picture and text boxes, skewed boxes, interactive text resizing, and certain XTensions, such as Font Creator. Custom frames created by the Frame Editor on the Mac are replaced with solid frames when imported into Windows, since the Windows version has no Frame Editor.

If you use EfiColor profiles on the Mac and transfer the document to Windows, the profiles are removed (although Quark recently began offering a fix). If you move the document back to the Mac, the Profiles option in the Style menu is grayed out for each picture box; you must globally reapply profiles. The new Pantone Pro-Sim, Process, and Uncoated color models on the Mac are translated to their CMYK equivalents when documents using them are moved to Windows.

Any graphics not supported by the platform version are replaced during printing with their PICT previews. However, the graphics links remain, so if you move the document back to the original platform, the graphics are again available for printing. Some PICT previews from the Mac and some metafile previews on Windows won't translate correctly. You must reimport or update the link to the graphic to generate a new preview.

All styles, color definitions, hyphenation exceptions, kerning and tracking settings, and document preferences are retained. But the global QuarkXPress preference files cannot be shared across platforms. Likewise, libraries and auxiliary spelling dictionaries cannot be shared.

Frame Technology FrameMaker Cross-compatibility is nearly effortless for FrameMaker, a technical-document publishing program first ported from Unix to the Mac and then to Windows. One reason is that FrameMaker copies all imported text into its layout, so there's no need to worry about whether a word processing format is supported across platforms. The same is true for copied-in graphics. For linked graphics, FrameMaker supplies

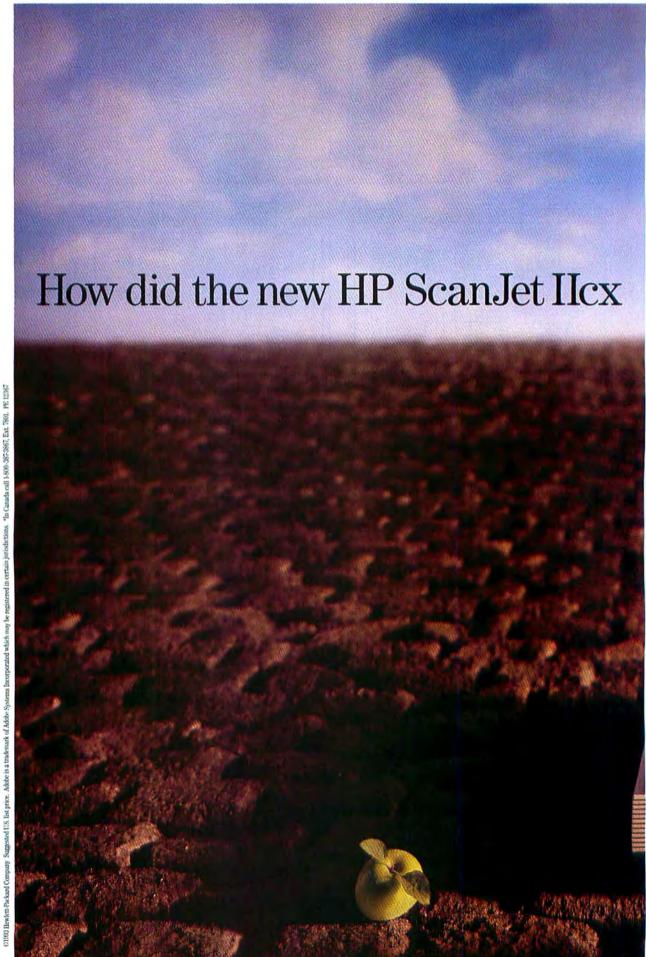
import filters for all common formats. (I tested version 3.0 on both platforms. Version 4.0 shipped as this went to press.)

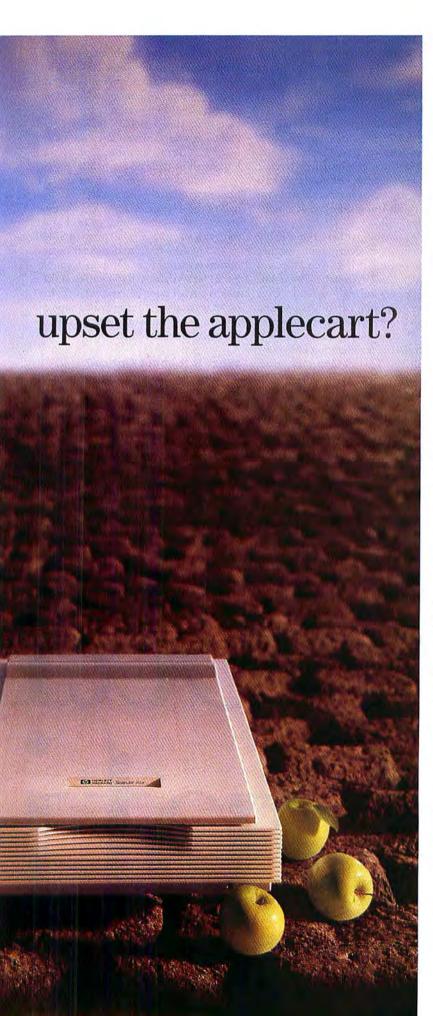
Like other publishing programs, FrameMaker lets you substitute fonts for ones the document's originating computer has but the current one does not. And special characters not available on the current platform temporarily appear as question marks (these special characters reappear when the document is back on its original platform).

# Mix-and-Match Future

The day may come when you can pick your favorite hardware and operating system from a smorgasbord of Pentiums, 486s, Alphas, and PowerPCs for the CPU and from Macintosh, Unix, Windows NT, and NextStep for the operating system. By then, most business applications should be available for any combination. Or so the pundits say.

In the meantime, the vast majority of the world uses the Mac or DOS-based PCs (with or without Windows) with Intel or compatible CPUs. Today, you can pick either system and choose your favorite software—and still work easily with neighbors, clients, and colleagues. That's particularly important for Macintosh aficionados seeking to integrate the Mac into a corporate environment dominated by PCs. The result is that individuality and standardization can coexist, and that puts the personal back in personal computing. **m** 





# By being the only Mac scanner that handles text as well as it handles graphics. \$1,179

Finally, there's a scanner that takes text as seriously as it does graphics. Hewlett-Packard introduces the HP ScanJet IIcx. The color scanner that brings scanning performance to a whole new level. And leaves the competition picking up the pieces.

The HP ScanJet IIcx offers the best text scanning in its class. Featuring HP AccuPage technology, which enhances third-party software, this new scanner deftly handles a wide range of documents. It accurately recognizes text in small point sizes and unusual fonts. Even text on colored backgrounds and in tables—documents that would send other Mac scanners scrambling. An optional document feeder makes it even more efficient.

With 1600-dpi enhanced resolution (400-dpi optical), the HP ScanJet IIcx scans graphics with unmatched clarity and accuracy. 24-bit color provides a palette of 16.7 million colors and 256 levels of gray. And to make sure that those colors stay true, this scanner supports the Apple ColorSync color matching system. Easy-to-use HP DeskScan software and Adobe's Photoshop™ LE image editing software come in the box. An optional transparency adapter scans photos, slides and transparencies. To save time, there's one-pass color scanning. And to simplify things, there's a TWAIN interface, which means you don't have to leave the application you're working in to scan.

These sophisticated features have not come at the expense of simple design. The HP ScanJet IIcx was made for the Mac from the ground up, giving you easy installation and trouble-free operation. All backed by HP's legendary quality and reliability. In the unlikely event that your HP ScanJet IIcx should require service, your one year warranty entitles you to a replacement scanner within 24 hours.

To learn more about the HP ScanJet IIcx scanner, call 1-800-SCANJET (1-800-722-6538), Ext. 7801.\* Once you see what the HP ScanJet IIcx can do, everything else will look a little less polished.



Last year when Macworld Lab found a rewritable optical drive that outpaced its nearest direct competitor by 16 percent, we wondered if the performance of this storage medium could get any better.

Would you believe a whopping 25 percent better?

Drives that are based on the Max-Optix Tahiti IIm mechanism beat out last year's speed leader, Pinnacle Micro PMO-650, by that remarkable margin. And the Tahiti IIm is doing so at a higher capacity, 1GB.

Besides speed, other remarkable developments have occurred since we last looked at optical drives (see "Optical Update," *Macworld*, November 1992). For one thing, prices for high-capacity drives have been dropping; cartridges packing hundreds of megabytes of data now cost less than 50 cents per megabyte. This is due in part to the proliferation of higher-capacity drives. This all means the street prices for 51/4-inch 1GB and 650MB drives should come down to around \$3500 and \$2000, respectively.

Another reason for this expected price drop is anticipation of new 1.3GB drives. Although these drives were still in development when we conducted our tests, several should be available by the time you read this article. Macworld Lab looked at several drives based on preliminary 1.3GB mechanisms, and we were impressed by their performance.

In addition, 3½-inch drives are continuing to multiply. This year, more than half of the 44 units Macworld Lab tested are 3½-inch models, and they're cheaper, too, with an average retail price of \$1400.

All of this serves to demonstrate how optical is maturing as a storage technology. In fact, you may find an optical drive an attractive option as a second hard drive or at least as an alternative to tape for archiving—all without having to clean out your bank account to buy one.

# What Is It about Optical?

Despite the many functional parallels between optical drives and hard drives, there are important differences between them. Take reading and writing, for instance. Hard drives have lightweight heads with tiny magnets that fly low over each surface of a stack of platters.

BY TIM WARNER



MACWORLD LAB PUTS 44 OPTICAL DRIVES THROUGH THEIR PACES



120 December 1993 MACWORLD



By comparison, magneto-optical (MO) drives' heads use a laser to heat spots on a disk while a large magnet on the reverse side of the disk changes the polarity of these heated spots to represent either zeros or ones. These optical heads glide high above the surface of the media on one side of a single platter. The distance between the optical head and the media aids removability. At the same time, all of the equipment necessary for reading and writing data to optical cartridges makes the heads very heavy.

But some drives reviewed here have an answer to this weighty problem-split-head optics. Splithead optics eliminate this problem by taking the heavier components of the head, like the laser and focusing apparatus, and making them stationary. With fewer parts, the optical head is lighter and thus can move over the disk faster than a conventional MO head can.

LAB			in the Line					Write
I times are in seconds.		31/2-inch Drives	Open	Save	soft	Read	Wite	Wite
Guardi Fastast				7	7	-		OFF
Overall Fastest		FWB hammerDisk 130 (M)	173.8	238.7	229.0	26.0	79.3	OFF
and the second	0.000	Ocean Microsystems Vista V256 (ext) (MO)	173.1		244.1	27.4	77.4	OFF
elative Speed	- No. of the Co.	Liberty Systems 115 Series 256MO (MO)	191.8	244.6	258.1	26.9	79.2	ON
100% (Fastest)		DGR Technologies DGR 256REM (MO)	185.6	244.0	210.7	38.7	92.5	
90%-99%		Olympus Image System MOS 300S (O)	- Contraction of the last	SAULSMAN	(Naure)	42.7	70.4	OFF
80%-89%	ARE AND	Mirror Envisio SmartStack 128MB Optical (M)	183,1	CHARLES	247.5	38.4	90.2	OFF
70%-79%	COTTON OF	APS Technologies 128 MO (E)	187.0	COADSA	246.4	43.4	70.8	
0%-69%		Mirror 128MB Optical Drive (M)	183.1	244.5	246.4		91.3	ON
		Microtech International Genesis 120E (E)	186.4	OF REAL PROPERTY.	COLUMN TO SERVICE STATE OF THE PERSON SERVICE STATE SERVICE STATE STATE SERVICE STATE STATE SERVICE STATE SERVICE STATE SERVICE STATE SERVICE	38.8	-	-
ne drives are listed from overall		Optical Access International RD/Aria (E)	187.5	29点以		45.7	90.5	ON
stest (top) to slowest (bottom) in ach category. To determine rankings,		ClubMac Epson OMD 5010 (E)	187.5	SZERIALI.	2186	46.9	92.6	10
lacworld Lab indexed test results		ETC Peripherals DataDrive 128R (E)	187.5	ADDRESS TO THE REAL PROPERTY.	228.6	45.8	93.0	OF
gainst the fastest drive in each test.		GCC Ultradrive 120MO (I)	197.1		-	37.7	97.9	01
hus, for 31/2-inch drives, the FWB		CMS Enhancements P128MO (E)	- Antonio Contraction Contract	-	239.0	46.6	96.1	01
ammerDisk 130 gets an index num-		Procom Technology MEOD 128 (S)	195.5	_		46.1	73.5	01
er of 1.00, and the Maximum Storage achet System 5 gets a 0.67. Index		Optima Technology DisKovery 128MO (OP) <sup>1</sup>	195.6	ALBERTA MARKET	275.5	53.4	74.4	01
umbers for overall performance are	0.76	Loviél 128SR (S)	204.1	and the latest designation of the latest des	A ALVERTON STREET, STR	45.9	85.4	LON
ted to the left of the product names.		Ricoh Transporter Mac/e (R)	AND DESCRIPTION OF THE PERSON NAMED IN COLUMN TWO	273.9	-	42.4	97.9	ON
Some manufacturers ship with Write	0.75	Mass Microsystems DataPak MO 128 (S)	-	260.9	- CHINESE STATE	56.6	75.3	01
erify on and others ship with it	0.75	Dynatek ROS128 (S)		262.2		65.7	74.4	OF
f—in some cases users can switch etween the two options. We tested	0.74	Focus Enhancements 128MB Optical (R)	-		243.1	43.3	98.5	ON
drives in their default configura-	0.74	Relax Technology Ricoh 3010E (R)	208.6	275.9	240.8	50.3	97.8	(0)
on, meaning that some drives were	0.73	Plasmon Data Systems RF-3010 (M)	208.8	279.6	243.3	50.6	99.2	10
sted with Write Verify on and others	0.73	La Cie Cirrus Optical (M)	209.3	282.4	246.7	50.3	98.4	10
ith it off. Having Write Verify on may	0.72	MacProducts USA Magic 128 (F)	217.5	273.5	265.9	41.9	109.7	01
ave, sort, or write. Likewise, drives	0.72	Fujitsu Computer Products DynaMO 128 (F) <sup>2</sup>	218.9	271.8	264.4	48.2	109.3	01
with Write Verify off may perform	0.70	PLI Infinity Optical 3.5" (S)	222.4	296.7	277.7	43.9	101.6	01
nese operations at a slightly faster	0.67	Maximum Storage Cachet System 5 (S)	231.2	306.7	283.3	56.7	101.4	O
ite.		51/4-inch Drives						
Aechanism Key	1.00	PLI Infinity MaxOptical IIm (T2M)	178.4	222.9	69.5	31.6	57.0	10
= Alphatronix	0.94	Alphatronix Inspire II F Series (A) <sup>3</sup>	146.9	189.3	200.7	43.1		01
= Epson		Storage Dimensions MacinStor 1000EO (T2)	174.0	241.4	195.1	92.2	99.3	01
= Fujitsu		Pinnacle Micro PMO-650 (P)	275.0	306.4	119.0	48.8	45.9	OF
= IBM A = Matsushita		Ricoh Hyperspace Mac/e (R)	190.5	247.5	245.7	46.2	94.1	01
MO = MOST		Relax Technology Ricoh 5031E (R)	191.8	247.7	243.5	46.8	94.1	01
) = Olympus		Focus Enhancements 650MB Optical (R)	201.9	261.8	246.2	46.8	96.3	01
OP = Optima		Dynatek ROS600 (S)	232.1	296.2	274.4	48.7	100.1	OF
= Pinnacle		Liberty Systems 115 Series 650MO (SH)			309.1	53.2	106.6	OF
= Ricoh = Sony		ClubMac Sharp JY-750 (SH)	217.8	289.8	301.8	60.8	107.1	01
H = Sharp		Optima Technology Concorde 600MO (OP) <sup>1</sup>		325.6		47.7	100.5	0
2 = MaxOptix Tahiti II		Procom Technology MEOD 650 (S)		327.2		48.1	99.9	0
2M = MaxOptix Tahiti Ilm		DGR Technologies DGR 650REM (S)	246.2	V		61.5	100.3	O
		Optical Access International RD/Express (R)	298.6	30	339.8	59.6	142.8	O
		Microtech International Genesis 650 (SH)	381.4			52.4	101.2	O
Overall Slowest		Plasmon Data Systems RF-7010 (M)	356.0			95.3	216.2	01

neering, MacDirect, and Third Wave Computing, <sup>3</sup>Drive is based on Hewlett-Packard Corsair mechanism.

Another barrier to opticals' bid to catch up with hard drives is the space between the head and the magnet. This space provides an easy path for you to insert the cartridge safely. But the magnet in an MO drive is massive and distant from the media. Because of its size, the magnet cannot switch polarity fast enough to write a pattern of ones and zeros in a single pass. To write over existing data, the drive must first erase the track containing the data by writing all zeros, and then it must switch the polarity of the magnet to write the ones.

To read data, MO drive lasers use a low-power mode so that data is not altered. The laser beam reflects off the surface of the disk and back through the lens to a sensor that distinguishes the ones from the zeros.

But the second pass is what is holding back the performance of optical drives, and manufacturers have been working hard to design single-pass magneto-optical mechanisms. One result of this work is the introduction of phase-change drives.

For our tests, we received one phase-change unit, the Plasmon Data Systems 5½-inch RF-7010 drive, which is based on a Matsushita LF-7010 mechanism. Panasonic also has a phase-change drive, but the company was unable to provide us with software before the end of our testing.

Phase-change drives write data in a single pass by changing the reflective properties of the media. Because the heat of the laser alone changes the structure of the material, no magnet is required.

But phase-change is not yet the answer to creating a single-pass drive. Our tests found the phase-change drive to be slower than the MO drives. This is chiefly because phase-change also makes a second pass, in this case to verify the data. As you read this, fast MO drives with single-pass writes are still at least 18 months away.

In the meantime, many drives are doing their best to speed up their read-write times. The modus



The FWB hammerDisk 1300FMF (top) and the Alphatronix Inspire III GG are among several new optical drives based on 1.3GB mechanisms that should be available soon. Other manufacturers of these high-capacity drives include Pinnacle Micro, MicroNet Technology, PLI, Iomega, CharisMac, and Optical Access International.

# **HOW DRIVES ENSURE DATA INTEGRITY**

Il but a handful of the optical drives we tested have a feature, called write verify, as a default setting. Standard magneto-optical drives make two passes on writes: one to erase and one to write data. A write-verify feature ensures data integrity by making a third pass over the disk, reading back what it has just written and comparing it with the original data. Obviously, write verify slows optical drive performance, but most people think it is worth the wait.

Configuration options for write verify come in four flavors, the most common of which offers verification as the default, with a

user option to disable it. This setting gives users the greatest protection while maintaining their freedom to choose. Much less common is no verification as the default with the freedom to enable it. This method-used by FWB, vendors who bundle FWB's Hard DIsk ToolKit Personal Edition with their drives (Liberty, Olympus, and MacDirect), and Pinnacle Micro-implies a confidence in the soundness of optical media that few share. Then there is verification with no option to disable it, which is used by Optima, Microtech, Mass Microsystems, Procom, Fujitsu, and GCC. And finally, there is no verification and no option to turn it on—only three vendors, Dynatek, ETC, and Mirror, ship their drives without the verification safety net.

Without verification you run the risk of losing data, but the performance for writes increases by about 20 to 30 percent, depending on the application.

Vendors are currently working to get around the speed problem while ensuring the safety of your data. Already the high-end drives have robust error-correction schemes.

Further advances in optical drive technology should come in the next two years. Stay tuned.

# **Shedding Light on Optical Drives**

Company	Product	List Price	Form Factor/ Media Capacities Supported A	Technology	Warranty	Tested	Phone	Toll-Free Phone	Tech Support
Alphatronix	Inspire II F Series	\$4495	5.25/1GB, 650MB	МО	1 year	yes	919/544-0001	none	very good
	Inspire II G Series	\$4995	5.25/1GB, 650MB	МО	1 year	no	919/544-0001	none	very good
	Inspire III FF Series	\$4495	5.25/1.3GB, 650MB	MO	1 year	no	919/544-0001	none	very good
	Inspire III GG Series	\$4895	5.25/1.3GB, 1GB, 650MB	MO	1 year	no	919/544-0001	none	very good
APS Technologies	128 MO	5899 1	3.5/128MB	MO c,b	1 year	yes	816/373-5800	800/235-2752	good
CharisMac Engineering	CharisMac DynaMO 128	\$1295 E	3.5/128MB	MOCD	1 year	no	916/885-4420	800/487-4420	not tested
	CharisMac Tahiti Ilm	\$3995	5.25/1GB, 650MB	МО	1 year	по	916/885-4420	800/487-4420	not tested
	CharisMac Tahiti III	\$5995	5.25/1.3GB, 1GB, 650MB	MO	1 year	no	916/885-4420	800/487-4420	not tested
ClubMac	Sharp JY-750	\$1829	5.25/652MB, 594MB	MO, WORM	1 year	yes	714/768-1490	none	very good
	Epson OMD 5010	\$959	3.5/128MB	MO CD	1 year	yes	714/768-1490	none	very good
	Fujitsu M2511A	\$959	3.5/128MB	MOCD	1 year	no	714/768-1490	none	very good
	Teac OD3000	5879	3.5/128MB	MOCD	1 year	no	714/768-1490	none	very good
	Ricoh 3100E	\$929	3.5/128MB	MOE	1 year	no	714/768-1490	none	very good
	Ricoh 5031E	\$2249	5.25/650MB, 594MB	MOC	1 year	no	714/768-1490	none	very good
	MaxOptix Tahiti II	\$2999	5.25/1GB, 650MB	MO	1 year	no	714/768-1490	none	very good
CMS Enhancements	P128MO	\$1921	3.5/128MB	МО	1 year	yes	714/222-6000	800/788-4267	not tested
CIVIS Ennancements	P256MO	\$2846	3.5/256MB, 128MB	MO	1 year	no	714/222-6000	800/788-4267	not tested
DGR Technologies	DGR 256REM	\$1799	3.5/256MB	MOc			512/476-9855	800/235-9748	excellent
DGR Technologies				The Part of the Pa	2 years	yes			
Donatal	DGR 650REM	\$2199	5.25/650MB	MO, WORM	1 year	yes	512/476-9855	800/235-9748	excellent
Dynatek	ROS128	\$2295	3.5/128MB	MO°	1 year	yes	416/636-3000	none	acceptable
ere n	ROS600	\$3895 *	5.25/650MB	MO	1 year	yes	416/636-3000	none	acceptable
ETC Peripherals	ETC DataDrive 128R	\$1599	3.5/128MB	MO C,D	1 year	yes	813/884-2863	800/876-4382	very good
Focus Enhancements	Focus 128MB Optical	\$949°	3.5/128MB	MO	3 years	yes	617/938-8088	800/538-8866	acceptable
	Focus 650MB Optical	\$2499 °	5.25/652MB	MO	3 years	yes	617/938-8088	800/538-8866	acceptable
Fujitsu Computer	DynaMO 128	\$1295	3.5/128MB	WO C'D	1 year	yes	408/432-6333	800/626-4686	acceptable
FWB	hammerDisk 1300FMF	\$4799	5.25/1.3GB, 1.0GB, 650MB, 600MB	мо	1 year	no	415/474-8055	none	very good
	hammerDisk 1000/4	\$4559	5.25/1GB, 650MB, 600MB	MO	1 year	no	415/474-8055	none	very good
	hammerDisk 600S	\$3359	5.25/650MB	MO	1 year	no	415/474-8055	none	very good
	hammerDisk 130	\$1699	3.5/128MB	MOCD	1 year	yes	415/474-8055	none	very good
GCC	Ultradrive 120MO	\$1599	3.5/128MB	MO C.D	2 years	yes	617/275-5800	800/422-7777	excellent
La Cie	Cirrus Optical	\$9491	3.5/128MB	MOE	1 year	yes	503/520-9000	800/999-0143	excellent
Liberty Systems	50 Series MO	\$1287	3.5/128MB	MOCD	1 year	no	408/983-1127	none	poor
	70 Series MO	\$1239	3.5/128MB	MOCD	1 year	no	408/983-1127	none	poor
	115 Series 256MO	\$1854	3.5/256MB	MO	1 year	yes	408/983-1127	none	poor
	115 Series 650MO	\$2265	5.25/650MB	MO, WORM	1 year	yes	408/983-1127	none	poor
	225 Series MO	\$4195	5.25/1.3GB, 1GB, 650MB	MO	1 year	no	408/983-1127	none	poor
Loviél Computer Corporation	Loviél 128SR	\$999"	3.5/128MB	WO c'D	1 year	yes	612/828-6880	none	acceptable
MacDirect	DynaMO 128	\$998	3.5/128MB	MOCE	1 year	no	612/832-5706	800/759-2133	excellent
	Series V	\$988	3.5/128MB	МО	1 year	no	612/832-5706	800/759-2133	excellent
	Series X	\$1298	3.5/128MB	МО	1 year	no	612/832-5706	800/759-2133	excellent
MacProducts USA	Magic 128	\$949	3.5/128MB	MO C.D	1 year	yes	512/476-5295	800/622-3475	very good
Mass Microsystems	DataPak MO 128	\$13791	3.5/128MB	MOCD	1 year	yes	408/522-1200	800/522-7979	acceptable
renda rendinayatema	DataPak MO 650	\$39991	5.25/650MB	MOCD	1 year	no	408/522-1200	800/522-7979	acceptable
Maximum Storage	Cachet System 5	\$925	3.5/128MB	MO	3 months	yes	719/531-6888	none	unacceptabl
MicroNet Technology	MO-128	\$1795	3.5/128MB	MO	1 year	no	714/453-6100	none	not tested
The second of	S5-MO-128	\$1795	3.5/128MB	мо	1 year	no	714/453-6100	none	not tested
	SB-SMO-650	\$3295 F	5.25/650MB	MO	1 year	no	714/453-6100	none	not tested
	5B-TMO-1000	\$4095 F	5.25/1GB	MO	1 year	no	714/453-6100	none	not tested
	SB-TMO-1300	\$4495	5.25/1.3GB, 1GB, 650MB	MO, WORM	1 year	no	714/453-6100	none	not tested
Microtech International	Genesis 120E	\$1343	3.5/128MB	MO, WORW	2 years	yes	203/468-6223	800/626-4276	unacceptabl
microtech international	Genesis 650	\$2199	5.25/650MB	MO	2 years	yes	203/468-6223	800/626-4276	unacceptable

MO = magneto-optical; P = phase change; WORM = write-once, read-many. Technical-support ratings are based on a series of calls made to each company by Macworld staffers (posing as customers) to gauge the accessibility, helpfulness, and accuracy of the company's support technicians. Macworld uses a point system, including bonuses and demerits, to derive the final rating. Ratings are for companies, not individual products, and we call only those companies whose products Macworld Lab tests. A Formatted capacities are slightly less than the raw capacity of the media. Price includes Dantz's DiskFit Direct backup software. C Drive supports Optical Read-only Memory (O-ROM). Drive supports Partial Read-only Memory (P-ROM). Price includes Macromedia Action & Clipart for Mac software. Retrospect Remote backup software available at additional cost. Price includes Virex, Citadel, and Complete Undelete utilities. SmartSource power base unit, required for operation, costs an additional \$119.

operandi in this speed game is to use read and write caches. Serving as data buffers to and from the disk, these small blocks of RAM usually improve the efficiency of data transfers. High-end drives are equipped with large caches of a megabyte or more. However, caches can slow data-transfer rates if they are optimized for the wrong data-packet sizes. Cache efficiency depends greatly on the vendor's implementation as well as on the application you are using.

# A Smattering of Small Drives

Regardless of size, most of the drives we tested are good values. Most companies offer a one-year warranty, good or acceptable technical support, and good software. There are some clear bargains among the bunch, as well as some units you should avoid.

Performance among 3½-inch drives was remarkably flat. An efficient read cache gave FWB's hammerDisk 130, based on the Matsushita LF-3000 mechanism, the edge in our speed trials. Ocean Microsystems, Liberty Systems, DGR Technologies, each with the 256MB MOST RMD-5200-S mechanism, were next in line in terms of speed. With the exception of the DGR unit, these drives did well, in part because they do not verify data after writes (see "How Drives Ensure Data Integrity").

Although, in general, the performance of the 256MB drives was slightly faster than that of the 128MB units, the 128MB drives are a good deal, mostly because they're about \$750 less than the 256MB drives.

There were a lot of bargains this year in 3½-inch drives. Seven drives were in contention for Editors' Choice, all priced at less than \$1000, including Third Wave Computing's and MacDirect's Dyna-MO bundles, the Sony-based Optima Technology

# BEHIND OUR TESTS

LAB Macworld Lab compared the relative performance of 44 rewritable optical drivesfrom 31/2-inch drives with 128MB of space to 51/4-inch drives that can hold 1.3GB of data. We took these drives through their paces, reading and writing large, 1.3MB PageMaker files, as well as sorting a 4th Dimension database of 4730 records. Our final test targeted highcapacity transfers with large, simultaneous reads and writes from 10MB uncompressed Photoshop 2.0 files. (Photoshop 2.5 format defaults to compression, testing the processor as much as the storage subsystem.) Each drive was formatted with the software provided and was tested in its default configuration.-Macworld Lab testing supervised by Tim Warner

DisKovery 128MO drive, and La Cie's 128MB Cirrus Optical.

The picks of this litter are the APS Technologies 128 MO at \$899 and the ClubMac Epson drive at \$959. Both use Epson mechanisms, provide good tech support, have good manuals, and exhibit high performance.

Drives to avoid are few. ETC Peripherals, for all its good intentions, has produced confusing software for its \$1599 DataDrive 128R. The interface is a set of unlabeled buttons with such custom icons as a happy Mac for initialization and a wheel for driver

# ARE BIGGER DRIVES BETTER?

he new 1.3GB drives, besides offering greater capacity, are faster as a class. They use higher rotational rates, split-head optics, and smarter controllers with large caches to achieve their advantage. But bigger isn't necessarily better, as we discovered while observing the relative speeds of beta Max-Optix T3-1300 drives: they were actually slower than the drives based on the 1GB MaxOptix Tahiti IIm mechanism released last year.

This anomaly is the result of a quirk in the ECMA (European Computer Manufacturer's Association) standard for 1.3GB cartridges and how they write data to disk.

Both Tahiti drives implement a format, called ZCAV (Zoned Constant Angular Velocity), that packs data more efficiently into bands that have variable transfer rates. The band at the inner edge of a disk has 1600 sectors, and each successive band adds more sectors; the outermost band has the most sectors. ZCAV takes advantage of higher linear velocities at the outer edge of a disk by reading the higher number of sectors in the same time it takes to read the sectors at the inner edge.

Like hard drives, optical drives usually start writing data at the outer edge of the disk surface, where transfer rates are high-



est. With the 1.3GB cartridges, the T3-1300 drive starts writing at the *inner* edge—the slowest part of the disk. When using a 1GB cartridge that conforms to MaxOptix's earlier implementation, the T3-1300 drive does start writing at the outer edge. In this configuration, the beta T3-1300 drives are 21 percent faster than their Tahiti IIm cousins.

But starting at the outer edge doesn't always guarantee speed. For instance, the 650MB ISO car-

tridges also start with the outer edge and move inward, and they aren't as fast as the ECMA 1.3GB cartridges. Without the additional sectors provided by ZCAV on the outer bands, the drive still reads only the same number of sectors per revolution as it does on the inner tracks.

Writing to the inner band first is inherent in the ECMA standard, so other 1.3GB drive mechanisms will have the same problem. Alphatronix will include an option (not the default) to format the disk so that writes begin in the outermost band and work their way in, band by band. A simpler way to get around the 1.3GB format limitations is to partition your cartridge. The first partitions you create will be the slowest. A 100MB-to-200MB partition at the outer edge will guarantee the best performance.

# **Shedding Light on Optical Drives (continued)**

Company	Product	List Price	Form Factor/ Media Capacities Supported <sup>1</sup>	Technology	Warranty	Tested	Phone	Toll-Free Phone	Tech Support
Mirror	Mirror 128MB Optical Drive	\$1149	3.5/128MB	MO*	1 year	yes	612/633-4450	800/654-5294	acceptable
	Envisio SmartStack 128MB Optical	\$9991	3.5/128MB	WOk	1 year	yes	612/633-4450	800/654-5294	acceptable
Ocean Microsystems	Vista V256 (ext)	\$1748	3.5/256MB, 128MB	MO*	1 year	yes	714/898-1340	none	good
Ocean Microsystems	Vista V256 (int)	\$1685	3.5/256MB, 128MB	MOK	1 year	no	714/898-1340	none	good
	Vista V128 (ext)	\$999	3.5/128MB	MO	1 year	no	714/898-1340	none	good
	Vista V128 (int)	\$999	3.5/128MB	MO	1 year	no	714/898-1340	none	good
Olympus Image System	MOS 300E Magneto optical Disk Drive	\$1250	3.5/128MB	MO*.M	2 years	no	714/453-4469	800/347-4027	poor
	MOS 300S Magneto optical Disk Drive	\$1500	3.5/128MB	MOKM	2 years	yes	714/453-4469	800/347-4027	poor
Optical Access	RD/128LC	\$898	3.5/128MB	MOKM	1 year	no	617/937-3910	800/433-5133	acceptable
International	RD/128HP	\$999	3.5/128MB	MOKM	1 year	no	617/937-3910	800/433-5133	acceptable
	RD/256HC	\$1395	3.5/256MB	MOKM	1 year	no	617/937-3910	800/433-5133	acceptable
	RD/Aria	\$1199	3.5/128MB	MO K.M	1 year	yes	617/937-3910	800/433-5133	acceptable
	RD/Express	\$1898	5.25/650MB	MO	1 year	yes	617/937-3910	800/433-5133	acceptable
	MF/Gigabyte	\$2995	5.25/1GB	MO, WORM	1 year	no	617/937-3910	800/433-5133	acceptable
	RD/Express III		5.25/1.3GB, 1GB, 650MB, 600MB	МО	1 year	no	617/937-3910	800/433-5133	acceptable
Optima Technology	MiniPak 128MO	\$995	3.5/128MB	MO*	1 year	no	714/476-0515	none	very good
	DisKovery 128MO	\$995	3.5/128MB	MO×	1 year	yes	714/476-0515	none	very good
	Concorde 600MO	\$2195	5.25/650MB	MO	1 year	yes	714/476-0515	none	very good
Panasonic	LF-3000	\$2195	3.5/128MB	MO, WORM	1 year	no	201/348-7000	800/742-8086	unacceptat
	LF-5010	\$3295	5.25/940MB	P, WORM	1 year	no	201/348-7000	800/742-8086	unacceptab
	LF-7010	\$3995	5.25/1GB	P, WORM	1 year	no	201/348-7000	800/742-8086	unacceptab
	LF-9000	\$3995	5.25/650MB	MO, WORM	1 year	no	201/348-7000	800/742-8086	unacceptab
Pinnacle Micro	PMO-650	\$3199	5.25/650MB	MO	1 year	yes	714/727-3300	800/553-7070	excellent
	Tahoe-130	\$999	3.5/128MB	MO	1 year	no	714/727-3300	800/553-7070	excellent
	Sierra 1.3GB	\$2995	5.25/1.3GB, 650MB	MO	1 year	no	714/727-3300	800/553-7070	excellent
Plasmon Data Systems	RF-3010	\$2195	3.5/128MB	MO	1 year	yes	408/956-9400	800/445-9400	unacceptab
	RF-3010i	\$1995	3.5/128MB	MO	1 year	no	408/956-9400	800/445-9400	unacceptab
	RF-7010	\$3995	5.25/1GB, 650MB	P, WORM	1 year	yes	408/956-9400	800/445-9400	unacceptab
PLI	Infinity MaxOptical IIm	\$4113	5.25/1GB, 650MB	MO, WORM	1 year	yes	510/657-2211	800/288-8754	acceptable
	Infinity MaxOptical 1.3	\$4725	5.25/1.3GB, 1GB, 650MB	MO, WORM	1 year	no	510/657-2211	800/288-8754	acceptable
	Infinity Optical 5.25*	\$3378	5.25/650MB	MO	1 year	no	510/657-2211	800/288-8754	acceptable
	Infinity Optical 3.5*	\$1610	3.5/128MB	MO K.M	1 year	yes	510/657-2211	800/288-8754	acceptable
	Infinity Optical 3.5* LF	\$1426	3.5/128MB	MOKM	1 year	no	510/657-2211	800/288-8754	acceptable
Procom Technology	MEOD 128	51895 N	3.5/128MB	MO	1 year	yes	714/852-1000	800/800-8600	unacceptab
	MEOD 650	\$3995 N	5.25/650MB, 600MB	MO ,	1 year	yes	714/852-1000	800/800-8600	unacceptab
	MEOD 1300	\$4995 N	5.25/1.3GB, 1GB, 650MB, 600MB	МО	1 year	no	714/852-1000	800/800-8600	unacceptab
	MEOD 650-1	\$3495 N	5.25/650MB, 600MB	MO	1 year	no	714/852-1000	800/800-8600	unacceptab
Relax Technology	Ricoh 5031E	\$2399	5.25/650MB	MO	1 year	yes	510/471-6112	none	good
	Ricoh 3010E	\$999	3.5/128MB	WOK'W	1 year	yes	510/471-6112	none	good
	Ricoh 3013E	\$799	3.5/128MB	MO	1 year	na	510/471-6112	none	good
Ricoh Corporation,	Transporter Mac/e	\$19950	3.5/128MB	MO*	1 year	yes	201/882-2000	800/637-4264	unacceptab
File Products Division	Transporter Mac/i	\$1795°	3.5/128MB	MOK	1 year	no	201/882-2000	800/637-4264	unacceptab
The second second	Hyperspace Mac/e	\$3995°	5.25/650MB	MO	1 year	yes	201/882-2000	800/637-4264	unacceptab
Storage Dimensions	MacinStor 650EO	\$3670"	5.25/650MB	MO	1 year	no	408/954-0710	none	acceptable
	MacinStor 1000EO	\$4610°	5.25/1GB, 650MB	MO	1 year	yes	408/954-0710	none	acceptable
Third Wave Computing	DynaMO 128	\$999	3.5/128MB	MOKM	1 year	no	512/477-9845	none	acceptable

MO = magneto-optical; P = phase change; WORM = write-once, read-many. Technical-support ratings are based on a series of calls made to each company by Macworld staffers (posing as customers) to gauge the accessibility, helpfulness, and accuracy of the company's support technicians. Macworld uses a point system, including bonuses and demerits, to derive the final rating. Ratings are for companies, not individual products, and we call only those companies whose products Macworld Lab tests. Formatted capacities are slightly less than the raw capacity of the media.

<sup>\*</sup> Drive supports Optical Read-only Memory (O-ROM). SmartSource power base unit, required for operation costs, an additional \$119. \* Drive supports Partial Read-only Memory (P-ROM).

<sup>\*</sup> Retrospect Remote backup software available at additional cost. O Price includes Insigna Solutions Access PC. Price includes Dantz Retrospect Remote backup software.

installation. Although these icons are cute, they're unintuitive. Fortunately, the help icon is obvious—a question mark.

Others to steer clear of include Procom Technology's MEOD 128, which at \$1895 gives you compulsory write verification that you can't disable, and unacceptable technical support. Ricoh Corporation's Transporter Mac/e drive has a \$1995 price tag that is \$500 above the average street price of the other 3½-inch drives we tested. Since the only redeeming value of this drive is the manual that comes with the software, this is not a very good value. Finally, avoid the Dynatek ROS128—\$2295 is too much money for a drive that has no manuals, so-so software, mediocre technical support, and an ugly case.

# The Big and Heavy Hitters

The PLI Infinity MaxOptical IIm, with its Tahiti IIm mechanism, unseated the Pinnacle PMO-650. The MaxOptical IIm's performance outstripped our expectations while offering a reasonable price of \$4113.

However, there still is a reason to recommend the PMO-650. It remains the fastest 650MB drive with a reasonable price, \$3199. But that doesn't mean this unit is without problems. Because Pinnacle uses spin rates that are too high for most media, PMO cartridges are incompatible with other drives. A far greater drawback (and one of the only serious problems I had using any formatting software) is that Pinnacle Micro's PMO Formatter 1.3r0 let me remove my start-up partition. This would be the equivalent of the Macintosh Operating System allowing you to format your start-up disk—which it does not. And neither should Pinnacle Micro's software.

You can find 650MB units for less than \$3000, but they're not the good, all-around values that the 128MB 3½-inch drives are. The best of the 650MB drives include ClubMac's Sharp JY-750, with its \$1829 list price.

On the downside of 650MB units, Microtech International surprised us by having unacceptable technical support. Liberty also has poor tech support along with absurdly inadequate user manuals. DGR did well in most areas, but its cartridge with Anubis driver software would mount only in Sony mechanisms.

Drives to avoid include the 650MB units from Dynatek, Ricoh, and Procom. Like their siblings in the 3½-inch form factor, these drives as a group had the worst price-to-performance value, and they provided poor overall value.

# No Slowing Down for Optical

With competition increasing in every facet of the storage market, optical vendors intend to push the capacities higher while attempting to eliminate performance bottlenecks that keep optical lagging far behind hard drive performance.

A newly proposed standard capacity of 230MB for 3½-inch optical drives, sponsored by big players such as Sony and IBM, may leave MOST's 256MB format out in the cold. The standard guarantees users compatibility between many drives, as well as backward compatibility for existing 128MB media. Products developed according to this new standard are due out in mid-1994. And capacities may continue

#### OPTICAL DRIVES



CHOICE We were encouraged by the slew of low-cost drives available this year.

Competition was especially stiff among 3½-inch drives. To make our choices, we weighed price-to-performance, tech-support quality, and other quality issues for products in each category.

#### 31/2-Inch Drives

Epson OMD 5010 Low price and all-around value characterize this 128MB rewritable optical drive. Company: ClubMac, List price; \$959.

128 MO This drive displayed top performance among the drives available for under \$1000. The company also offers good technical support, which is toll-free. Company: APS Technologies. List price: \$899.

#### 51/4-Inch Drives

Sharp JY-750 Without question the best bargain among 5¼inch drives, this drive is the only 650MB we tested that is available for less than \$2000. Company: ClubMac. List price: \$1829.

Infinity MaxOptical IIm Outstanding performance at a reasonable price makes this drive the best of all the 1GB drives. Company: PLI. List price \$4113.

to grow for this standard—to as much as 1GB on a single cartridge by 1995.

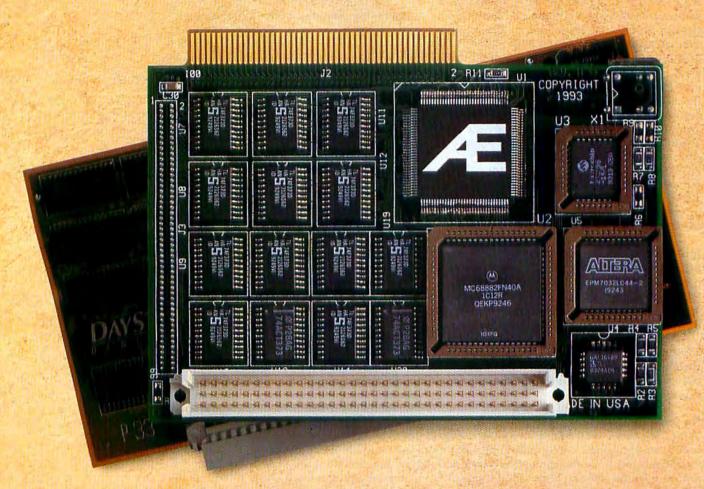
By the time you read this, you might want to consider one of the bevy of 5½-inch 1.3GB drives that are due out relatively soon. We glimpsed speeds of the future in a test of prerelease 1.3GB drives using MaxOptix T3-1300 mechanisms. (Based on our earlier look, these drives should perform at speeds close to low-end hard drives.) The 1.3GB mechanisms aren't without their quirks, though the oddities have more to do with how cartridges at these capacities are formatted than with the mechanisms themselves (see "Are Bigger Drives Better?"). Expect prices for these units to be at the high end, ranging from \$3800 to \$4300.

Other vendors were also readying 1.3GB mechanisms at the time of our testing, among them Pinnacle Micro, Sony, Hewlett-Packard, and IBM.

Not content to rest on their laurels, manufacturers plan to push 5¼-inch cartridge capacities to 2.6GB in the next year. According to MaxOptix, single-pass writes are expected by the end of 1995. However, the fabled blue-light lasers that promise to increase capacities fourfold over 650MB are still a good four years away.

Ambitious design and engineering investments in rewritable optical technology will be matched by other storage technologies. However, new products will undoubtedly move current top-of-the-line drives down to affordable levels while their performance approaches that of hard drives. So optical drives may indeed compete with hard drives for a prominent place on your desk. **m** 

# DAYSTAR JUST EXPERIENCED A TOTAL ECLIPSE.



# NOW SHIPPING TRANSWARP 68040 ACCELERATORS

25 MHz ,33 MHz or 40 MHz for Mac II, IIx ,IIci, IIvi, IIvx, IIsi and Performa 600 Series

# APPLIED ENGINEERING'S NEW ACCELERATORS DELIVER MORE SPEED AND EXPANDABILITY AT A BETTER PRICE.

Our engineers love a challenge. So when we asked them to develop a line of accelerators that would eclipse Daystar's, they didn't flinch.

The result? More speed, more expandability, more of *everything* you look for in an accelerator. All at a better price.

# MORE VALUE.

Compare any of our accelerators feature-for-feature with the competition. Then look at the prices.

At Applied Engineering, we're com-

mitted to giving you more for

less. And that goes for our high-quality drives, modems and other products as well.

# MORE SPEED.

Nobody makes faster 030 and 040 accelerators than we do. *Nobody*. And our broad product line means there's one that's just your speed.

Our accelerators are available in a range of clock speeds (MHz), both with and without cache. And optional math coprocessors deliver additional speed for spreadsheets and other calculation-intensive applications.

Plus, our StepUp\* program lets you easily and economically move up to higher performance as your need for speed increases.

# **AE vs. DAYSTAR: COMPARE FOR YOURSELF**

		Brand	× Faster Than Base Unit	Ethernet/ Video Options	Price
	25 MHz	AE	4.60	Yes	\$229
10000 PM	25 MHZ	DAYSTAR	NA NA	No	NA
68030 SE	40 MHz	AE	6.2	Yes	\$349
. &	20 Min2	DAYSTAR	NA NA	No	NA
Classic	40 MHz	AE	11.5	Yes	\$428
<b>"在"的是一次</b> 在1984	w/Cache	DAYSTAR	11.09	No	\$698
68030	33 MHz	AE	2.65	Yes	\$449
LC, LCII Color Classic		DAYSTAR	2,52	No	\$498
Peforma 400	40 MHz	AE	3.13	Yes	\$449
Series		DAYSTAR	3.07	No	\$698
2000年中央	25 MHz	AE	4.5	NA .	\$999
68040	20 111112	DAYSTAR	4.7	NA	\$1,299
II, IIx, IIci,	33 MHz	AE	5.0	NA	\$1,199
llvi, llvx, llsi Performa	mint and	DAYSTAR	5,0	NA	\$1,599
600 Series	40 MHz	AE	5.5	NA	\$1,499
	40 MINZ	DAYSTAR	5.2	NA	\$2,399

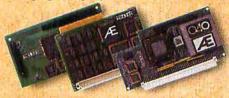
# FIRST CLASS SUPPORT.

Applied Engineering has sold more Apple peripherals than anyone. And it's not just because of great products. Or competitive prices. It's also our fanatical dedication to your satisfaction.

All our accelerators carry a 30-day, hassle-free, money back guarantee. Plus a full three-year warranty. So you can buy with confidence.

# MORE EXPANDABILITY.

Only AE 030 accelerators feature expansion options for Ethernet and enhanced video. So when you plug them in, you can still add high-speed networking and a full-page display. And while our standard 040 Trans-



Warp takes you beyond Quadra 950 performance, you can add a 128K cache for even more speed!

# **CALL FOR YOUR FREE PRODUCT GUIDE.**

Let us send you a free AE product guide. Then choose the accelerator that's right for you – and move your Mac into the fast lane.

Call today!

DAY MONEY DACK GUADAI

30-DAY MONEY BACK GUARANTEE 1-800-554-MACS (6227), X406



3210 Beltline, Dallas, TX 75234, 214-241-6060



EDITED BY JAMES A. MARTIN

# Graphics

THE LATEST IN DESIGN, PUBLISHING, AND PREPRESS

# Live Picture: High-Power Imaging

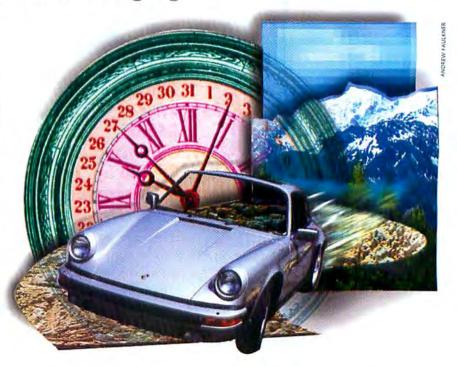
IVE PICTURE, THE MUCH-DISCUSSED and anticipated graphics application that debuted earlier in the year, is now set to ship by year's end. The first 48-bit color graphics application for the Mac, Live Picture offers mathematical imaging tools and on-the-fly rendering that make opening and manipulating large high-resolution files instantaneous and effortless.

When you open a 150MB file in Live Picture, for example, the program loads a virtual image of the file that you can then scale, rotate, skew, reposition, or perform any other operation on-and you wait only one or two seconds to see the results. And because Live Picture stores all its image data in mathematical equations, it can accommodate an infinite number of resolutions, layers, and levels of undo. In the past, compositing multiple images of varying resolutions has always meant that all the images would be forced into one resolution, but that's not the case with Live Picture, since its images are resolution-independent.

As a result, an artist can combine any number of images in the same file without losing detail, because each image resides on a separate layer and maintains its own resolution and size. And Live Picture's continuous, infinite undo/redo makes for a smooth editing process that's completely reversible—to revise changes you can go as far forward or backward as you like.

Live Picture's special effects include some unusual brushes, which can be as large as 3000 pixels wide. One brush enables you to enlarge the image you're brushing by moving the brush clockwise in a circular motion, or you can reduce the size of the image by moving the brush counterclockwise.

There's also a feature called Intelligent Brush Masking, which makes it possible to quickly and easily create extreme-



ly complex masks, such as a tree with many branches and leaves.

Live Picture's FITS (Functional Interpolating Transformation System) technology consists of two different file formats: IVUE and FITS. The IVUE format provides high-speed, unlimited zooming capability on an entire image or any part of it, while the FITS format mathematically defines and stores whatever manipulations are performed on the image.

Live Picture requires a Mac Quadra with 32MB of RAM as a minimum (64MB or more is recommended). Developed by Paris-based FITS Imaging and already available in France, Live Picture will be distributed in North America by HSC Software for \$3495. HSC Software, 310/392-8441.—CATHY ABES

# Pantone Joins the Match Game

antone has developed a color-matching technology—currently code-named Clarity—that will enable desktop publishers to more precisely match on-screen spot, process, and Pantone colors to desktop printers and imagesetters.

Expected to become available in early 1994, Clarity works in much the same way as Electronics for Imaging's EfiColor color-matching system. Both provide color-device profiles as a basis for matching screen colors with print colors. Unlike EfiColor, however, Pantone's color-matching technology is a ColorSync-

compatible system extension, as well as an open environment. Pantone is making profiles available to printer manufacturers and software developers (including EFI) at no cost in the hope of gaining widespread support for Clarity.

To use Clarity, desktop publishers will need a Clarity color profile of their output device; according to a Pantone spokesperson, printer manufacturers will most likely offer the profiles at no cost via online bulletin boards. In addition, software applications must be updated to support Clarity.

A Pantone spokesperson said that in most cases, publishers will want to use one color-management system or the other, but added they could use both in the same application. For instance, in Quark-XPress—which supports the Pantone Color Matching System and ships with an EfiColor Xtension—publishers could use EfiColor to match process colors and Clarity for matching Pantone colors.

Pantone expects to have up to 35 printer profiles available by January, along with a handful of scanner profiles. Pantone, 201/935-5500.—J.A.M.

# Fargo's Thermal-Wax Printer Has Split Personality



Fargo's Primera Color Printer

T LEAST YOU CAN'T SAY YOU'VE seen this one before: a thermal-wax printer that, via a switch of ribbons and a click of the mouse, becomes a dye-sublimation printer—for under \$1500.

Fargo Electronics recently announced the Photo-Realistic Upgrade Kit (\$249.95), which transforms Fargo's Primera Color Printer (\$995), a 203-dpi thermal-wax QuickDraw device, into a dye-sublimation printer. Along with the printer and upgrade kit, you need Fargo's Macintosh interface kit (\$199.95)—which gives you two printing technologies for \$1444.90.

Considering that most dye-sub printers cost anywhere from \$7000 to \$25,000, Fargo's claims are bound to raise eyebrows. In fact, a Fargo spokesperson said the Primera, unlike traditional dye-sublimation printers, uses a combination of dithering and gray-scale shades to achieve print quality that's close to photo-realistic. In addition, the Primera, in dye-sub mode, prints only CMY pigments—not full CMYK.

But Fargo isn't going after the highquality prepress market. "We just want to bring good-quality color to the masses," said Rob Francis, Fargo's engineering sales manager. Francis said the printer is designed for photographers, low-cost proofing, and limited final output.

The Primera works on Macs and Windows-based PCs. Print time varies from 11 to 15 minutes per page in dye-sub mode and 4 to 6 minutes for thermal-wax prints. Fargo Electronics, 612/941-9470.

—J.A.M.

# PixelPaint Pro on the Comeback Trail

grade in over two years to Pixel Resource's once-moribund painting and image-editing program—boasts multiple live, floating selections and scripting capabilities, among other features.

PixelPaint Pro3 lets you edit and manipulate multiple selections contained within the same document. Each selection has its own layer and remains live until pasted into the image background. This helps you to continually, and quickly, experiment with objects. The number of layers is limited only by memory.

Fractal Design Painter 2.0 also offers multiple floating selections via its add-on Painter/X2 module (see *Graphics* news, September 1993). However, a spokesperson for Pixel Resources noted that the ability to work with multiple selections is integrated into PixelPaint Pro3, which makes working with multiple selections easier than in Painter.

PixelPaint Pro3 enables you to record any series of commands and executions as a script. Scripts aren't editable, however. The program is compatible with Apple-

# IN BRIEF

# Updating DeBabelizer

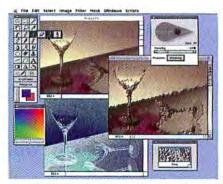
Version 1.5 of DeBabelizer (\$299), a graphics-file-translation utility from Equilibrium Technologies, offers improved color reduction and remapping, support for Apple events and Kodak Photo CD, and automated batch-compositing. Upgrades are \$74.95, 415/332-4343, 800/524-8651.

# Color Central Update Compumation's upgrade to its OPI/DCS image print server, Color

OPI/DCS image print server, Color Central 2.1 (\$495), now supports EPS-JPEG, PC-TIFF, Scitex CT, Photo CD, and native Photoshop formats; automatic image placement into Aldus Fetch and other image databases; the Apple Workgroup Server 95; color calibration; and scripting. Color Central sells for \$3995; the upgrade is \$495. 814/238-2120.

# ■ A Look at Glimpse a utility

Pixar has released Glimpse, a utility that allows you to edit surface textures by changing parameters such as color, transparency, glow, shininess, highlight, and reflection. ShowPlace users can also create new textures from PICT and TIFF images. Glimpse is being bundled with ShowPlace 2.0 (\$695), a picture-composition program, and is also available separately for \$75. 415/236-4000.



PixelPaint Pro3 offers multiple live selections.

Scripts generated in other applications, but you can't create AppleScripts from within PixelPaint Pro3.

PixelPaint Pro3 is scheduled to ship in October for \$379; the upgrade is \$89 to \$149, depending on the version you have. Pixel Resources, 404/449-4947; 800/851-1427.—J.A.M.

# You don't talk to your mother the same

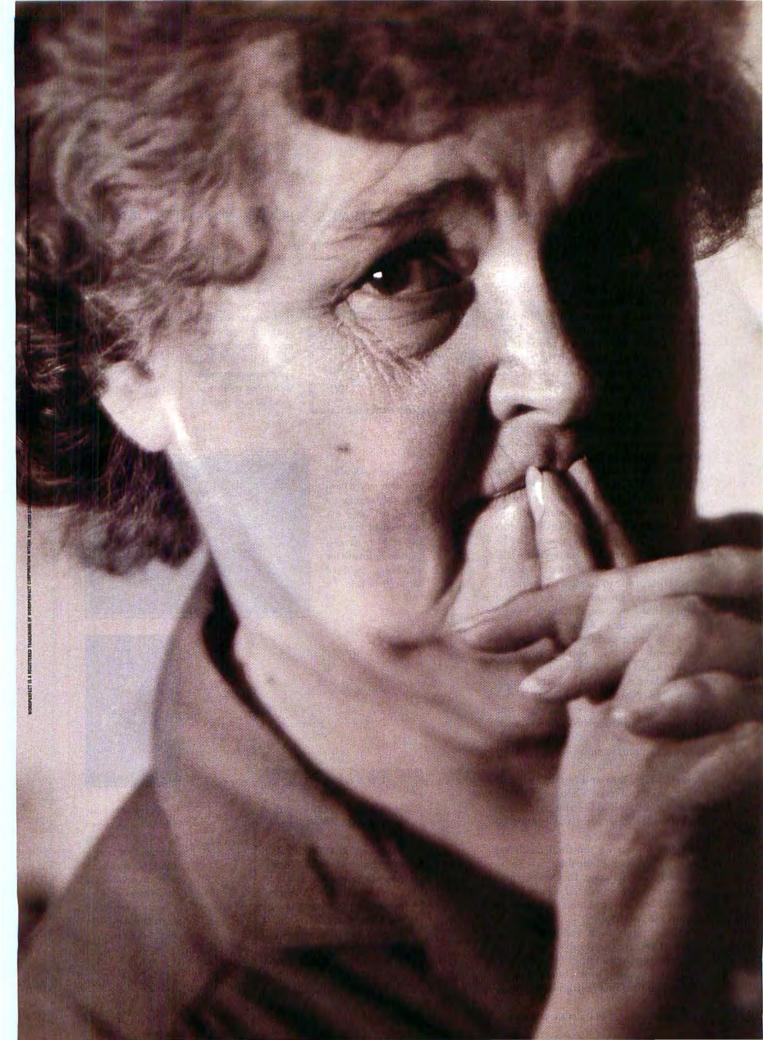
way you talk to your buddies. (Better not, for your sake.) That nice polite talk is perfect for Sunday dinners. Or when you're asking for money.

That's why you've got street talk. Small talk. Back talk. Coffee talk. Baby talk. And – even when you're not saying a word – body talk, which has absolutely no regard for syntax and grammar.

Custom languages made to order.

The same with the new WordPerfect® Mac 3.0. Seventy-eight customizable features let you say and do what you want, how you want, when you want, making it the most personalized, most Macompatible® word processor anywhere. Capisci?





GRAPHICS

# GRAPHICS PROFESSIONALS SHARE THEIR SECRETS

by Cathy Abes

Artist: Darrel Anderson, together with his partner Rick Berry, has created 3-D illustrations and animations on the Mac for the past six years. The image shown here—and many others produced by Anderson and Berry through their studio, Braid—will appear in a book, also called Braid, to be published in 1994.

How It Was Done: Anderson designed this 3-D illustration for a promotional piece to showcase several Pixar shaders he wrote for use with RenderMan. Shaders similar to the ones shown here are available from The Valis Group (510/236-4124; fax 510/236-0388).

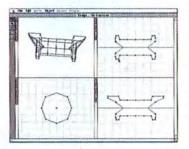
In Swivel 3D, Anderson began by building and posing the basic models, which he output in RenderMan's RIB format. Then, using a conversion utility he had previously created, he altered the RIB files to convert them from Swivel's polygonal structure into parametric objects. This produced smoother, better-looking models that would render about two to three times faster in RenderMan.

Then Anderson imported the models one by one into Pixar ShowPlace, where he positioned them, added other objects such as the floor and the square-shaped stone slabs. Next he added lighting: two distant light sources; two spotlights, one emanating from inside the lamplike screen of the console and the other from directly behind it; plus some ambient light.

Also in ShowPlace, Anderson positioned the camera and applied various shaders to the objects. Then he saved the entire scene as a RIB file and rendered it with RenderMan using the rendering application RenderApp.

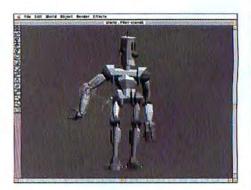
After importing the final rendered image into Adobe Photoshop, where he adjusted color balance, brightness, and contrast, Anderson placed a previously rendered 3-D image behind the robots as a futuristic backdrop.

The models took about 20 to 30 hours to create; the setup of the scene for rendering took another 15 hours; and the final rendering took about 12 to 14 hours. The final image size was 6MB. m



Anderson built the robots in Swivel 3D Professional by creating and fitting together numerous simple shapes, such as the cylindrical upper torso shown here. Each robot consists of about 60 such shapes.

After building the robots, he moved them into the appropriate poses. To change this robot's right arm from its original hanging position, he rotated the elbow until the hand rested on the hip.



# THE TOOLS

Hardware: Mac II with 8MB of RAM; 80MB Quantum internal hard drive; RasterOps 264 24-bit color graphics card; 13-inch AppleColor monitor.

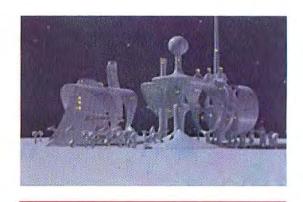
Software: Swivel 3D Professional 2.0; Pixar Show-Place 1.0; MacRenderMan/ RenderApp 1.0; SwivelPatch (proprietary parametric-conversion utility); Adobe Photoshop 2.5.



The standing robot in its final pose, shown in Swivel's somewhat crude polygonal form, is ready to be converted to the much smoother and more efficient parametric form via Anderson's proprietary conversion utility, SwivelPatch.

6 After positioning all the objects, lights, and camera angle, but before adding the shaders, Anderson did a test rendering using Show-Place's Quick 'n' Dirty image-quality setting.



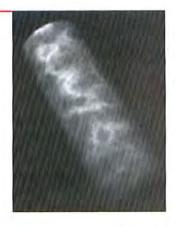




7 To composite the futuristic backdrop with the robot scene, Anderson first opened both images in Photoshop and copied the backdrop, then activated the robot image and loaded the selection, which created a selection based on the alpha channel automatically generated by MacRenderMan. He then used that selection to paste the backdrop behind the robots. Using the Composite Controls command, he set the opacity to 50 percent to blend the backdrop with the original background.



After he had imported all the objects into ShowPlace, Anderson set up the lighting for the scene. Using the Light Sources toolbox, he placed one spotlight inside the console screen and placed another one behind the console.



Using sample shapes, Anderson did test renderings to determine the best parameters for the shaders (here, Glowfog), that he would later apply to the objects in ShowPlace.



# 100 M

The two heavyweights of desktop publishing, Aldus PageMaker and Quark-XPress, have just gone through major upgrades-PageMaker to version 5.0, QuarkXPress to version 3.2-with each program adding dozens of features. Page-Maker has beefed-up its tools for color work and improved the Control palette, while QuarkXPress has added EfiColor color management and Apple events scripting.

Rather than concentrating on a laundry list of new features, however, in this article I point out the feature-by-feature differences between the two programs in their latest incarnations.

If a particular feature works in about the same way in both programs, I don't mention it. If one program has a feature that the other doesn't, that feature is listed in the comparison table (see "What's the Difference?") but not discussed in the article. What you will find here is an evaluative guide to the sometimes subtle, sometimes obvious ways the two programs differ, to help you decide which

MACWORLD

WEIGHS

THE STRENGTHS

AND

WEAKNESSES

OF THE

TWO PUBLISHING

GIANTS

program best suits the particular kind of publishing work you do. (See Reviews, Macworld, November 1993, for additional reviews of both programs.)

# The Big Differences

The programs' approaches in three main areas-pages, page elements, and add-on modules (Aldus Additions, Quark XTensions)-account for many of their feature differences.

Pages and pasteboard In QuarkXPress you can see as many pages at once as will fit in the window, and each page or spread has its own pasteboard. In PageMaker, you can only view one spread at a time, and the pasteboard is common to all pages. Being able to see multiple spreads has big advantages, and given that each program has a Library palette for storing items common to all pages, Quark-XPress's pasteboard approach is more useful than PageMaker's.

Page elements QuarkXPress pages consist of text and graphics boxes (plus lines)-you draw a box, then fill it with

# What's the Difference?

This table details the differences between PageMaker 5.0 and QuarkXPress 3.2. In areas where the programs function in substantially the same way, features are not listed.

The ratings represent the author's opinion of how well each feature and group of features is implemented, giving greater weight to the more important features and feature sets within each group. For discussion of each group, see the appropriate head in the body of the article. For more information on PageMaker, call Aldus Corporation at 206/628-2320; for further details on QuarkXPress, call Quark at 303/344-3491 or 800/788-7835.

	PM	QXP
INTERFACE AND DOCUMENT CONSTRUCT	ION	
Files, windows, opening, and saving		
Number of open documents	NA <sup>4</sup>	25
Maximum file size (in pages)	999	2000
Maximum page size (in inches)	42 × 42	48 × 48
Pasteboard		
Autosave and autobackup		
Templates included	16	8
Preview templates when opening		
Source-file management		
Link and update text files	# 18 MIN	
Link and update graphics files		
Preview graphics when importing		
Retain cropping when replacing/updating graphics		
Save as EPS		
Use Photoshop Acquire modules		
Palettes, tools, and controls		
Interruptible screen redraw		
Gray out graphics while scrolling		231
Undo command	No. of the last of	
Control/Measurements palette	Tiener)	MILE
Libraries		
Adjust defaults/preferences		100
Apply button in dialog boxes		
Keyboard shortcuts		
Pages, master pages, and spreads		
View multiple spreads	18,370,830	
Drag pages between documents		
View thumbnails	1000000	
Rearrange page order		al his
Spreads greater than two pages	THE STATE OF	
Number of master spreads per document	1	127
Change master items on document pages	A SVANTS	
Automatic page insertion	000000000000000000000000000000000000000	213331
Live running heads	Supplied to	
Zooming and moving		ALTON OF
Magnification range	1-800	10-400
Custom zoom percentages/magnifying glass tool		130
Moving between pages		
Gray out pictures while scrolling		
Live scroll bars		

Yes; or feature is well implemented.	14/11/28
Very usable but missing some feature(s), or feature(s) not well implemented.	
Still usable but missing important feature(s), or feature(s) badly implemented.	
Barely usable, with glaring absence of features or terrible implementation.	1000

text or a graphic. PageMaker page elements are independent—a chunk of text or a graphic on a page is its own entity, with no box containing it.

PageMaker's approach makes for a simpler, more intuitive interface, especially since QuarkXPress insists on making any box you're working on opaque, obscuring any other boxes that overlap it. But QuarkXPress makes it easier to put a box around an element or drop a tint behind it, among other pagedesign advantages.

Add-on modules Though similar on the surface, Aldus Additions are ultimately less powerful than Quark XTensions. Some of the XTensions available fundamentally change QuarkXPress's feature set. SXetch Pad, for example, adds full drawing tools—including Bézier curves and the ability to convert type to paths. But Additions are often more like sophisticated macros with dialog boxes—the Bullets and Numbering Addition, for instance, simply sets indents and types characters and has no real intelligence of its own.

XTension technology means that—for a sometimes hefty price—you can greatly enhance the powers of QuarkXPress with add-ons from dozens of vendors. At present, there are only a handful of thirdparty Additions, most of which are simple utilities or hooks into other programs.

# Interface and Document Construction

Files, windows, opening, and saving PageMaker and QuarkXPress offer autosave methods superior to any others I've seen. Both keep track of changes while you're working, so in the event of a crash you can revert to the last "minisave." In QuarkXPress you have the option of recovering unsaved changes after a crash; PageMaker does it without asking. QuarkXPress also offers a handy autobackup feature, which maintains a selectable number of previous saved versions.

PageMaker's templates, which include complete style sheets, are ingenious little scripts that create publications based on dialog box selections (page size, label template, and so forth). QuarkXPress's few in-the-box templates are special purpose and lack style sheets, so they aren't much use.

Source-file management PageMaker's Links dialog boxes give you more information about linked files than QuarkXPress does. When linking graphics files, you can choose whether to store each image in the publication (in QuarkXPress you must paste it in). You can control whether each graphic is automatically updated (a document-wide control in QuarkXPress), and you can unlink graphics (in QuarkXPress you have to delete or move the source file).

QuarkXPress's big advantages are the Show Me button, which jumps to the right page and displays the selected graphic, and its automatic updating of linked graphics files during the print process. Quark-XPress also has several more options for saving files in EPS format than PageMaker has.

Palettes, tools, and controls PageMaker's controls have one huge advantage over QuarkXPress's: you can interrupt redrawing at any time by clicking the mouse or invoking commands. In QuarkXPress you can only stop redrawing by pressing #-period (.).

You can't undo an action in PageMaker if you've clicked anywhere (except on the menu bar) after per-

No; or feature is missing

	PM	QXP
Measurement precision/accuracy		
Use +, -, /, * operators		
Finest ruler increment (in points)	1	3
Custom vertical ruler		
Snap-to ruler increments		
Custom points/inch/ciceros/centimeter	34700	II CONTRACT
ong documents		
Group publications into books		200
Sections within documents		
Page numbering		
Table-of-contents generation		
Indexing		
cripting		
Run scripts from within program		
Apple-events scripting		
Scripting documentation		
Include run-time version of Frontier	FUL	
nterchange with Windows versions		2000
Font- and character-set mapping		
EPS file handling		
PICT and WMF file handling		

#### PAGE ELEMENTS

Lines, boxes, ovals, and polygons		
Oval and polygonal graphic boxes		
Arrowhead lines		
Set rounded-corner radius		
Graduated fills		
Custom widths for patterned lines		
Line widths/increments (in points)	.1-800/.1	.001-64/.00
Custom barders		
Imported graphics		
Scale bitmaps to printer resolution		
Bitmapped image control		
Control screen resolution/bit depth of bitmaps		
Compress TIFFs		
Moving, scaling, rotation, skewing		
Drag items between documents		
Drag items between pages		
Nudge items		Marie 10
Adjust snap-to distance		Control of
Bring forward/send backward		
Percentage scaling increments	.1	.001
Scale ovals and rectangles proportionally		
Rotation/skewing increments (in degrees)	.01	.001
Rotate in-line graphics	III Sana	
Grouping, locking, alignment, and distribution	1 2/00	
Group items	200	
Lock items		
Align and distribute items		
In-line/anchored elements and paragraph rules		
In-line/anchored text boxes	10.5	
Paragraph rules		
In-line elements and text positioning		

### TEXT AND TYPE

Word processing		
Story editor		
Find, change, check spelling in layout view	1000	
Display invisible characters	c	
Drag-and-drop text editing		
Smart quotes while typing		200
Paragraph numbering and bullets	A COUNTY	
Check spelling		
Editing dictionaries		
Same dictionary for spelling and hyphenation		

forming the action. And you can't undo any text modifications but deletions. QuarkXPress can't undo deletion of pages or of multiple items (it warns you in each case).

PageMaker's Control palette has leapfrogged QuarkXPress's Measurements palette, offering more flexible control, in addition to both character and paragraph text modes.

In PageMaker's Library palette you can search by keyword, description, and author name (and import libraries from Aldus Fetch catalogs). QuarkXPress doesn't provide the searching capability (you can only select by the items' names), but you can have multiple libraries open.

Unlike QuarkXPress's application-wide Apply and Auto-Apply features, PageMaker has an Apply button only in the Tabs dialog box.

Pages, master pages, and spreads In QuarkXPress you can view and scroll through multiple spreads (and spreads can include more than two pages), drag pages between documents, view thumbnails, and easily rearrange page order (possible—though very slow—with PageMaker's Sort Pages Addition). The QuarkXPress approach means you can drag items between pages—a clumsy process in PageMaker.

QuarkXPress offers 127 master spreads per document, compared with PageMaker's 1. You can edit master items on document pages in QuarkXPress and control whether they're replaced when you apply a different master page to a document page, or update the master page.

QuarkXPress can automatically add pages for autoflowed text at the end of the current story, section, or document. PageMaker always puts them at the end of the document.

PageMaker's ingenious Running headers/footers Addition places live running heads (as in a dictionary or phone book) for you, finding the first or last instance of a given style on each page and using some portion of the text in that paragraph as the running head. You define the portion of text using a coding scheme.

**Zooming and moving** Both programs offer custom zoom percentages in addition to canned views (Fit in Window, Actual Size, 200%, and so on), but in QuarkXPress you can actually type in a zoom percentage. PageMaker's custom percentages are available only via the new magnifying glass tool.

Measurements, rulers, and guides In almost every instance, QuarkXPress offers finer measurement increments than PageMaker. In QuarkXPress you can use arithmetic operators (+, -, /, and \*) and mixed measurement systems (3p5+1i, for instance) in the Measurements palette and in all dialog boxes. In PageMaker you can use only + and -, you can use them only in the Control palette, and you can't mix measurement systems.

In PageMaker you can specify a custom vertical ruler increment, and objects and guides will snap to ruler increments—both features are great when you're working with leading-grid-based designs.

Long documents If you spend much time producing lengthy, text-intensive documents, PageMaker is the hands-down choice. Aside from its more sensibly implemented style sheets, it creates tables of contents for multiple documents, renumbers pages for multi-

	PM	QXP
Hyphenated words in dictionaries		
Check spelling of words with ligatures		
Foreign-language dictionaries		
Type attributes		
Type-size range/increments (in points)	4-650/.1	5-250/.1
Horizontal scaling range/increments (in percent)	5-250/.1	25-400/.00
Vertical scaling		
Scale type by dragging box		
Definable flex space	SEC. 22	
Adjust small caps/script preferences		
Adjust superiors		
Automatic drop caps		
Paragraphs, leading, keeps, and breaks		
Leading increments (in points)	1	.001
Specify position of first line in text box		
Copy formats between paragraphs		
Align paragraphs to leading grid		
Display leading grid	Quality is	
Vertical alignment and justification		
Flag widows and orphans		1 4 5
Prevent line breaks in selected text		
Continued lines	100	Ulasia.
Kerning and tracking	V.	
Kerning and tracking increments (in ems)	.01	.00005
Number of tracks per font	5	1
Paragraph-level tracking control	h me	
Kerning and tracking editors		Market Town
Automatic expert kerning	4	
Hyphenation and justification (H&J)	ALCOHOLD STATE	
Dictionary hyphenation		0.00
Same dictionary for spelling and hyphenation		
Foreign-language hyphenation		
Control hyphenation of capitalized words		100
Control minimum hyphenated word size		THE RESERVE
Hyphenate words containing ligatures		b
Flag loose/tight lines	41 11 100	
Save and load H&J settings	2000	
Copy H&J settings between documents		
Automatically justify single-word lines	00000	
Suggest hyphenation points		
Tabs		
Move tab-stops numerically		A STATE OF
Right-margin tab stops	. 1000	
Align-on tab stops	TO THE REAL PROPERTY.	
Maximum tab-stops per paragraph	40	20
Tab ruler aligns with text block	The Party lies	-
Special characters		
Automatic ligatures		-
Breaking and nonbreaking characters		10.50
Indent to here		-
Styles and style sheets *		a market les
Styles and local formatting		
See style applied to current paragraph		1111
Apply local formatting to existing style		Total Section
Import style sheets from other documents		ALC: NO.
Apply styles from Control/Measurements palette		
Redefine style based on local formatting		
Keyboard shortcuts for styles	Contract of the Contract of th	
Find and change styles		
Text import/export filters		
Mac word processing filters		
IBM word processing filters		STATE OF THE PARTY
Filter for tags and codes	1	
Text flow and text wrap		
TALLISW GIRL LEAL WIED	Mary and the last	8B 37
Multicolumn text boxes	\$100 mm 2 m	The state of the s

ple consecutive documents, and has the best indexing system I've ever seen. QuarkXPress's Section feature offers similar page-numbering capabilities, but with very long documents, files get huge.

Scripting You can write simple scripts in Page-Maker and run them using the Run Script addition, but Run Script doesn't support queries or any procedural commands (conditionals, loops, and so forth). To tap those powers, you need to run scripts with an external application (HyperCard, Frontier, Apple-Script, or QuicKeys, for example) via Apple events. With QuarkXPress, you can run scripts only via Apple events.

Rather than implementing the full Apple events scenario, PageMaker supports only the DoScript and EvaluateExpression Apple events, limiting the ways you can address and control objects. Also, Page-Maker scripting can't address any Story Editor functions such as Find and Change (arguably the most important uses for scripting). QuarkXPress provides a robust implementation of Apple events, though with some limitations. Notably, you can't control printing via scripts (a task that PageMaker handles impressively).

PageMaker's Script Language Guide (free if you send in a card) provides scanty (and largely incomprehensible) coverage of scripting via Apple events. QuarkXPress comes with a 12-page scripting introduction booklet and a comprehensive scripting guide on disk.

Interchange with Windows versions For one-way movement of files between the Mac and Windows (and vice versa), both programs convert graphics, fonts, and character sets as necessary (in PageMaker you can save font substitutions so it remembers them for the next conversion).

When moving files back and forth between Mac and Windows versions, however, PageMaker requires you to convert Mac PICT graphics to Windows Metafile format and vice versa (with significant loss of quality when converting more than once).

QuarkXPress uses either PICT or WMF as its source format, without conversion.

Both programs work best across platforms if you use IBM-format EPS and TIFF files, with DOS filenaming conventions. You can lose the link to the source file in QuarkXPress, however, along with the graphic's cropping and scaling.

QuarkXPress 3.1 for Windows can open QuarkXPress 3.2 for Mac files, though you lose Efi-Color profile information, and flipped graphics don't work, among other things. These problems may be addressed when 3.2 for Windows ships. (For more information, see the feature "Cross-Platform File Transfer" in this issue).

# **Page Elements**

Lines, boxes, ovals, and polygons With Quark-XPress's box-oriented approach, you can create oval and polygonal graphic containers. PageMaker only supports rectangular graphic crops, and you have to import polygons from a draw program. QuarkXPress's other attribute settings—especially graduated fills—put it well ahead of PageMaker in this category.

Imported graphics QuarkXPress's Picture Contrast

	PM	QXP
Wrap all four sides	1000	1200
Text-flow inside shape	G	
View auto text-flow page by page		100

#### COLOR

Color in the program	
Color palette	
Integrated color-management system	
Drag-and-drop color application	Carlo Car
Import named colors from EPS files	
Move colors between publications	
Color separations	
Process separate RGB TIFFs and PICTs	
Trapping	
DCS/OPI support	
Selectively overprint imported graphics	
Remap named EPS colors to other plates	
Separate color EPS files onto spot-color plates	

#### PRINTING

	THE LINE		
Pri	nt and print-status dialog boxes		
Π	Logically organized controls		
	Remember previous print settings		
	Save/load printing settings		
	Reimport missing picture during print sequence		
Pa	ge ranges and scaling		
	Print noncontiguous page ranges		
	Print multiple consecutive documents		9
	Print master pages		
	Reduce to fit on paper/center		
	Scaling range (in percent)	5-1600	25-400
	Print thumbnails		
	Print proofs		
	Print spreads on single sheets		
	Automatic page imposition		
Pos	stScript, images, and color		
	PostScript error handler	0	
	Font downloading		
	Downsampling of bitmapped images for printing		
	Convert spot colors to process at print time		
	Selectively print multiple color plates		

### DOCUMENTATION, ONLINE HELP, SUPPORT, AND PRICING

Manuals and help		
Documentation		
Tutorial		
Online help		
Tech support		
Knowledgeable, helpful phone support		Jan Jan
Toll-free number		
Annual support fee	\$99-\$308	\$150
Support with purchase (number of days)	90,	90 K
Support with upgrade (number of days)	30	0
Pricing		
List price	\$895	\$895
Upgrade price from previous version	\$75	\$15

<sup>\*</sup>Limited by memory. \* Only with autocreate templates. \* In Story Editor only. \* If ligatures are generated automatically by QuarkXPress, hyphenation and spelling check work properly. \* Available via free Bobzilla XTension. \* Aldus follows industry convention and calls each set of paragraph-formatting attributes a style. A group of styles is a style sheet. In QuarkXPress, styles are referred to as style sheets, and there's no name for a collection of those entities. The PageMaker terminology is used here. \* Only through undocumented workaround. \* Can be done from the Finder. \* Available with support contract only. \* From date of first call. \* From date of registration.

dialog box surpasses PageMaker's, providing a variety of tools for adjusting the contrast curve, but it still doesn't provide the kind of controls necessary to adjust scanned images well. For screen display of bitmaps, QuarkXPress offers more control over bit depth and resolution than PageMaker.

Grouping, locking, alignment, and distribution PageMaker actually groups items via an Addition, converting the objects to EPS format (slowly—it takes more than 30 seconds to group two objects on a Centris 650). Amazingly, you can ungroup the items (about 10 seconds), but grouping eradicates text-wrap settings, permanently breaks links between threaded text blocks, and prevents you from printing on non-PostScript printers until you ungroup. And you can't edit items within the group, as you can with QuarkXPress.

PageMaker's inability to align items (a feature available in MacDraw since 1985) is just plain ridiculous. QuarkXPress provides comprehensive alignment and distribution controls. The programs are equivalent for step-and-repeat duplication, except that with PageMaker you can repeatedly paste equally offset duplicates for a more interactive approach. In-line/anchored elements and paragraph rules QuarkXPress's box approach means you can use inline text boxes in addition to in-line graphics (Page-Maker only supports in-line graphics). In Quark-XPress you can automatically align anchored boxes to either the baseline or top-of-caps height, which you can't manage as easily with PageMaker. With PageMaker you can drag an in-line graphic up and down relative to the baseline, however; in Quark-XPress you have to use the Baseline Shift command.

If a paragraph rule in PageMaker extends beyond the leading of the line, it pushes ensuing text down, requiring some arithmetic to figure out ensuing baseline positions. In QuarkXPress the rules simply overprint on adjacent text, and you adjust Space Before and Space After settings in the Formats dialog box to make room.

# **Text and Type**

Word processing While QuarkXPress's word processing features sound impressive, PageMaker's Story Editor makes large-scale editing much faster and more convenient.

Both programs will (finally!) insert smart (curly) quotes for you while you're typing, but QuarkXPress offers five methods of inserting smart quotes for different languages. PageMaker's Bullets and Numbering Addition adds bullets or consecutive numbers to the beginnings of paragraphs—handy, but of no use for section (1.2.4) or figure (Figure 2-3) numbering. Check spelling For larger dictionary edits, the ability to edit QuarkXPress's dictionaries as text files is a big help. PageMaker's advantage is that it uses the same dictionary for spelling and hyphenation, so adding words updates both. For foreign-language spelling and hyphenation, you can buy 20 international dictionaries from Aldus for \$99. With Quark-XPress, you need to buy Quark Passport (which supports 13 languages) for \$2495.

Type attributes In PageMaker you can set preferences to choose small caps and scripts for any selection of text. QuarkXPress sets these preferences for

## WHAT'S NEW IN PAGEMAKER 5.0

his is a checklist of new features added to PageMaker since version 4.2. PageMaker 5.0 costs \$895; the upgrade price from version 4.2 is \$75. For more information, call Aldus Corporation at 206/628-2320.

# Interface and Document Construction

- Multiple open publications.
- Improved control palette, including character and paragraph formatting modes, style sheets, reflection, and skewing.
- · Library palette.
- Custom zoom percentages and magnifying glass tool.
- Drag items between publications.
- Tile and stack windows.
- · Improved Sort Pages Addition.
- Automated template scripts.

# **Page Elements**

- Rotation and skewing of text and graphics in .01-degree increments.
- · Rotated text editable in layout view.
- · Rotate in-line graphics.
- Horizontal and vertical reflection of text and graphics.
- Grouping Addition.
- Custom line weights and tint percentages.
- · Definable nudge increment.
- Object-level overprinting for PageMaker graphics.
- Transparent patterned lines.

### Graphics

- More import filters—Photo CD, DXF, WPG.
- TWAIN support.
- · Windows Metafile-to-PICT conversion.
- Ability to link to external EPS files.

### **Text and Type**

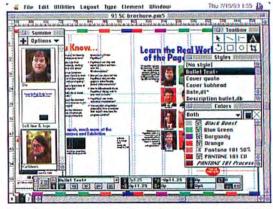
- · Panose font mapping.
- Kerning and tracking editors.
- Numeric kerning.
- · Expert Kerning Addition.
- Support for multiple language dictionaries.
- Search/replace superscripts/subscripts and case settings.
- Live running heads Addition.
- · Baseline shift.
- Auto-text flow without displaying every page.
- Automatic resizing of tab ruler for screen size.

### Color

- · Built-in process-color separation.
- · Can apply spot-color tints to type and lines.
- Ability to change line and fill colors from Colors palette.
- · Imports named colors from EPS graphics.
- Colors palette displays color swatches and identifiers for imported EPS colors, tints, and process and spot colors.
- · Custom color libraries.
- Color-level overprinting.
- · Spot-to-process color conversion at print time.

### Printing

- · Redesigned print dialog boxes for more logical interface.
- Works with print spoolers.
- · Print noncontiguous page ranges.
- · Save and load print settings.
- · Print multiple publications in batches, with different print settings.
- · Definable number of thumbnails per page.
- · Booklet imposition.
- Center page on paper, scale to fit.
- Scaling when printing up to 1600%.



PageMaker's Palettes PageMaker 5.0 boasts a much improved Control palette and Colors palette (which displays information on process, spot, tint, and imported colors), as well as a Library palette for storing page elements.

a whole document (though it provides both vertical and horizontal scaling for small caps).

PageMaker comes with a crude Addition for creating drop caps that has two big problems: line-ending discretionary hyphens and automatic hyphens disappear, and editing the paragraph wreaks havoc with line breaks. QuarkXPress's drop-cap feature is fully integrated and has only minor failings by comparison.

Paragraphs, leading, keeps, and breaks Both

QuarkXPress and PageMaker provide controls to align paragraphs to a leading grid, but PageMaker's are much more flexible, since they work on a paragraph, rather than document, level.

While QuarkXPress provides for automatic, continually updated "Continued from" and "Continued on" lines attached to text boxes, PageMaker includes a simplistic Addition that tacks continued lines (which don't update with document changes) onto single, selected text blocks.

Merning and tracking With one exception—Page-Maker's relatively coarse kerning increment (.01 em in 150-point type is 1.5 points—a lot)—PageMaker definitely has the lead in this area. The program provides five editable tracking levels for each font, applicable on the paragraph level. QuarkXPress offers one editable track per font, applicable on the document level—on or off.

QuarkXPress's kerning and tracking editors save QuarkXPress-specific kerning and tracking tables for each font. PageMaker works similarly for tracking tables, but its impressive stand-alone kerning editor changes the metrics in your fonts, and the changes carry through to other applications (this may or may not be what you want).

Hyphenation and justification (H&J) PageMaker's justification routine emphasizes word spacing (instead of letterspacing) more than QuarkXPress's, resulting in generally better spacing. QuarkXPress uses algorithmic hyphenation (not as good as dictionary hyphenation), which you can supplement with your own exception dictionary (amazingly, you don't get one with the program). With PageMaker's impressive ranked dictionary hyphenation, words can have three levels of preferential hyphenation points.

QuarkXPress' ability to save H&J settings makes it easy to apply those settings to paragraphs or styles,

### WHAT'S NEW IN QUARKXPRESS 3.2

his is a partial list of new features added to QuarkXPress since version 3.1. QuarkXPress 3.2 costs \$895; the upgrade price from version 3.1 is \$15. For more information, call Quark at 303/344-3491 or 800/788-7835.

### Interface and Document Construction

- · Open up to 25 documents.
- · Tile and stack windows.
- · Auto Backup and Auto Save.
- · Improved Document Layout palette.
- Scripting via Apple events.
- Improved keyboard shortcuts.
- Improved EPS save options.
- Copy or drag linked text boxes between documents.
- · Gray out pictures while scrolling.
- Interrupt screen redraw with #8-period (.).
- · Includes run-time version of Frontier.
- · Arithmetic operators in any field in any dialog box.

### **Page Elements**

- · Reflect text and graphics horizontally and vertically.
- Skew text and graphics.

### Graphics

- · Suppress picture printing from Picture Usage dialog box.
- Improved import filters: Photo CD, WMF, BMP, PCX.

### **Text and Type**

- · Cross-platform font mapping.
- · Find and replace fonts on master pages.
- · Scale text by scaling text box.
- Automatic smart quotes while typing.
- Support for Multiple Master fonts.
- · Horizontal and vertical type scaling.
- · Greater size range for drop caps.
- Next-style option for style sheets.
- · Improved control over imported styles.
- Drag-and-drop text editing.

### Color

- EfiColor color-management system for color consistency across devices.
- Process separation of RGB TIFFs and PICTs.
- Drag-and-drop color application.
- Additional color blend options.

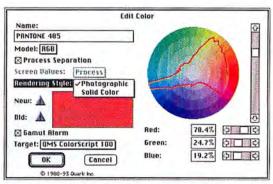
### Printing

- Collect for Output for transfer to service bureaus.
- · Thumbnail printing.

or copy them between documents. In PageMaker, you often have to enter the settings from scratch—not difficult, but annoying.

**Tabs** QuarkXPress's right-margin tab stops sit exactly at the right edge of the text box and move as you resize the box. Align-on tabs work like decimal tabs, but with any character. QuarkXPress's Auto-Apply option and tab-ruler alignment also make it much easier to set tab stops than in PageMaker.

Special characters QuarkXPress's very useful Indent to Here character indents the text following it to that character's position (though the indent doesn't hold over page breaks). And QuarkXPress's wonderful automatic ligature generation replaces fi and fl characters with ligatures, breaking them into



**EfiColor XTension** The EfiColor color-management system adds several features to QuarkXPress's Edit Color dialog box, including a gamut map of available colors for the selected device (color wheel), gamut-alarm icons (triangles with exclamation points) for out-of-gamut colors, and two color-mapping methods for out-of-gamut colors (Rendering Style).

separate characters when letterspacing increases beyond a specified amount.

Styles and style sheets When applying a paragraph style in QuarkXPress, you either retain all local formatting in the paragraph or eradicate it all. With PageMaker you can change styles but retain local type styling only (bold, italic, and so on), which is almost always what you want to do. QuarkXPress provides precise control over incoming styles whose names match those in the target document, but replacing all your styles with the incoming ones is a ponderous process that's a breeze in PageMaker.

In QuarkXPress you can assign keyboard shortcuts to styles (using numeric keypad and function keys only). PageMaker assigns function-key shortcuts to styles by their order in the Style palette (which isn't terribly mnemonic or useful).

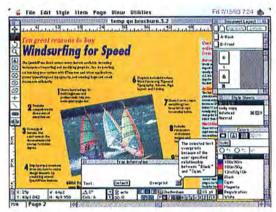
**Text import/export filters** Both programs offer good filters for Mac word processors, but PageMaker also includes IBM word processor filters. The XPress Tags filter is great for transferring and manipulating fully formatted text using straight text coding. It's far superior to PageMaker's anemic Smart ASCII and Rich Text Format (RTF) filters.

Text flow and text wrap QuarkXPress's text box approach allows for multiple-column text boxes. Change the number of columns and the text reflows accordingly—a tiresome task in PageMaker. Quark-XPress also automatically creates editable wraps around irregular shapes. In PageMaker you have to create and resize irregular wraps manually.

### Color

Color in the program QuarkXPress includes the EfiColor color-management system for improved screen-to-printer-to-output fidelity. Among other things, it adds a Gamut Alarm to the Edit Color dialog box, so you can see if a color you're defining is beyond the capabilities of your target device. EfiColor's inability to adjust output colors for EPS graphics makes it less useful than it could be, however.

PageMaker's new Tint option finally makes the program equivalent to QuarkXPress for spot-color work, and PageMaker's ability to import named colors from EPS graphics is a fabulous feature that every program (including QuarkXPress) should adopt.



**Speed Palettes** In addition to its Measurements, Style Sheets, and Color palettes, QuarkXPress offers a Document Layout palette (seen at right) for rearranging pages and master pages, and a Trap Information palette with balloon information explaining automatic trapping decisions.

A 40 × 82p3.85	1 D W 13p0.75	100% 97.6%	B:	⊡ 50°	FE FE
TradeGothic CondEig	D	C DD ann	mal 100%	\$ 100 \$ 400	19 O 26 Op
Bullet Text+	▼ ¥ 7p3.25 • Op11.2	*= -Op11	.25	Ор Ор6	<b>73.</b> 0

**Controlling PageMaker** PageMaker's Control palette offers three modes, greatly expanding its powers: object manipulation (top), character formatting (middle), and paragraph formatting—including styles (bottom).

You can apply colors using drag and drop with QuarkXPress's Color palette, but PageMaker's palette provides more information about colors—native or imported, spot, process, or tint (and you can toggle a color between spot and process with a keystroke). With QuarkXPress, you can simply append all the colors from another document. With PageMaker, you have to create a color library (using an Addition), then use that library in the target document.

**Color separations** In PageMaker you can edit an EPS color so that it prints on a different color plate (merging Pantone 485 CV with Red PMS 485, for instance). You can also apply a spot color to a color EPS and print the whole graphic on a single spot-color plate.

PageMaker's new object-level overprinting controls allow for simple manual trapping, but the tools aren't a match for QuarkXPress's explicitly designed trapping tools. With more complex trapping jobs, however, both programs break down. Best bet: Get your service bureau to run jobs through Aldus Trap-Wise and deal manually with situations TrapWise can't handle.

### Printing

Page ranges and scaling PageMaker allows you to print as many thumbnails per page as you wish; QuarkXPress only prints thumbnails at 12.5 percent. QuarkXPress can use the low-resolution screen rendition of EPS graphics for printing proofs, however; PageMaker either prints a box with an X in it or the full-resolution EPS file.

PageMaker's nifty Make Booklet Addition creates relatively simple impositions for either saddle-stitched or perfect binding—it even adjusts for binding creep. You can move pages manually in QuarkXPress to achieve some of this, but PageMaker handles it automatically (if slowly). And PageMaker now lets you print noncontiguous page ranges, like 1–5, 7, 99–105, and 108–109.

PostScript, images, and color PageMaker provides control over whether fonts are downloaded at print time, but it insists on downloading fonts even if you've manually downloaded them to printer memory, which can amount to extra hours of printing in the course of a day or week. In QuarkXPress you can't control font downloading, but it does handle automatic downloading more sensibly.

### Documentation, Online Help, and Support

Manuals and help Both programs include documentation sets that are well ahead of others in the genre, providing step-by-step instructions, conceptual explanations, and command references. Page-Maker's 80-page, four-color commercial printing guide, interactive tutorial, and comprehensive hypertext-based online help, however, make Quark-XPress's print-based tutorial and skimpy help system look slapdash by comparison.

Tech support Unfortunately, neither vendor scored particularly well in answering our battery of tech-support questions. Only one of the calls resulted in a rating better than poor (the one successful call—to Aldus—resulted in good answers with no waiting). While the tech-support representatives were friendly and helpful, they were (in five cases out of six) sadly lacking in knowledge of how their products work.

### Which One's for You?

You can create consummately professional publications of almost any type with either of these programs. The differences lie in how easily you can produce those documents.

For longer and more text-intensive documents, PageMaker's superior style sheets and book tools give it the edge. For more design-intensive work (brochures, ads, fliers), QuarkXPress's grouping, locking, alignment, and distribution tools make it a better choice. PageMaker handles color EPS files and the mechanics of color separation better (making it a good choice for production work), while QuarkXPress has EfiColor color management (a plus for design work and separating RGB files directly).

If you have a liberal software budget, Quark-XPress may be the best choice because of all the available XTensions. Those XTensions go a long way toward minimizing QuarkXPress's failings vis-à-vis PageMaker—and taking it into whole new realms. Additions—at least at this point—just don't provide the same advantage for PageMaker. **m** 

Contributing editor STEVE ROTH is coauthor of Real World PageMaker (Random House, 1993; formerly published by Bantam Books), editor of The QuarkXPress Book (Peachpit Press, 1993), and coauthor of The Underground Guide to PageMaker (Peachpit Press, 1993) and Real World Scanning and Halftones (Peachpit Press, 1993).

## MOVING BENCHMARKS BEYOND THE BENCH.



In benchmarks conducted by MacWEEK, Macworld, and MacUser, SuperMac is consistently judged the best. But when you buy a color graphics card, display, or printer, you're interested in what it can do in the real world, not just on the test bench. Now, SuperMac offers an integrated publishing system that accelerates your workflow from display to output — from start to finish.

### THE POWER TO ACCELERATE YOUR ENTIRE WORKFLOW.

### INTRODUCING THE THUNDER II GX • 1360

The Thunder II GX•1360 is lightning fast — the industry's fastest "Adobe Charged" 24-bit color graphics card. The card processes CMYK files through Adobe



Photoshop" software over 6 times faster than other cards, so you can work with CMYK as fast and as easily as RGB. And it features dual, 80 MHz DSPs, specifically

designed to accelerate image processing. Spend less waiting time during Adobe Photoshop Resize, Rotate, or Unsharp Mask. In fact, spend less time waiting, period.

The Thunder II GX-1360 is not only fast, it also gives you the big picture. It's part of the only graphics card family that delivers high-resolution 1360 x 1024 color to fill your 21"screen as never before. So you'll see more and scroll less.

### THE REVOLUTIONARY PRESSVIEW 21

To take full advantage of the Thunder II GX\*1360, you'll want our new PressView\*\* 21 display, designed exclusively for SuperMac by Hitachi. The PressView 21 includes the SuperMatch\*\* Calibrator Pro and our unique ambient-light reduction hood — resulting in the largest, brightest, most accurate digitally controlled display you can buy:

With PressView 21, you get a brilliant 21<sup>th</sup> screen that provides 39-percent higher resolution — up to 1360 x 1024. It's perfect for working with two-page spreads or large image files with plenty of room left over for tool bars.

Best of all, the display offers true 5,000" Kelvin viewing conditions, making it the ideal preproofing tool. And you can tweak, secure, save, and restore color settings, so they always match your proofing devices — saving you time and money through fewer iterations and less consumables.

### PROOFPOSITIVE PRINTERS

SuperMac also lets you preproof your work at your desktop, while you're working. Our dye-sublimation printers are available in one- and two-page (8.5" x 11" and 11" x 17") full-bleed formats.

ProofPositive<sup>™</sup> printers use EfiColor<sup>™</sup> color-matching technology for exceptional accuracy.
And, Adobe PostScript<sup>™</sup> Level 2 with JPEG compression will save you more time on the network during printing.

POSTSCRIPT
Schware From Adobe

So, while others are stuck on the bench, SuperMac scores again with unbeatable graphics, display, and preproofing acceleration in one fully integrated system. All guaranteed to accelerate your real-world return.

For a first-hand look at this winning combination, visit your nearest Authorized Reseller or call:

### (800) 334-3005.

For immediate information via fax, call: (408) 541-7680.

Adobe









FASTER. FROM START TO FINISH.

\$2.1935 SuperMat Technology, Inc. The SuperMat legg, the SuperMat stylized S, Thunder, PrissFirst, SuperMatth, and ProsfPointive are treatments of SuperMat Technology, Inc. Adobe Photoshop, PostScript, the PostScript logs, and the Adobe that ped logs are treatments of Electronica for Imaging, Inc. All other brand and product names are treatments of their respective helders.



### 20 YEARS PRACTICE

Take the express route to expressing yourself...Rock, Rap or Reggae. Just select a beat. Click on a couple of riffs. Punch in some horns. Plug in the backing vocals. And Wham! You're jammin'!! Real pro sound in minutes, no musical experience necessary. That's ROCK, RAP 'N ROLLTM, from Paramount Interactive, the fastest, easiest, hippest music-making system ever! Record your own vocals, even add distortion. Tons of instruments, beats, song loops and sound effects.

POLL

NOW AVAILABLE
ON MAC OR PC
DISKETTE!

Automatic mixing. Instant record and playback. So let your musical urge run wild. Order ROCK, RAP 'N ROLL today! Or, if you've got a CD ROM drive, you can get three times the creative power with MEGA ROCK RAP 'N ROLL. 10 fabulous musical styles, each with its own studio, including Blues, Jazz, Soul, Latin and more, loaded with hundreds of hot sound effects and dazzling song-loops. A whole world of music on one disc.





### 10 MINUTES PRACTICE

### TO ORDER CALL 1-800-821-1177 ext. 100

24 hr. FAX Orders: 1-510-429-5010 P.O. Box 1027 • Union City, CA 94587 Ask about our money-back guarantee!

### ULTRA LOW PRICE:

ROCK, RAP 'N ROLL (diskette) \$49.95 (SRP\$59.95) MEGA ROCK, RAP 'N ROLL (CD ROM) \$69.95 (SRP\$79.95)

### 3 MORE HITS FROM PARAMOUNT INTERACTIVE



A toe-tapping adventure that teaches kids music.



Kids control the town and learn while they play.



The ultimate intelligent video guide & reference.

## ORDER NOW! WITHAGINE AND GET A FREE MOVIE!

Get a FREE Paramount Home Video if you buy
ROCK RAP 'N ROLL or any Paramount Interact

ROCK RAP 'N ROLL or any Paramount Interactive software product right now. Pick any one of: TOP GUN, INDIANA JONES® AND THE LAST CRUSADE, THE NAKED

GUN® or STAR TREK V®:THE FINAL FRONTIER. Offer good through 12/31/93.

### DISKETTE AND CD ROM SYSTEM REQUIREMENTS:

MACINTOSH: Liconingles, System 607 or greater, 4M8RAM, color monitor. Delette variation requires SMB hand data space. MEGA version requires CD ROM drive. IBM AND COMPATIBLES. 360 orbigher, 15 MHz or higher, 4M8RAM, MGA with 26 orbigher, Mindows 31 or greater, mouse. SoundBaster, SoundBaster from compatible external species. Delette version requires 10 MB hand disk space. MEGA version requires CD ROM drive. Muchitatin is a registered tradernark of Apple Compater, for Other brand names and product names are See Asystems or the product companies. TOP GUN is a tradernation Financium Potures. The Nakes Gunff and See Trade are registration tradernarks of Paramount Potures. Indiana Area and the leaf Counside IMA & CD 1989 Bucastifinities in JRJ 1MA & CD 1989 Bucanount Potures. All Rights Reserved.

Circle 92 on reader service card

EDITED BY DAN LITTMAN

## At Work

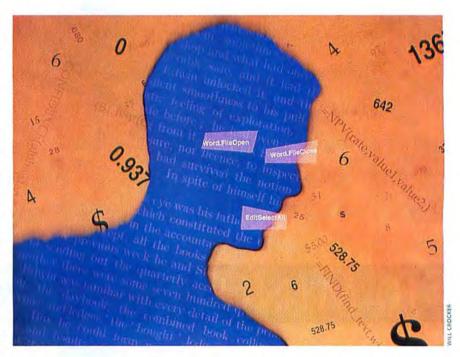
THE LATEST TOOLS FOR BUSINESS COMPUTING

### Word 6, Excel 5: Radical

OT CONTENT WITH INCREMENTAL improvements to the products that dominate two categories of Macintosh software, Microsoft plans major changes that will begin to appear in its next versions of Word and Excel. The most significant new direction is expert-system technology, which will make its debut in Word 6. A bit more down to earth, both new versions will incorporate a programming language (called Word Basic in Word and Visual Basic in Excel) for customizing both programs, controlling them procedurally, and tying them together.

Word 6 Microsoft's long-term goal is to replace the user interface with artificial intelligence that figures out what the user wants to do. First steps in Word 6 will be a glossary that creates and names entries almost automatically, and Auto-Correct, which corrects misspelled words, capitalizes sentences, and so on while you work. Auto-Format will simplify creating indexes, tables of contents, and tables, and will bullet and center text. Other Word news: drag-and-drop between windows, movable tool bars, vertical rulers, and style sheets for character styles.

Excel 5 Excel's interface shows no signs of withering away, but in version 5 it will resemble Word's interface more closely. Other major changes will include support for custom lists to use with Auto Fill, in-cell text editing, and a worksheet auditor that draws arrows between precedent and dependent cells. A new charting module will support independent manipulation of every element and adding data to an existing chart; provide trend lines, error bars, and doughnut charts; and make it easier to combine chart types. PivotTables, with a Pivot Wizard, will simplify flopping data axes; it will be designed for accessing database information and will aggregate data across fields and provide other standard summary sta-



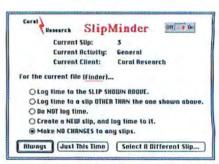
tistics. Microsoft also promises guidance to help the innumerate use Excel's statistical functions. Excel's established macro language will live alongside Visual Basic, and Microsoft says older macros will run under 5.0.

The Mac versions of both programs are scheduled to ship late in the first quarter of 1994. Pricing was not set at press time. Microsoft, 206/882-8080.—D.L.

### Making Timeslips Smart

N ADD-ON FOR THE TIME-BILLING package Timeslips will plug a hole in Timeslips' design to make recording your work automatic.

SlipMinder will allow you to assign any file to a Timeslips record and record how long each file is in use—something Timeslips doesn't do on its own. Every time you open a window or move it to the front, its billing slip's timer will begin



The SlipMinder add-on to Timeslips' time-billing system allows you to tie windows from any program to any slip.

running; and when you close a window or send it to the back, its timer stops. SlipMinder can rack up time for multiple files on a single slip.

mes on a single sup.

SlipMinder, which will also work with Timeslips' PowerBook product LapTrack, is being developed by Coral Research at 702/831-9346. It is scheduled for a late October ship; the price was not set at press time. Timeslips 2.1 is \$299.95, and LapTrack 1.0 is \$79.95. Timeslips, 508/768-6100.—p.t.

### DayMaker Reorganized

ASTEL IS EXPANDING ITS PERSONAL information manager DayMaker with contact-management features. The slightly renamed DayMaker Organizer 3.0 sports a new item type that resembles

a structured database record for recording contact names and addresses, with seven fields for telephone or other numbers, four user-defined fields, and a notes field. All contacts' first names, last names, and companies appear in a scrolling list and can be selected and dragged onto the calendar or to-do list to set up callbacks, link a name to another item, and so on.

Pastel hasn't abandoned plans to sell plug-in modules that add new functionality to DayMaker; in fact, the contact manager is a plug-in module, though it will be bundled with the new version. DayMaker Organizer 3.0 is scheduled to ship for \$149 before you read this. Pastel, 212/941-7500.—p.t.



Names in DayMaker Organizer's new contact manager can be linked to items in the to-do list (as shown above) or to items in the calendar.

### Cybermeeting

Meeting Space to take meetings out of the conference room and onto your network. Meeting Space walks you through setting up an agenda to make sure you invite the right people and gath-



er the necessary information before convening. Once you're all online, Meeting Space provides tools for managing who has the floor, a text window and a whiteboard that all participants can share, and a way to shoot graphics over the network to make presentations. Discussions are saved, eliminating the need to write up minutes. Security features provide control over who can join a meeting or read the discussion.

Meeting Space is not really designed for use as a bulletin board system. Users can append messages at any time, but there is no threading and no way to inform others when new messages are added. Meeting Space is scheduled to ship in November for about \$300 per user. World Benders, 603/881-5432.—p.t.

### IN BRIEF

DA Outliner Revived Portfolio Systems acquired the desk-accessory outliner Acta; is changing the outliner's name to Dyno Notepad; and plans new versions for Mac, Windows, and Newton. The Mac version should ship for \$59.95 before you read this; the Newton version is scheduled for late 1993. Dyno Notepad will have a new feature that is nifty for to-do lists: you can format topics with check boxes, and when all the child-topic boxes are checked, the parent topic checks itself off. Portfolio Systems, 408/252-0420.

World Trade Centers
Go Online The World Trade
Centers Association is a worldwide organization of centers providing such business services as
meeting rooms and translators for
traveling businesspeople. The
association has developed a Mac
front end for its electronic bulletin
board system, WTC Network,
which provides E-mail and facilitates international deal making.
For information on WTC Network, call 212/435-2552.

Version 1.5 Cricket Graph III version 1.5 adds table graphs and histograms, allows you to set the length of error bars, and provides several polynomial functions for curve fitting. Graphs can be converted to objects, and the program is designed to work with Cricket Draw through publish and subscribe. Graph III 1.5 lists for \$195. CA-Cricket, 516/342-6000.

### Fair Witness Adds Custom Forms

VERSION 2.0 OF FAIR WITNESS EXtends the exotic planning tool's feature set in some practical ways. Fair Witness is basically a table—rows and columns—but tasks, dates, names, figures, and other information stored in its cells can be rearranged in an outline view, displayed as a Gantt chart, calculated, and even voted on over the network.

Version 2.0 adds a user-designable form view so that you can see the contents of a long row of cells gathered on a single page. In the new Chalkboard view, you can mix cells from different rows and draw with a tool that interprets your scrawls and converts them to straight lines, boxes, circles, and other shapes. Fair Witness implements AppleScript thoroughly: it can record your actions as scripts, and it supports Apple-event suites that communicate with TouchBase Pro, Now Up-to-Date, Excel, and other applications.

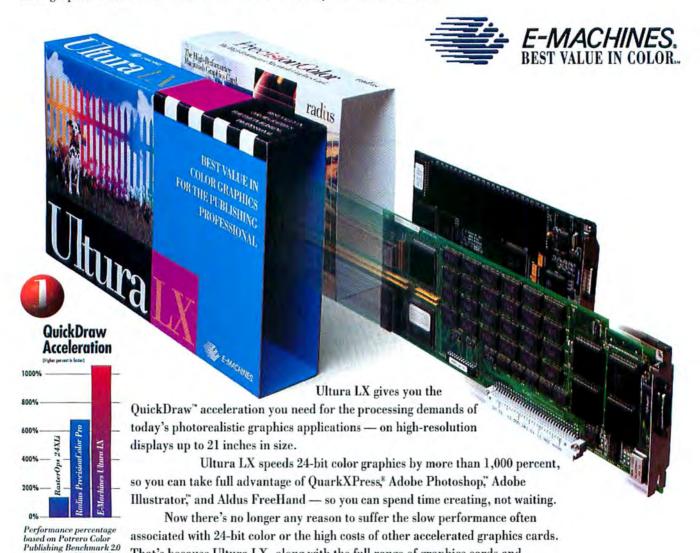
Fair Witness 2.0 is scheduled to ship in mid-November for \$295. Chena Software, 215/770-1210.—D.L.

There are basically two very important things to look for in 24-bit color graphics cards.

Performance.

Performance.
Price.
The only thing worse than slow performance is paying too much for it. But before you start
Screaming about paying too much, take a look at Ultura" LX
— the 24-bit color graphics card from E-Machines that gives At Half The Price.

You'll see Ultura LX outperforms most of the 24-bit color graphics cards on the market. You'll also see it only costs about half as much."



All for a price that will have you cheering.



running on a Macintosh Quadra 950.

### Ultura LX \$1,299

For your nearest Authorized Reseller, or a copy of our new catalog, call: (800) 344-7274. For information via fax, call: (800) 541-4787, menu item 117 for a datasheet, item 905 for a copy of the benchmark report.

That's because Ultura LX, along with the full range of graphics cards and

large-screen color displays from E-Machines, gives you the Best Value in Color.

nerMac Technology, Inc. The E-Machines logo is a registered trademark, Ultura is a trademark, and Hest Value in Color is a service mark of SuperMac Technology, Inc. Mac is a registered trademark and Macintosh Quadra Draw are trademarks of Apple Computer, Inc. Quadra Yerosa is a registered trademark of Quark, Inc. Adobbe Photoshop and Adobe Hustrator are trademarks of Adobe Systems Incorporated, which may be registered in certain jurisdictions. "Blased on QuickDraw acceleration tests using Poterce Benchmark. "Based on \$2,499 SRP for PrecisionColor Pro, pricing current as of \$2599.

BY JIM HEID

### Working Smart

### Data Processing on the Mac

DO YOU SUSPECT THAT YOUR MAILING list contains thousands of duplicate entries? Did a temporary employee post 948 checks in your accounting system with the CAPS LOCK KEY DOWN? Is the data you need to look at with a spreadsheet stored in some oddball format on the company mainframe? Do you need to extract some records from two different files and combine them into a third file? And how can you get those product descriptions from a FileMaker Pro database into a catalog you're laying out with a publishing program?

Normal database programs aren't designed for tasks like these, so you need specialized data processing utilities. Data processing utilities don't have features for creating fancy data entry screens, typing new records, or browsing, because they work with existing databases—created with Mac data managers or transferred to the Mac from other computers.

We aren't talking glamourware here—the utilities I'll describe are no-frills affairs from the unsung-heroes ward. But when you need their data-massaging skills, they're priceless.

### **How Data Processing Works**

The utilities I'll concentrate on are WorksWare's DataMate, Seawell Micro-Systems' DataMerge, and Main Event Software's Rosanne (I worked with an early prototype of Rosanne; Main Event expects to ship Rosanne before the end of the year). I'll also look at some data processing utilities geared for database publishing (see "Publishing Your Database").

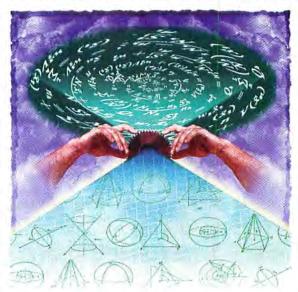
Data processing utilities operate on text files—files containing only raw text—not on files formatted by a data manager. If you need to modify a database created with, say, FileMaker Pro, you must export the database to a text file. You can also use a data processing utility to process spreadsheet data—just save the spreadsheet in text-only format.

A data processing utility accepts one or more of these text-only *input files*, modifies the data according to your speci-

fications, and then creates a text-only output file, which you can import back into your database program. Processing the data into the form you want often requires several steps, so the final product may benefit from some advance planning. In fact, you might be wise to sketch out the steps to make sure you're being efficient it doesn't make much sense to first sort your data on one field if you plan to delete most of the records based on the contents of a different field.

### **Case Workers**

A database whose entries are in all-capital letters is fine for printing mailing labels and the like, but it's unsuitable for tasks



such as creating customized form letters using a word processor's mail merge feature; nothing gives away a form letter more than a salutation such as "Dear MR. DAVE BYRD."

Basic data managers such as File-Maker cannot convert case. With the programming language in high-end databases such as 4th Dimension or FoxBase+/Mac, you could write a program to examine each word and capitalize its first character. But a much easier method is to use WorksWare's DataMate.

After you have specified the input file, indicate which fields you want DataMate to include in the output file, select the field (or fields) whose case you want to convert, and choose Text Conversion from the Options menu. Select the desired conversion option, click on OK, specify a name for the output file, and then click on Process.

### **Unfixing Field Lengths**

A thornier chore involves modifying a database that was created on a different type of computer, such as a minicomputer or mainframe. To be able to bring the data into a Mac data manager, you must ensure that the database is properly delim-

ited—that each field and record is separated so that your database program will be able to tell where one ends and the next begins.

Most Mac database managers (and spreadsheets) can import and export files with the fields delimited by tabs or commas and the records separated by carriage returns. But if your database came from a minicomputer or mainframe, it may not have these delimiters. Mini and mainframe databases often have fixedlength records: instead of each record's length varying to accommodate the data within it, all records are the same length, and

each field has a specific number of characters—15 for a last name, for example, or 2 for a state abbreviation. If a field isn't full, the database manager simply tacks on empty spaces. (The fixed-length data format lets the computer run at full steam with no need to watch for the next tab or comma, but this format truncates records that are too long.)

All three packages can convert fixedlength data to a delimited format. The

UART BRADFORD

### BUY ONE GET 15 FREE!



New Connectix Desktop Utilities is an innovative collection of sixteen powerful, convenient and indispensable utilities for your desktop Macintosh. With it you will:

- Save electricity and money when CDU automatically powers down your Mac when not in use
- Extend your monitor life with the automatic screen dimmer
- Keep your valuable files secure
- Speed backups and easily reconcile files between disks
- Select items without using your mouse
- Monitor disk activity, date and time
- · Create time-saving macros
- · Get a larger and easier-to-see cursor
- Create function and page keys
- · Personalize your desktop
- · And many more!

Any one of CDU's utilities is well worth its low price. So, buy the one you want and get the 15 other great utilities free!

Contact your favorite software supplier or call Connectix direct to order your copy of CDU today.

phone: 415-571-5100 fax: 415-571-5195, or call toll free

### 800-950-5880 CONNECTIX

© 1993 Connector Corporation. CDU is a trademark of Connectic Corporation. All other trademarks are the property of their respective holders.

Circle 189 on reader service card

### **PUBLISHING YOUR DATABASE**

he art and science of combining a database with a publishing program is called, logically enough, database publishing. Any structured document that originates as a database is a candidate for database publishing; examples include telephone and personnel directories, catalogs, real-estate listings, and price lists.

Most Mac database managers provide extensive layout features, so why bother going to a publishing program? One reason is superior typographic features, such as text kerning and tracking, to improve legibility and aesthetics. Publishing programs also offer superior printing and graphics-manipulation features.

There's a first-rate database-publishing utility for each of the two top publishing programs. For Aldus Page/Maker, there's Step Two's DataShaper 1.2, and for QuarkXPress, there's Em Software's XData 2.0. The two utilities are similar. After exporting a database to a delimited text file, you create a template that tells the publishing program how to format each field—where to place it on the page and what typographic attributes to use. You then import the database text file and apply the template. Both utilities have advanced features—they can import graphics, print text only if certain conditions are true (for example, you can set them up not to print a field label reading "Fax Number" if the fax field in the data file is blank), generate automatic headers and footers, and more. DataShaper can also tap into PageMaker's indexing features to automatically index a publication.

If you use ACI US's 4th Dimension database manager and Frame Technology's FrameMaker publishing software, you can get a free database-publishing utility from ACI US. 4D/FrameConnection is a collection of 4D external procedures that enable 4D to generate text files containing data from the database with the necessary formatting codes in FrameMaker's mark-up language. When you import the text files, FrameMaker interprets the codes and formats the fields accordingly.

specific steps vary from package to package, but generally, the process involves identifying each field in the input file and then specifying what kind of delimiters you want in the output file (see "Data Processing on the Mac").

### **Removing Duplicates**

Accumulating duplicate records is especially common in mailing-list databases: slight variations in a name or address become new records in the database. Purging duplicates from the list eliminates sending multiple copies of a mailing to the same household, which saves on postage and printing costs; reducing the number of records in the database also increases performance. DataMate and Rosanne can locate and delete duplicates.

DataMate's Duplicate Record Eliminator dialog box lets you fine-tune what the program flags as a duplicate. You can, for instance, tell DataMate to check capitalization when comparing records. Activating this option lets you snare subtle duplications like "Jack McDuff" and "Jack Mcduff." DataMate can save the deleted records in a separate file, where you can make sure you really want to delete them, or you can have DataMate ask if it should keep or discard each suspect record (though if your database is big, you're going to get mighty bored with that).

DataMate also lets you specify that only certain fields be checked for duplicates. For example, you probably won't want to check the City, State, or Zip Code fields for duplicates—a mailing-list database will be filled with them.

### **Stripping and Changing Fields**

Say your company has a client database containing names and addresses along with buying histories and credit information. You want to use those names and addresses in a new database, but you don't need all the other information. Some Mac database programs let you specify which fields to export, but if you're working with text files that originated on a mainframe, turn to a data processing utility.

Stripping out certain fields involves first specifying the input file and then specifying which fields you want the output file to contain. DataMate, DataMerge, and Rosanne can handle that.

Rosanne has a unique feature that lets you change the contents of fields. The Recode option is Rosanne's equivalent of a word processor's search-and-replace feature. Say your input file contains a State field, but you want the output file to simply reflect what sales territory clients are in—Northwest, Western, Midwest, and so on. Supply Rosanne with a list of the states in each territory, and Rosanne will examine each record's State field and replace the state information with the territory value.

continues

**Merging Ahead** 

Another data processing scenario involves combining databases. For example, if you have several databases, each with sales information for one county, you can merge them to produce a statewide sales database.

DataMerge and Rosanne have merging features. In DataMerge, merging databases involves specifying the input files and then selecting the fields that you want to be written to the output file.

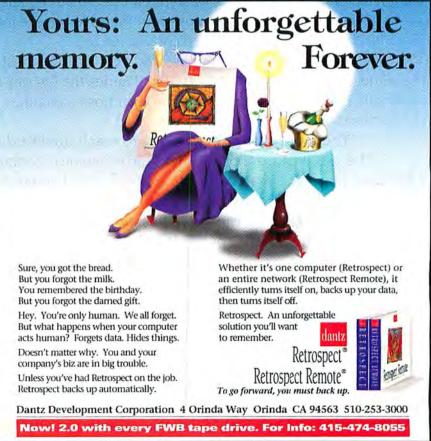
Rosanne's merging features are more sophisticated. It can perform a *relational* merge, which means that it adds a record to the output file only if the contents of fields you specify match values you specify in more than one input file. For example, you could do a relational merge of a database of customer names and addresses with a database of customers' recent purchases to find out how much response you got from an advertisement targeting a certain area. Rosanne could also save records that don't meet both files' criteria to a separate file, which would pinpoint customers who haven't purchased recently.

### Other Data Processing Jobs

I've covered the primary uses of data processing utilities; here's a brief look at some of the other tasks you can perform.

- Processing zip codes The United States Postal Service offers discounted rates on bulk mailings addressed with nine-digit zip codes. For no charge, the Postal Service will add the extra four digits to mailing-list files that you submit—if those files are in a specific format. Data-Mate can convert your data files to the right format. (For more information about this, contact the Post Office's Diskette Processing Services Department at the National Customer Support Center, 800/238-3150.)
- Sampling Sometimes you may want to extract only a certain number of records from a database. Perhaps you want 1000 records out of a 100,000-record database for a test mailing. Or perhaps you have thousands of records of data points generated by a laboratory instrument, and you want to extract a representative sampling of them for statistical analysis or graphing. You can tell DataMerge and Rosanne to write only every nth record to the output file—every third record, every tenth, and so on.
- Scripting If you need to make the same changes to the same kind of data files repeatedly, specifying field and conversion options for every run gets old fast. Rosanne is the only data processing package that enables you to automate processing tasks with AppleScript (for an continues





f your market potential goes beyond the U.S., take a close look at your trade show plans. With so many shows to choose from in the U.S. alone, you may be losing sight of your biggest market—the world.

This is why the MACWORLD Global Series trade shows are so important. International sales is the category most critical to almost every major IT company's success. For example, information technology spending in Western Europe already equals that of the United States.

The world technology explosion will very likely make international markets a make or break factor for small and mid-sized companies, too.

With 15 events in 12 countries, MACWORLD is the most successful trade show series in the world, making the MACWORLD Global Series the *best* way to introduce your product internationally. There will be nearly 15 million Macintosh computers in operation worldwide by 1995\*—clearly this is an opportunity not to be missed.

### The most cost-effective way to reach qualified international buyers.

The MACWORLD Global Series is an economical complement to your international advertising plans. The one-on-one atmosphere of each international trade show location is ideal for small to mid-sized companies—whether software developers or hardware manufacturers. You are able to meet your customers—to shake hands and make that personal connection. You can demonstrate your product. Even sell it right from the trade show floor.

Nothing can compare with face to face meetings with *qualified sales prospects*. You know that first hand from MACWORLD shows in the U.S.The same is true all over the world.

### U.S.Village. A turnkey promotional concept that covers everything.

If global marketing is unknown territory, you may take advantage of the U.S.Village. It's a comprehensive selling package that includes a furnished booth, a theater-style presentation area and a full-blown marketing campaign.

Each U.S.Village is set in an attractive, high-visibility location at participting MACWORLD Global Series shows. 1993 sites include Mexico, New Zealand, Frankfurt/Main, Hong Kong, and Stockholm. Plans are under way for a U.S.Village at every MACWORLD Global Series trade show.

A long list of advantages comes standard with U.S.Village's low cost. Here are just a few:

• turnkey booth • presentation site for product demonstrations • private business lounge • discounted freight

# E WORLD. WORLD.

forwarding, customs expediting, and travel • ads in Show Guide and local Macworld magazines.

The U.S.Village takes care of all those details and strategies so crucial to trade show success. In short, it puts you in league with the world's leading hi-tech companies.

Come join Apple, Lotus, Radius, and other international successes.

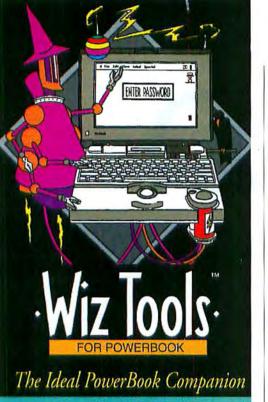
The MACWORLD Expo environment not only showcases your products along with the world's leaders, it is the perfect setting for you to discover businesses that may complement your own. Partnerships, distribution channels, and other new business opportunities can be explored easily because the decision makers will be there.

Don't wait another year to reach your full potential in the global marketplace. A fast changing world calls for fast action.

\*Source: International Data Corporation, April, 1993

### For more information about exhibiting or attending any of the Today, the coupon, MACWORLD Expos listed, please complete and mail this coupon to: Tomorrow, the world. IDG World Expo, P.O. Box 9107, Framingham, MA 01701-9107. Can't wait? FAX us at: (508) 872-8237. ☐ I'd like to know more about exhibiting at the MACWORLD Expos checked below. ☐ I'd like to know more about attending the MACWORLD Expos checked below. Organization. ☐ Auckland ☐ Mexico □ Barcelona ☐ Milan ☐ Budapest ☐ San Francisco City/Town ☐ Boston ☐ Stockholm ☐ Sydney ☐ Frankfurt/Main State/Province ☐ Hong Kong □ Tokyo Zip/Postal Code. ☐ Kobe □ Toronto ☐ Lisbon ☐ Washington Telephone All MACWORLD Expos are independent trade shows produced by IDG World Expo, an International Data Group company, the world's leading global provider of information services

on information technology. Macintosh is a trademark of Apple Computer, Inc.



PB Guard provides hard disk protection with an integrated screen saver—even has a personalized "return to owner" message if lost

Connectivity automates remote connection to the network using ARA—an indicator in the menu bar informs you of AppleTalk status

Synchro compares data between your PowerBook and another Macintosh, keeping the most current information

> PB Eass has lots of features to ease your work—improved cursor location, trackball substitutes, auto menu dropping, etc.

Power Saver controls backlight, spindown, and more to increase your battery's life—status indicators inform you of the battery level, disk activity, etc.

> WorldClock shows you the time anywhere in the world; when you're travelling, it's easily reset to local time

Be sure to ask about the original Wiz Tools" for your desktop system!

For more information, call 909.624.2594

To order, call 800.255.6227



MWD

4650 Arrow Highway, Suite E-6 Montclair, CA 91763 Fax: 909.624.9574 Applelink: ASD

Circle 170 on reader service card

### **Data Processing on the Mac**

A typical data processing task involves preparing mainframe data for use in a Mac database or mail merge. In this example, the data is in fixed-length format; each field is the same length in every record and must be converted with a data processing utility to a delimited format, in which a delimiter (such as a comma) separates each field.

**Fixed-Length Format** 

In this mainframe data file, the LASTNAME field contains 10 characters—if the name is shorter, as is SMITH, the field is filled up with blank spaces (a longer name would be truncated).

LASTNAME.FIRSTNAME.STREET......CITY.....ST.ZPCOD

SMITH.....JOSEPH....15 MAIN ST.....SMALLTOWN...NH.03458

CAMPBELL.AMY.....328 GEORGE ST...NEWVILLAGE..WI.52044

TAYLOR....ROY.....43900 RIDGE RD..WAZOOA.....CA.99328

### **Delimited Format**

A data processing utility strips out extra spaces and inserts commas so that the Mac can recognize where each field ends and the next field begins.

LASTNAME, FIRSTNAME, STREET, CITY, ST, ZPCOD SMITH, JOSEPH, 15 MAIN ST, SMALLTOWN, NH, 03458 CAMPBELL, AMY, 328 GEORGE ST, NEWVILLAGE, WI, 52044 TAYLOR, ROY, 43900 RIDGE RD, WAZOOA, CA, 99328

introduction to AppleScript, see Getting Started, Macworld, August 1993). If you grew up with the mainframe world's Job Control Language (JCL), you might think of the Rosanne-AppleScript combination as a friendlier and more powerful JCL. For example, Rosanne's AppleScript support lets you create a script that not only processes a database, but also opens Microsoft Excel, imports the data, and then graphs it.

### WHERE TO BUY

### 4D/FrameConnection

free; ACI US Developer Services, 408/252-4444, extension 288

DataMate 1.2 Photoshop plug-ins \$99; WorksWare, 818/ 989-2298.

DataMerge 2.5 \$99; Seawell MicroSystems, 206/ 938-5420.

DataShaper 1.2 \$195; Step Two, 602/942-6553.

Rosanne \$595; Main Event Software, 202/298-9595.

**Snow Report Writer 4.01** \$695; Snow Software, 813/784-1845.

XData 2.0 \$299; Em Software, available through XChange, 303/225-2484.

· Generating reports If you ultimately import your databases into a Mac data manager, you're likely to use its report-layout and -printing features. But if you're working with minicomputer or mainframe databases-or even with dBase or Lotus 1-2-3 files stored on DOS PCscheck out Snow Software's Snow Report Writer. It can create reports that combine data from numerous files, and it provides on-screen rulers and other tools for designing forms similar to (but not as complete as) those of a Mac database manager. Reports can calculate values in fields to produce totals and summary information. You can also specify that fields or records appear in a report only if certain conditions are true-for example, you can create an accounts receivable report that prints only the records for clients whose accounts aren't paid up. You can print a completed report or tell Snow Report Writer to save its contents in a variety of file formats, and if you frequently create the same report, you can convert it to a run-time program that generates the same report automatically. You can distribute the run-time to your colleagues, and they can create the report without Snow Report Writer installed. m

Next Month: Planning Ahead for Perfect Presentations

Contributing editor JIM HEID has been writing about the Mac since its introduction. His most recent book, Macworld Complete Mac Handbook+CD, is published by IDG Books Worldwide.

### **Call Your Catalog SuperStore**



Mac Zone **Exclusive** 

We proudly bring you the future of software buying...

### A software library on one CD that lets you try it BEFORE you buy it, then own it instantly!

A total of more than 150 best selling software applications from more than 70 publishers...

THE MAC ZONE Instant Access CD<sup>™</sup> is the next level in shop-at-home convenience for Mac software. Thanks to all-new technology, the most popular applications are now available on a single CD-ROM. Shop and compare. Try the demo versions. Then a simple phone call is all it takes to buy your selection and learn the code that unlocks the complete software program. There's no waiting, and your manuals follow by overnight carrier!

This revolutionary new medium for software distribution gives you everything you need to find, try and buy new Macintosh software - direct from your desktop. All you need is the Instant Access CD and a Mac-compatible CD-ROM drive.

The Instant Access Browser makes it easy to explore the software with working demonstrations of each application. If you have questions, call one of our knowledgeable sales advisors. CDs with new packages, upgrades and updates will be issued every two to three months,

so you'll always have access to the latest applications. When you're ready to buy, call The Mac Zone Instant

Access CD™ line for the unique code that unlocks the software program so you can instantly unlock it and download to your hard drive. Documentation is either provided on the CD or will be shipped to you via overnight carrier.

### 1 FIND IT

Use the Browser to find software applications on your FREE\* Instant Access CD.

### 2 TRY IT

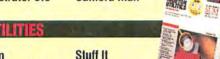
Try the software demonstrations, explore your options, and choose the application that's right for you.

### 3 BUY IT

Call the special number for The Mac Zone Instant Access CD™ and charge your software to your choice of credit card. Use the 13-digit code we'll give you to unlock your software - then own it and use it instantly! Manuals and other documentation will be delivered by overnight carrier.

Painter 2.0 Photoshop 2.5 Illustrator 5.0

Ofoto 2.0 **Typestry** Camera man



Help

**Times Two** 



After Dark

**Norton Utilities** 

Lotus 123 1.1 Biz Plan Builder TouchBase Pro

In Control 2.0 Quicken DynoPage



Lemmings Yearn to Learn Jam Session

Insanity Monopoly Family of Fire



### To Order, Call the Mac Zone Instant Access CD" Center 1-800-684-8080

- All major credit cards accepted. No surcharge.

- At major credit cards accepted. No surcharge.

  Credit card not charged until order is shipped. It we must ship a partial order, freight is not charged on back order (USA crity).

  Most personal and company checks received by mail clear immediately. All checks or purchase orders must have a phone number and contact person listed.

  A \$20 see will be charged on all returned checks.

  Co.D. orders accepted. Imit \$1,000 per order. Cashier's check or money order only. Add \$5 per Educational payement and conversal accepted.
- Educational, government and corporate purchase orders accepted
- All products covered by 120-day limited warranty. No sales tax, except applicable sales tax in WA and OH.

- No sales tax, except applicable sales tax in WA and OH.

  Prices and product availability subject to change without notice. All specials and promotions limited by availability. Cell for current prices.

  All shipments refer to items in stock, barring system failure, etc.

  All shipments refer to items in stock, barring system failure, etc.

  Shipping: '39 per order for delivery in the USA via Arbonne Express overnight service. (Some rural areas require extra day for delivery). Canadian customer orders, in most cases, delivered within 24 hours. Call for complete information. All U.S. shipments insured at no extra charge.

  APOI-PP Dox orders shipped first class US. Mail. Shipments to P.O. Boxes via UPS Orders placed by 2 a.m. ET weekdays ship that day.

  Orders placed Sturday by 9 p.m. ET ship to arrive Monday.

  Competitive upgrades require proof of purchase of qualifying software.

  Not responsible for typographical errors.

  Defective software replaced immediately. Hardware repealed of parallaced at our discretion.

- Delective software replaced immediately. Hardware repaired or replaced at our discretion Return Authorization Number must be obtained prior to returning any item. Call Customer Service Hotline: 1-800-248-9948 weekdays 6 a.m. to 6 p.m. PT.

The Mac Zone • 17411 NE Union Hill Road, Redmond, WA 98052-6716

International: 206-883-3088 FAX: 206-881-3421
@1993 Copyright Multiple Zones International, Inc. All rights re Unauthorized duplication is violation of applicable laws.

PARIS TRIP RULES To enter: When you place your order, you are automatically entered in the contest! You may also enter just by checking the contest box on the Mail Order Form and returning your entry in the enclosed postage-paid envelope. Or, mail us a standard 3X5" note sard or post card with the following information: 

Your full name 
The name of your company 
Your work address and phone number • You must include the catalog code (on back cover) Official Rules • You must be at least 21 years old to enter. • Offer valid in the U.S. only. • NO PURCHASE NECESSARY. • One entry per person. • Trip must be taken by March 31, 1994. • Prize awarded by random drawing on January 10, 1994. • Winner is responsible for all applicable taxes. • No substitution will be made for prize. Prize may not be transferred nor will cash be substituted. . This offer is not open to employees of Multiple Zones International, Ingram Micro D or any other person or organization responsible for this promotion. • Late, lost, illegible, misdirected or incomplete entries are ineligible. • Odds of winning depend on number of entries received. One prize will be awarded. • Winners consent to the use, without compensation, of their name, address and likeness in promotional and advertising material related to the contest. . Winners must execute an affidavit of eligibility and release or prize may be forfeited. . To obtain the name of the winner, send a written request with a self-addressed stamped envelope to Mac Zone Paris Trip Contest, Winner Information Request, 17411 NE Union Hill Road, Radmond, WA 98052

Every issue of the Mac Zone features:

Over 2,400 of the latest software & hardware products for your Mac

Exciting contents and offers!

FREE MAC ZONE 1 YEAR CATALOG SUBSCRIPTION

Name

Address Apt Zip City State

Mail to: The Mac Zone, 17411 N.E. Union Hill Road, Suite 140, Redmond, WA 98052-6716 Expect your first issue in +6 weeks



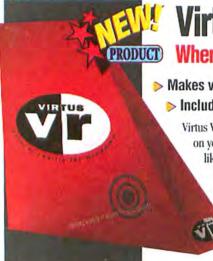
OR FAX: 1-206-881-3421 INTERNATIONAL CALL: 1-206-883-3088

**1•800•436•0606** 





### **Great Holiday Gifts for Family**



**Virtus VR** 

Where imagination meets reality...

Makes virtual reality on your Mac fast, easy and fun Includes texture mapping for incredible realism

Virtus VR lets you experience the world of virtual reality on your desktop. You won't just be viewing worlds, it will feel like you are actually moving through them, experiencing space actively. It comes with its own set of 3D worlds: take an undersea odyssey or live the drama of JFK's motorcade passing through the streets of Dallas.

> You control the action like a flight simulator. Virtus is powerful, easy to learn and simple to use. Meet the future, meet Virtus VR.

Virtus Corporation #99515



### Protect your monitor the fun wav!

Delight in the magic of Disney on your own screen with the newest addition to the After Dark family of screen savers. Over 15 fantastic soundpacked displays are

included in the Disney Collection. Comes with screen-locking password protection and System IQ to maximize performance. Berkeley #06519

SCREEN SAVER

#2785 After Dark 2.0 .....\$27.98 #5934 Star Trek: The Screen Saver ..... \$27.98

### Aldus

This new version of IntelliDraw 2.0 is an exciting, new drawing program that gives you an easy way to visually experiment, refine and draw your ideas. Full text and drawing options provide the flexibility you need.

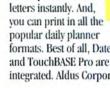
New features include builtin drag and drop object templates and polymorphing.

You can even share files seamlessly between Mac and Windows versions! Pizza Dudes, look for the Free! Pizza Hut Coupon in each box. It's worth ten bucks - Bodacious! Aldus #05481









### **Lotus 1-2-3** comp upgrade

Follow the leader!

- Sums without typing formulas
- Play QuickTime movies
- Complete file sharing

It's powerful, easy to use and designed exclusively the Macintosh. It allows you to customize your desktop to fit your work style. Upgrade today and a Lotus 1-2-3, Snooper 2.0 and DiskLock 2.1 at this enticing upgrade price. To qualify, send us the firs page from either the user manual of your competit spreadsheet software product or from the user manual of a previous 1-2-3 version.

Lotus #00518

#00507 Lotus 123 1.1 for Mac ..........\$278.

### **Datebook Pro** TouchBASE Pro Bundle w/Quicken

The DateBook Pro and TouchBase Pro Bundle combines contacts, calendars, appointments, to do lists, and alarms to help you stay organized. A built- in letter writer lets vou create personalized

formats. Best of all, DateBook Pro and TouchBASE Pro are completely integrated. Aldus Corporation #06963



A major advancement in game technology

3-D screen environment

An important advancement in Macintosh games! It's the first Mac game to utilize continuous motion, texturemapped 3-D graphics. It's the closest thing to virtual reality without a helmet! This game is so realistic you can almost feel the heat when a screaming fireball, hurled from a ravenous gas beast, whips by your head! Bungie Software # 99238



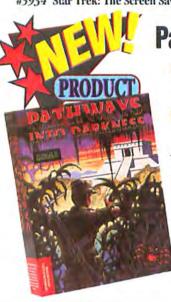
Never settle for a simple beep again

- Lots of great sounds
- · All are assignable
- · Sirens, explosions even rocket engines

Replace those factory beeps with explosions, screams,

morning birds, police sirens and more. Each sound c be played every time you start your computer, insert a disk, etc. Amaze your friends with the sounds of ringin phones, barnyard animals and a true-to-life rocket liftoff. Includes both Kaboom! and More Kaboom! for one low price! Nova Development #05268

#05268 Kaboom! 2.0 ......\$28.9 #6775 More Kaboom! ...... 23.9





INTERNATIONAL CALL: 1-206-883-3088





### — WIN a Trip for TWO to PARIS! -

Savor the City of Light and tour France's Mac Zone headquarters! Every order automatically entered.

### Turbo Mouse Trackball Version 4.0

Charge your computer with turbo Speed! Kensington's Turbo Mouse features a larger ball for greater control, and comfortablypositioned, programmable buttons with a light, easy-to-click feel. It offers a brilliant cursor, a unique onscreen help system,



System 7 compatibility, and two ADB ports, for chaining other input devices. Turbo Mouse has won more awards for Best Macintosh Input Device than any other. Kensington #05176

SupraFAXModem 144LC Mac Ext Complete communications

at a Supra-low price!

- Sends & receives data & faxes at 14,400bps
- Supports Caller ID
- Small enough for a PowerBook

With many innovations you can't find in the highpriced modems, the 144LC package also includes MicroPhone LT software, CompuServe Information Manager, cables and manuals. Supra #99308

VVIN \$5,000
Scrotch & Win cord incide each box. Contest ends 12/31/93 or while supplies last.

### Fuji DS/HD Unformatted 1.4MB 10Pk with Rebate

回 FUJI

MF2HD

For a limited time, purchase a 10 pack of premiumquality Fuji DS/HD unformatted 1.4MB disks and receive a coupon for a \$2 rebate.

That means you get high density Fuji disks for less than the price of 800K disks! But order now, because once they're gone . . . they're gone. Fuji #06640

### Pro AudioSpectrum 16 MAC

- **→** 16-bit digital audio Multi-source
- analog mixer
- Advanced 20 voice stereo synthesizer Complete with bundled software pack
- Available in LC and NuBus configurations, this state-of-the art audio adapter delivers 16-bit

stereo digital recording and playback to 44.1 KHz, 4-operator FM synthesis, MIDI, and a 4-channel software controllable

input mixer. Media Vision #06884

### Stacker\*

- Double your disk capacity with Stacker's new and innovative disk driver-level compression technology
- Compress all your data including databases and the system folder

**YOUR DISK** 

No controls or settings needed. Forget the long delays when you launch your favorite programs. Stac'c patented LZS compression is trusted by 4 million users worldwide. Supports removables, disk partitions, and one-step uninstall. Stac Electronics #06465

### PhotoFlash \$12998

- See your photos : before you open them
- FREE library of electronic photos



PhotoFlash can make your PageMaker and QuarkXPress documents come alive! You get incredibly fast and direct Photo CD access and a library of ready-to-use (or customize) electronic photos. Plus, PhotoFlash does it all with a fraction of the memory normally needed for such impressive images! Storm Technology #97854

### **Apple Power CD**

- One Drive Solution
- Works with the Mac. Powerbook, TV & Audio
- With Remote Control

Apple builds flexibility and versatility into all of its products. The new Apple PowerCD™ player is no exception.

The PowerCD is the only portable CD player that works with your Apple Macintosh™ or Apple PowerBook™ to read CD-ROM discs, hooks up to your TV to view single and multisession Kodak Photo CD™ discs, and connects to your stereo system to listen to audio CDs. Its sleek, lightweight design makes it the perfect traveling companion, and like every Apple product the PowerCD is ready to go right out of the box. You'll also find built-in SCSI and audio/video ports as well as stereo jacks for quick hook up. Order today. Discover what makes the new Apple PowerCD so exceptional. You'll soon find yourself playing more CDs, in more places, more often than ever before. Apple Computer, Inc. #98105



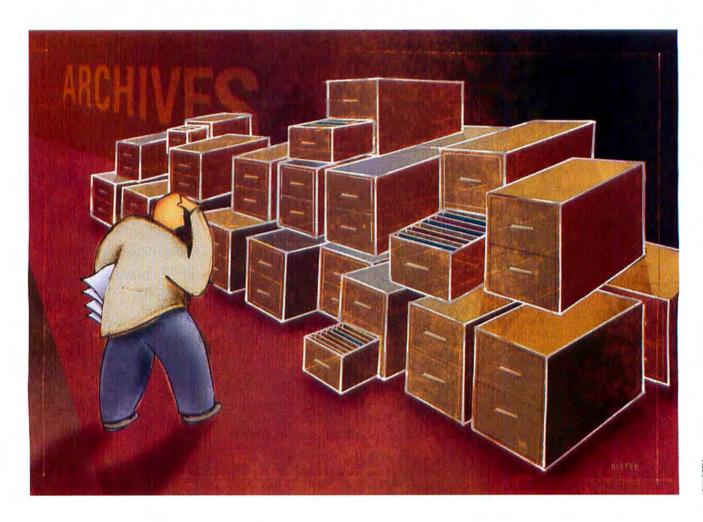
- 16-bit sound board
- 200 ms access time
- Seven CD-**ROM titles**
- High quality audio power
- World's fastest double-speed SCSI drive
- The complete multimedia starter kit

This exciting Procom Multimedia Bundle will make

your Mac come alive! It comes with everything you need to start exploring the revolutionary world of multimedia: internal CD-ROM drive, speakers, sound board, installation software disk and instruction manual. Procom Technology #99879



## Advances in TGX t



ot long ago, finding documents with information you needed meant looking through bankers boxes full of musty file folders, leafing through the *Reader's Guide to Periodical Literature*, or making yourself queasy skimming rolls of microfiche just to find two paragraphs relevant to your search.

Fortunately, recapturing the past is easier these days, thanks to special software for archiving and retrieving text. The primary function of text-archiving-andretrieval software is to store text on your computer and to find it for you later. The most basic text-retrieval packages, such as Claris's Retrieve It, Alki Seek, Microlytics' Gofer, and On Technology's On Location, respond to your typing in a word or several words—jazz and Charlie Parker, for example—by listing all files on the volume you're searching that contain those words. These packages are well suited for individuals who must often dredge up half-remembered facts or deeply nested files.

But many retrieval packages go far beyond simply finding a few words. The high-end packages, as well as On Location, preindex text or store it in an archive—a text database—to speed up the search. Many, including Blueridge Technology's Optix Network NLS (Natural

BY KRISTI COALE

## Retrieval

### Locate any information, anytime, anywhere

Language System), Apple's AppleSearch, and Mainstay's MarcoPolo, are designed for network access to an organization's data; in fact, some products, such as Verity's Topic and Excalibur Technologies' PixTex/EFS (Pictures and Text/Electronic Filing System), even let Mac clients access data stored on a non-Mac server. And others, including Knowledgeset's GraphicKRS (Knowledge Retrieval System) and Fulcrum Technologies' Search-Tools, actually include programming tools for designing a custom interface, which is especially useful for distributing your organization's archives-or even selling information—on CD-ROM.

### **Advanced Search Features**

A simple word search can return a list of documents so long you'll wish you were back at the microfiche reader. Boolean operators—AND, OR, and NOT—and proximity operators are useful for zeroing in on the text. For instance, a search for Jazz AND Monk WITHIN 10 New York yields documents containing both Jazz and Monk, but only if these two words are within ten words of New York.

Wild-card searching and fuzzy searching, which looks for approximate spellings, come in handy when you don't know the exact spelling of a word, or if you're looking for related words. For instance, Bio\* (the asterisk is a common wild-card symbol) might find Biology, Biochemistry, and Biotechnology.

Some high-end packages, such as AppleSearch, Personal Library Software's Personal Librarian, and Optix Network NLS, provide a natural-language search engine, so you can type what you want to find in plain English. If you look for the phrase "articles about modern music," the program might return files with information about the Spin Doctors, jazz, and Branford Marsalis. Natural-language searching understands relationships between words, either by looking them up in a built-in dictionary and thesaurus, or by analyzing the

contents of documents and finding words that frequently occur together.

Even with all these search tools, you can wind up with a lengthy list of retrieved files. If you didn't create the files yourself, you have no way of knowing which make only passing reference to the search term and which are useful. Fortunately, some natural-language systems figure this out for you and rank the files according to their relevance.

### **Finding Your Search Tool**

Searching for a text-retrieval package can be about as complicated as searching for documents, so decide what you want to accomplish before you choose a package.

For instance, if you have an 80MB hard disk and your filing system is totally disorganized, a basic retrieval package can help you find lost files more easily. Alki Seek, Retrieve It, Gofer, and On Location are geared for this. All four packages provide the basic Boolean operators, but beyond that there's a big gap in offerings.

Retrieve It has the most basic set of search tools: Booleans and proximity searching. However, it does provide a smorgasbord of proximity searches, letting you look for words before or after other words, for example. It can pause a search in progress or search in the background.

Gofer is slightly better, letting you search for up to eight words separated by the Boolean and proximity operators and adding wild-card searches. You can search in the background with Gofer and search for near spellings. However, since Gofer doesn't run on the 68040 processor and Microlytics has no plans to update the program, avoid Gofer if you own or plan to buy a newer Mac.

Gofer and Retrieve It are outdone by Alki Seek. Seek offers more text-search criteria than you ever thought possible. Its well-designed query window won't overwhelm you, and its Banter Box describes in plain English what you're searching for. You can save and reuse your search criteria, and Seek also lets you open up a document and view it in its original format—Seek supports XTND as well as formats of major programs like Word and PageMaker. (Retrieve It and Gofer can show the text of found documents without formatting.) However, Seek can't search in the background, and it doesn't have relevance ranking.

These three packages are painfully slow for large amounts of text because they have to read through the actual files. In an informal test on a PowerBook 140, I searched for *Macintosh* AND *Centris* in roughly 377MB of text from back issues of *Macworld*. Seek took about 23 minutes, Gofer took nearly 30 minutes—and Retrieve It had the sense to quit after 20 minutes and chastise me for my search criteria.

Programs that index all the text and then search the index instead of the original documents are much faster. On Location performed the same informal test in 5½ minutes. Indexing saves searching time, but it costs hard disk space: some programs' indexes are about 1 percent of the size of the data you're indexing, but others can be 100 percent.

On Location has a nice feature—it can index in the background and update the index automatically when you modify your files. On Location's indexing outweighs the sparse set of search criteria and lack of relevance ranking and makes On Location the best basic package, though Alki Seek should be upgraded with indexing and background searching by the time you read this (see "Fast Find").

### **Sharing Your Knowledge Base**

Text-archiving-and-retrieval tools really come into their own when your work-group or company can share information on a Mac network. Virginia Systems Software's Sonar and Sonar Professional, MarcoPolo, GraphicKRS, and Personal Librarian make it easy to do this.

Both Sonars have the standard Boolean search operators, fuzzy and proximity searching, wild-card searching, and relevance ranking. Sonar Pro can also search phonetically—by finding words that sound like the search terms—and lets you pause in the middle of a query, conduct another search, and then resume the previous search. GraphicKRS also has this branching search capability.

GraphicKRS moves the text to be searched into a separate archive. Tools for programmers let you build a complete application around this archive—for example, you can build an interface and set up hypertext links between parts of documents. GraphicKRS also imports graphics embedded in documents into the archive. Sonar Pro has a hypertext feature but isn't programmable. Both packages record the current session's search path, so you can easily retrace your steps.

GraphicKRS has wild-card and Boolean searching, but Sonar Pro adds concept searching-a technique that is similar to natural-language searching but requires the user to define the relationships between words. Concept searching makes Sonar Pro a better retrieval tool than GraphicKRS, but Sonar Pro is outdone by Personal Librarian's naturallanguage query capability. Personal Librarian looks for statistical relationships between words in the documents it retrieves. For example, if you tell it to look for baseball, it will notice that many of those documents contain the word umpire and may start to turn up documents containing the word umpire that don't mention baseball. Personal Librarian also has fuzzy and wild-card searches, and ranks the files it finds for you.

MarcoPolo stands out from this group for several reasons. The Sonars, GraphicKRS, and Personal Librarian use System 7 file sharing to run on a network,

□ Indeses ▼	-	Officeame	Crus	Haires		-	
Olivery Comments	@ Tent in fil		Matches root of				
	8	Heeting Group				_	01
Name	tue	Ext	Last 9	ted Whet	Falls		
D of te-to portation flamin.	290	balant Spärte di	4/16/93	6 13 pm	Ther dr	Saved File	Photing Hair
I up fo-be List	IGN.	betmithdele de.	1/36/98	1 38 pm	Ther dr	Saved / Se	Physics Pids
E SP fo-On Property	TIN	beted libitio do.	1/26/91	2.14 pm	Ber .b	Saved   Se	Planting Plate
D 37 To Go Freperal Bonco.	240	hetet thirte de	4/14/13	6 18 pm	Bur .k	Sared File	Photing Halo
S IP they ale	690	beter ibdete de.	2/24/95	17.19 pm	ther Jr	Saved File	Phyling Plate
D 37 tipgrate?	BW.	belat ibdele de.	2/24/93	11 23 an	ther a	Saved File	Pleating High
E OF Versey Define	21K	balas ibdate de.	7/6/98	7:42 pm	Der .	Saved file	Principal Phila
2 to our coversion	600	Frankland Sharkra	7/21/93	\$ 01 po	ther a	Art & Ade	Label Art Con
Il 5 war conversion	£K.	Frankland Blastra	7/21/94	X (07 pm	That of	A1 5 44	Label Art Com
2 50-une emperation	<b>BK</b>	Freeland Studys	1/21/94	3 D4 pm	Dur at	ATE AN	Label Art Cor
M Allage Fac Form - free	100	freehand Blacks	5/3/94	2 12 pm	Ther dr.	ATE ME	factions
D for form (Brad) - freshand	150	freehand (Surfra	10/20/92	1 30 pm	Ther dr	ATE AN	farfores.
D Far farm (Jan) - freehard	156	Freehand Stantes	9/22/92	# 00 am	Ther Jr.	WEE AD	fas farms
D for form (Jorge) - freeh	150	Freeliged Start's	2/15/95	12:50 pm	Ther at	ATE AN	for farms:
A factors (Cm) - freshad	150	Freekand Shedra	5/5/95	1.5% pm	Ther .ir	ATT AN	Fan Forme:
Tacform Clyp) - Freehard	178	Freehand Block's	5/5/95	1.29 pm	Die Jr	MARIN	f en ferna
ill Grey flow	190	Freehand Charles	2/15/95	7.46 av	Ther dr	415 AB	Plus Art
A firmp Scheduling Presental.	. ex	Frankinsd Shahra	12/22/92	1:47 pm	Ther .ir	41 L AS	Label Art.
The Abon State - Beta I	W	Freetand Clusters	2/8/93	2 (25 per	Der dr	MILAN	Label Art PRI
13 Plan Admin Stok - Beta 2	90	freeland clastes	4/26/93	2:22 pm	Ther dr	MIR AN	Laid At 1794
D bim Admin find . Bets 5	-	Frankland Stantes	7/1/W	11 74 m	Ther .b		-

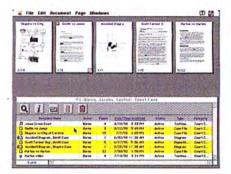
Fast Find On Location's limited search criteria make it hard to filter out files that are marginally relevant to your query, but its index does make retrieval very rapid.

and they don't track who owns documents. MarcoPolo has its own networking scheme with built-in access management and document tracking. Through a special print driver, MarcoPolo includes a

### **Text-Archiving Systems at a Glance**

	SMALL SYST	E M S		MULTIUSER SYSTEMS -			
	Alki Seek 2.1	Retrieve It 1.0	Gofer 2.0	On Location 2.0.1	Sonar Professional 8.4	MarcoPolo 2.0	GraphicKRS 1.0
General Company	Alki Software	Claris	Microlytics	On Technology	Virginia Systems Software	Mainstay	Knowledgeset
Phone	206/286-2600	408/727-8227	716/248-9150	617/374-1400	804/739-3200	805/484-9400	408/738-3400
Toll-free phone	800/669-9673	800/325-2747	0	800/548-8871	О	0	800/456-0469
List price	\$39,95	\$69	\$39.95	\$129	\$795 <sup>A</sup>	\$395	\$15,000*
Query Methods Boolean			•	•			
Fuzzy	0	0	•		•	•	0
Proximity	0	•	•	0	•	0	•
Phonetic	0	0	0	0	•	0	0
Wild card	•	0	•	•	•	· Interpretation	•
Pattern	•	0	0	0	O	0	0
Keyword	•	•	•		•	•	•
Root search	0	0	0	0	•	0	0
Natural language	0	0	0	0	C	0	0
Concept	0	0	0	0	•		0
Subquery	0	0	0	Q	С	•	•
Save query	•	0	•	0	•	•	•
Autoquery	•	0	0	0	0	•	0
Other Features Automatic index and/ or archive update	NA <sup>c</sup>	NA <sup>c</sup>	NAC	•	0	•	0
Space requirements for index/archive	NAC	NAC	NAC	2%-4% of original data	60%–100% of original data	1% of original data	400% of original text
Background searching	0	•	•		0		0
Relevance ranking	0	0	•	0	•	0	•
Multiuser support	System 7 file sharing	internal	System 7 file sharing, internal, Unix server				
Imaging capability available	0	C	0	0	Sonar Image (separate product)	•	0

<sup>■ =</sup> yes; ○ = no; NA = not applicable. ^ A \$295 version, Sonar 8.4, lacks phonetic and root-search queries, and it cannot save queries. \* Price varies with configuration and license.



MarcoPolo's Picture File MarcoPolo's special print driver archives an image of your Mac-generated files along with the text they contain, so you can see thumbnails of retrieved files while you read them.

PICT image of documents in the database as it archives them, and it can do subqueries—that is, query the list of files found by a previous search. But Marco-Polo lacks natural-language searching and



**Relevant Details** Personal Librarian has ranked this group of 27 files by their relevance to the BCCI banking scandal, and the histogram-like display below shows how relevant each file is.

relevance ranking, and is not programmable (see "MarcoPolo's Picture File").

MarcoPolo has a nice feel and is very easy to set up, thanks to straightforward manuals. Still, the nod for these packages goes to Personal Librarian, because of its natural-language querying and relevance ranking (see "Relevant Details"). Second place goes to Sonar Professional, despite confusing manuals that make setting up the program difficult, because Sonar Pro has some great extras, such as sticky notes that you can add to documents and that become part of the index for searching as well. In my informal speed test, Sonar took a bit under three minutes, and MarcoPolo took just under four.

### Serving Up Information

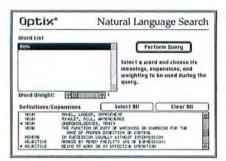
For very demanding situations, you need to look at client-server systems. There are three client-server systems that can be all-Mac—Optix, MARS (Microdynamics Archiving and Retrieval System), and AppleSearch. In several others the Mac's role is only as a client on a VMS, Unix, OS/2, or mainframe server.

	CLIENT/SERVER	SYSTEMS -				
Personal Librarian 1.06	AppleSearch	Optix Network NLS 4.0	PixTex/EFS 3.03	SearchTools 1.2	MARS 3.0	Topic 3.1.4
Personal Library Software	Apple Computer	Blueridge Technology	Excalibur Technologies	Fulcrum Technologies	Micro Dynamics	Verity
301/990-1155	408/996-1010	703/675-3015	619/625-7900	613/238-1761	301/589-6300	415/960-7600
0	800/635-9550	0	800/788-7758	800/385-2786	0	0
\$995	starts at \$1799	\$75,000 8	starts at \$12,000 <sup>3</sup>	starts at \$1000 per user 8	starts at \$70,000 <sup>8</sup>	starts at \$30,000 *
		• Olyana				
•	0	•	•	NO. OF SHIP SHIP SHIPS	•	•
•	•	•	•		•	•
0	0	•	•	0	0	•
	•	• 1	0	• 1 1 1 1 1 1 1 1	•	•
0	0	•	•	0	0	
•	•	•	•		•	•
•	•	•	0	0	0	•
•	•	•	0	0	0	0
0	0	•	•	to the state of	•	•
0	0	•	•		0	•
•	•	• 38619	0	•	0	•
0	•	0	•	0 1344	•	•
0						0
60% of original data	100% of original data	2K per page	⅓ of original data	85% of original data	100% of original data	65%-70% of original data
•	•		0	10 C 17 PM 3 B	•	
0.1	•	•	•	FOR THE STATE OF T	0	•
System 7 file sharing, Unix, VMS servers	Mac OS, A/UX servers	Unix server	Unix, VMS servers	internal, Unix, QS/2 servers	Mac OS server	DOS, Unix, VMS, OS/2 servers
0	С	1000	•		•	i day and

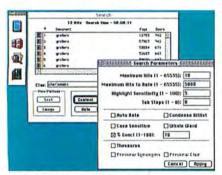
C Doesn't create index or archive.

### **HOW TO MANAGE PAPER DOCUMENTS**

earching text files is fine when your data is on the computer, but chances are you have a mountain of papers stored away too. If your organization needs to convert paper files to searchable computer format, you might consider a document-imaging system. A document-imaging system scans paper files and lets you add keywords to the scans to facilitate retrieving the documents later; when you conduct a search the system displays the image of the original document. Most document-imaging packages use OCR software to convert scanned documents into searchable text (see "OCR: The Recognition You Deserve," Macworld, November 1993). Optix Network NLS and MARS, among other products in this article, are geared toward document-imaging, but the topic requires an article to itself, so look for more coverage in an upcoming issue of Macworld.



Searching in English Optix's Natural Language Search lets you fine-tune how it interprets your query terms. In this example, Optix provides a list (under Definitions/Expansions) of nuances associated with the search term RUN.



**Matching Patterns** PixTex/EFS looks for strings of letters instead of entire words, so it can find Charlemagne even though the search term is misspelled as charlamain.

These systems are for large organizations with many users who need simultaneous access. For instance, a company might have a help desk that receives calls about its products and needs to track problems and make the solutions accessible to its technicians. As records of calls build up, a wealth of information accumulates in the retrieval system so that a technician can type in a description of a problem and get references to previous solutions.

AppleSearch is based on Personal Librarian's search engine, so it incorporates natural-language searching. Like Personal Librarian, AppleSearch saves queries, but it goes a step further: you can set an AppleSearch query (called a Reporter) to run automatically on a schedule—for example, to search information downloaded from the wire services once a day. Results are ranked by relevance.

Optix Network NLS can run as a single-user system but is designed for Macintosh clients on a Unix server. Optix's natural-language engine is a little different from AppleSearch's or Personal Librarian's—it uses a dictionary and a thesaurus to analyze the words in a query and draw relationships between them. You can control how sensitive Optix is to finding these relationships (see "Searching in English").

Verity's Topic, with a Mac client that can access servers on several platforms, is for people who have a good idea what they are looking for and how to ask for it. Topic uses concept searching, so you (or an expert in the subject you are investigating) must define the queries, or topics, by setting up hierarchical relationships between search words and weighting each part of the query. As you add new subjects and words to a query you can change the relationships to reflect any new emphasis you might want to underscore. Topic ranks finds in order of importance. Verity also sells a module, called Topic Real-Time, that searches real-time data feeds such as news wires.

Excalibur's PixTex/EFS runs as a Mac client on Unix and VMS servers. PixTex specializes in pattern recognition, searching at a fine resolution that ignores words and looks for letters—it compares every sequence of characters in your query against every sequence of characters in the documents. This makes phonetic and fuzzy searching unnecessary. You can even type in approximate spellings of words, and the program finds anything having similar sequences of characters and ranks them by relevance (see "Matching Patterns").

Micro Dynamics' MARS is a document imaging system with a text-search module, FreeForm, that would be impressive as a stand-alone program but is not sold separately. Micro Dynamics started out selling turnkey systems, complete with a server, storage, and Macs with preinstalled software, though the company now sells the software without hardware. MARS's FreeForm offers up to eight levels of nested search terms and can perform automatic searches that are similar to those of AppleSearch's Reporters.

Fulcrum's SearchTools is a programmable system, like GraphicKRS, that is really designed for developing in-house text-retrieval systems and searchable CD-ROMs. SearchTools adds a new wrinkle: it incorporates a version of SQL, the universal database query language, that has been extended with commands specific to text-retrieval operations. SearchTools runs as a Macintosh client on Unix or OS/2 servers (a Windows NT server is also in development).

With such a wide variety of search tools available, there is certain to be one that can help you find all the information you need. Now if someone would just hurry up and convert all those reams of microfiche into digital text. **m** 

KRISTI COALE, based in Redwood City, California, wishes text-retrieval technology had been available sooner to save her from years of microfiche sickness.

### TEXT-RETRIEVAL SOFTWARE



The client server tools are too complex for us to make a call,

but among products geared for the casual user and for workgroups, two products stand out.

### **Small System**

On Location On Location is very fast and barely requires maintenance, because once you create an index it updates automatically every time you modify or create documents. Company: On Technology. List price: \$129.

### **Multiuser System**

Personal Librarian Personal Librarian's statistics-based natural-language querying helps you find not only what you know to search for, but also related topics. Company: Personal Library Software. List price: \$995.



### Like most color printers, this one works best if you use the right paper.



Works great on plain old white, too.

Color printing on plain paper is, no doubt about it, a remarkable achievement. But we know there are times when you wish you weren't limited to an 8½" × 11" white piece of paper. You know, those times when you need a Phaser™ III color printer.

From vellum to card stock, newsprint to acetate, the Phaser III prints on almost

any stock you'll ever need. In any size you wish, from  $4" \times 6"$  to  $12" \times 18"$  full bleeds. That way, you can do your comps on the paper you're ultimately going to use. After all, what you print on is just as important as what you print.

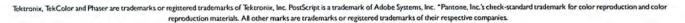
To make sure you always look good on any paper, the Phaser III features Adobe PostScript™ Level 2 (the latest version), 300 dpi, PANTONE®\* certification, and a 24MHz

RISC processor to keep your work humming. It also connects nicely to PCs, Macs or workstations. Or all three at once. Above all, it gives you 16.7 million of the brightest, most saturated colors ever printed on the desktop. No wonder it's won more industry awards for excellence than any other printer.

With the Phaser III, you'll always have the right paper. You'll have the right printer, too.

Call 800/835-6100, Dept. 30-C for a free output sample. If you can't wait and want more information, we'll gladly fax it to you. Just call 503/682-7450 and ask for document 1230.

Tektronix



### 105MB SYQUEST SMARTSTACK, ONLY \$699



What do you get when you combine
SyQuest, Envisio and Mirror? You get an
offer that no one else can match: a complete
SmartStack drive system with a
SyQuest 105MB drive module,
for only \$699! You get the
benefits of the world's
best technology, for less

One SCSI cable for up to 7 drives.

Unlimited Storage, Unlimited Future.

than others charge for

average drives.

The new Sy Quest 105MB cartridge drive combines the unlimited capacity of removable media with the performance of a bard drive. Envisio's SmartStack drive system for quality drives at factory-direct prices.

### Just Like Legos.

and performance. Mirror is the original source

With SmartStack,
adding more storage is as easy as
assembling building blocks. Just
pop off the top, snap on another
SmartModule, and replace the top.
The SmartSource power base can

run up to seven drives, and its patented

design eliminates cables between drive modules.

SmartStack's unique active termination takes the mystery out of configuring your SCSI chain, no more remembering arcane rules and their exceptions. SmartStack takes care of it for you.

Circle 100 on reader service card

### **Drives For Every Need.**

Mirror has worked closely with SyQuest to bring you the ultimate in speed, transportability, and expandability, the



SyQuest 105 SmartModule.

With speed rivaling fast hard

drives, this drive stores over

100MB on pocket-size cartridges.

In addition to the SyQuest 105, Mirror offers SmartStack bard drive modules from 127 MB to 1.2GB, Optical drives and DAT drives.

SmartPlodule	Direct Prices
Syquest 105MB w/base	\$699
127MB Hard drive	\$269*
170MB Hard drive	\$289*
240MB Hard drive	\$369*
525MB Hard drive	\$759*
1225MB Hard drive	\$1299*
128MB Optical drive	\$999*
2GB DAT drive	\$1299*
SmartSource Power Base *requires SmartSource.	\$119

### See For Yourself.

Get Smart! Call us today and you could have a SmartStack on your desk tomorrow.

Order Direct Anytime 800-643-3367

### MIRROR

The best thing next to your Mac"
305 Second Start N.W. St. Paul. AIN 55112 USA Phone. 612-633-1450
[ax: 612-633-5436 Inch support. 612-633-2105









\*includes one cartralge Ligo is a registered tradomark of LEGO A/S, SountStack, SmartSource, and SountAbalule are tradomarks of Enrice, Inc., all other tradomarks are property of their respective holders. AT WORK

BY LON POOLE

## Quick Tips

### Tips, Tricks, and Shortcuts

SOMETIMES WHEN YOU'RE CREATING A form or entering column headings in an Excel worksheet, you want to control line breaks yourself rather than let Excel wrap lines automatically. Although the Excel manual describes how to force a line break in chart text (#-return) or in a text note (option-return), Mike Aquino of Pittsburgh could find no equivalent method for forcing a line break while typing text in a worksheet cell. He devised a workaround that uses Excel's CHAR(13) function. For example, the formula ="Mike"& CHAR(13)&"Harry" puts a line break between the names Mike and Harry. He also found it necessary to select the cell and use Excel's Alignment command to turn on the Wrap Text option.

In checking out this tip, I tried several key combinations and discovered that typing %-option-return or %-option-enter puts a line break in the formula bar. (I later found the latter key combination obscurely listed in the Excel manual chapter "Using the Keyboard with Microsoft Excel." For example, typing The Three, pressing #-option-return, and then typing Stooges would put the first two words on one line and the third word on a separate line in the formula bar-but not in the worksheet cell. The key to making the lines break on the worksheet is the second half of Mike Aquino's tip: set the cell's Wrap Text option with the Alignment command. Excel's manual describes this procedure, but it's not easy to find (hint: look up carriage return in the index).

### GrayShare StyleWriter

Stuck with a StyleWriter and wish it had a StyleWriter II's GrayShare technology? All you need is the StyleWriter II software, a Mac with Color QuickDraw, and time. Because they lack Color QuickDraw, Macs that came with 68000 microprocessors (the Plus, SE, Classic, Portable, and PowerBook 100) can't use the StyleWriter II software to print grays.

Reinhard Geiger of Dornbirn, Austria, and other readers report success in printing shades of gray on StyleWriters connected to other Macs with the Style-Writer II software installed.

When I tried it, I had mixed results. Using TeachText 7.0, my StyleWriter produced (albeit slowly) smooth grayscale prints of small PICT images. Printing a half-page Aldus FreeHand drawing took over four hours (printing time may vary depending on drawing complexity, your Mac model's performance, and how much you are doing in the foreground



while PrintMonitor prints in the background) and used over 11.5MB of disk space for temporary files on the start-up disk. The print was wonderful, but I'm not sure it was worth the wait. Moreover, PrintMonitor couldn't finish printing this drawing until I used the Finder's Get Info command to increase PrintMonitor's preferred memory size to 500K.

Several FreeHand documents I tried to print with StyleWriter II software needed more than the 13MB of disk space available on my start-up disk. I also found that text documents fared better than gray-scale graphics. For instance, a plaintext Microsoft Word document printed about 25 percent faster with the Style-Writer II 1.0 software than with the Style-Writer 7.2.3 software.

The problem with StyleWriter II software is acquiring it. Apple does not acknowledge that the newer software works with the older printer, and does not distribute the StyleWriter II software through the same channels as its other printer software. Some readers obtained the software nefariously, by copying it from a StyleWriter II owner. Others took

800K floppies to an Apple dealer and got copies of the four StyleWriter II installation disks there

If you do get the Style-Writer II software, install it with the Installer program on the first installation disk. The Installer also updates the Chooser to 7.3 (3.7 if you use System 6.0.7 or 6.0.8) and other system software that may need updating depending on your Macintosh model and your system software version. The Style-Writer II software probably won't work if you merely drag the Style-Writer II icon to your System Folder.

### PowerBook 165c Power

Despite what you read in September's Quick Tips, the PowerBook 165c has a universal, self-adjusting power supply and needs only an adapter plug to work anywhere in the world. A step-down transformer is not required for this or any other PowerBook model.

### **Call-Waiting Disruptions**

I have Call Waiting on my phone.
When someone calls me while my
Color Classic is connected to Compucontinues

### The best place for your Mac.

### In the office ...





### ... and on the road.



MacCase 1000 in black Napa leather \$199.00. (for all PowerBooks)



MacCase 150 in black oxhide \$325.00. (for PowerBook 140, 160, 165c, 170, 180)

To order or for a complete catalog of these and other quality Mac accessories call:

(800) 722-6263 in WA State (206) 481-5434 Redmond, WA 98073-3217



### **EXTRACTING NAMES**

n FileMaker Pro, extracting a last name from a long full name (for example, Mr. and Mrs. Biff Van Loo, Jr.) by the usual methods leads to complicated IF statements. Alan M. Winslow of Pleasanton, California, devised the following

method, which, although somewhat lengthy, is relatively easy to enter and modify. His method handles a full name containing from one to six words with no more than double spaces between them. It recognizes twoword last names such as Van Loo and suffixes such as Jr.



You must define the following 16 calculation fields with the names and formulas listed below. These fields are needed only temporarily, so you may not want FileMaker Pro to add them automatically to the current layout. Before defining them, either create a new layout or use the Preferences command to clear the option "Add newly defined fields to current layout." Set the fields whose names begin with Pos, Is, and Len to have number results, and set the rest to have text results. Where you see FullName in the first field-definition formula, substitute the name of the field in your database that contains the full name you want to split up.

<\*Name = Trim (FullName)

Pos1 = Position(Name," ",1)

Pos2 = Position(Name," ",Pos1+1)

Pos3 = if(Pos2, Position(Name, ", Pos2+2), 0)

Pos4 = if(Pos3, Position(Name," ", Pos3+2),0)

Pos5 = if(Pos4, Position(Name, ", Pos4+2),0)

Pos6 = if(Pos5, Position(Name, ", Pos5+2),0)

Posx0 = if(Pos5,Pos5,if(Pos4,Pos4,if(Pos3,Pos3,if(Pos2,Pos2,if (Pos1, Pos1, 0)))))

Posx1 = if(Pos5, Pos4, if(Pos4, Pos3, if(Pos3, Pos2, if(Pos2, Pos1, 0))))

Posx2 = if(Pos5, Pos3, if(Pos4, Pos2, if(Pos3, Pos1, 0)))

JR = Trim(Right(Name, Length(Name)-Posx0))

IsJR = if(JR="Jr." or JR="Jr" or JR="II" or JR="III" or JR="IV" or JR="Sr." or JR="Sr",1,0)

NTL = if(IsJR,Proper(Trim(Middle(Name,Posx2,Posx1-Posx2))),Proper (Trim(Middle(Name, Posx1, Posx0-Posx1))))

IsTWLN = if(NTL="De" or NTL="Da" or NTL="Di" or NTL="Del" or NTL="Della" or NTL="Mc" or NTL="Van" or NTL="Von" or NTL="La" or NTL="Le",1,0)

Posx = if(IsTWLN and IsJR,Posx2,if(IsTWLN or IsJR,Posx1,Posx0)) LenLN = (Length(Name)-Posx+1)IsJR\*(Length(JR)+1+if(Middle(Name,

PosX0-1,1)=",",1,0))\*>

The three additional text calculation fields listed below extract the last name(s) and first name(s), or produce an error message. When you finish defining all 19 calculation fields and click the Done button in the dialog box of the Define Fields command, FileMaker Pro performs the calculations to split all names in your database.

<\*LastName = if(Pos6," ",Trim(Middle(Name,Posx,LenLN)))</p> FirstName = if(Pos6," ",Left(Name,Posx-1)&if(IsJR," "&JR,"")) Error = if(Pos6,"More than six words or too many spaces between words"," ")\*>

After splitting all the full names using these calculation fields, you can change the type of the LastName and FirstName fields from calculation to text, and then delete all the other fields.

continues

### Disk Array Power!

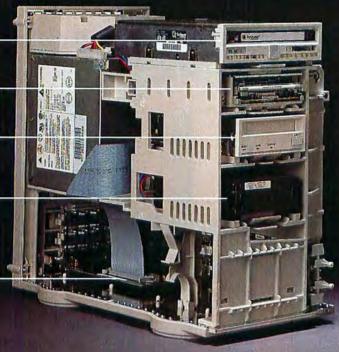
**NOW AVAILABLE** Easy to Install Raven Upgrade Kits For Existing Apple 500 or 1000 MB Disk Drives



3.5" - 3rd Bay Removable or Fixed

> 3.5" - 4th Bay **Fixed Disk Drives**

MicroNet NuPORT-III Second SCSI Port Used With Raven-800



Raven-800/840av Two Drive Disk Array



### MicroNet's Raven-800. Disk Array Power For The Quadra 800/840av.

MicroNet is the first to bring disk array power to the Quadra 800/840av. Using a pair of fast spindle disk drives, the Raven-800 transfers up to 6.2 MB/sec of sustained data with average access as fast as 4 ms.

Disk arrays can improve performance up to 400 percent over standard drives. Combine MicroNet's Raven-800 disk array with the AWARD OF EXCELLENCE speed of the Quadra 800/840av and you have an unbeatable system for audio recording, full rate digital video, and graphics applications such as PhotoShop.

Cost effective two drive disk arrays are available in capacities of 1030 to 5560 MBytes and are expandable to more than 38 GBytes. MicroNet offers Raven upgrade kits for existing MicroNet or factory installed Apple 500 or 1000 MByte drives.

Built on award winning technology, the Raven-800 takes full advantage of Apple's existing hardware. One drive connects to the native SCSI port of the Quadra, and one connects to a MicroNet NuPORT-III, SCSI-2

host adapter. Together, these two drives create a fast, parallel, 16-Bit data path.

MicroNet offers a family of internal data storage systems for the Quadra 800/840av. Included are SyQuest removable systems, rewritable optical drives, and DAT backup systems. We back you with our 24-hour tech support and Over-Night-Exchange service.

Committee To put high performance disk array power in your Quadra 800/840av, call our Sales Department today for the name of your nearest Reseller. 1-714-453-6100. Ask for a free copy of our Quadra 800 Configuration Guide.

**Quality You Can Count On Since 1988** 



### MicroNet Technology, Inc.

80 Technology • Irvine, California 92718 • Sales Telephone: (714) 453-6100 Sales FAX: (714) 453-6101 • AppleLink: MICRONET.SLS • Compuserve: 76004,1611





Serve, the Mac gets disconnected. How can I stop this from happening?

Sean A. Savage New York, New York

You can turn off Call Waiting by prefixing the phone number your modem calls with this code:

70,

For example, the dialing string \*70,555-1212 turns off Call Waiting, pauses two seconds for a second dial tone, and dials 555-1212. Call Waiting stays off for the duration of the call and is automatically restored when the call ends. For pulse dialing, substitute 1170 for \*70.

### **Footnotes by Section**

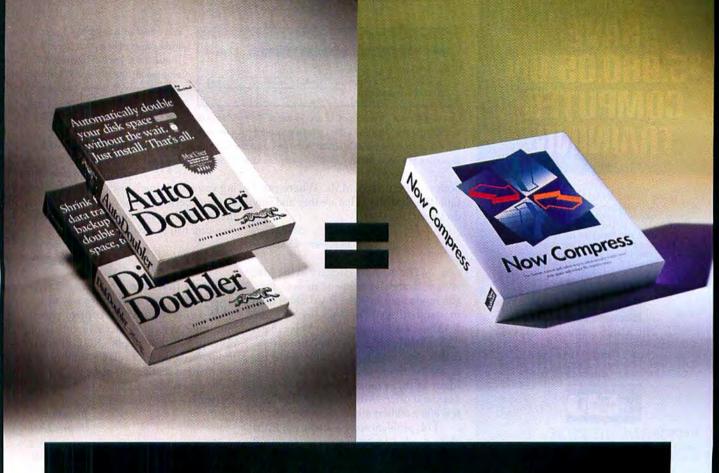
I have divided a 160-page document into 16 sections. Using Microsoft Word 5.1a, can I place the footnotes directly below the last line of text on the page and restart footnote numbering with one in each section?

Bill Hutchinson Harrow, Ontario, Canada

Word's Documents command, which controls footnote placement and numbering, does not offer the options you want. You can work around this limitation by putting each section in a separate file and connecting the files in a series with the File Series option of the Documents command (as described in the Word manual's chapter on setting up long documents). You can have Word number pages consecutively throughout the compound document, or not, and Word can compile an index and a table of contents as though the series of files were one. In contrast, Word's commands for finding, replacing, formatting, and spelling do not span multiple files. To minimize tediously repeating these actions, hold off splitting a document into multiple files until you have finalized content and format. (Don't go to the opposite extreme and try to work with a humongous file; that will only bog down Word.) When all sections are ready to print, cut and paste them into separate files and connect the files in a series. Note that Word always starts printing each file in the series (that is, each of your sections) on a new page, so this method won't do if you want sections to be able to change midpage.

### Mac II and IIx PALs

When I tried to upgrade the RAM in my Mac IIx, I discovered that standard 4MB SIMMs wouldn't work. According to the system and memory upgrade chart in "Upgrading Your Mac," Macworld, June 1993, a Mac II and a IIx continues



### LOOK! IT'S COMPRESSING EVEN BEFORE IT'S OUT OF THE BOX.

Inspector

Ever wonder why you had to buy one compression program to automatically free up disk space and another to let you shrink files on demand? Ever suspect it was because somebody wanted to bill you twice?

D Mactered epo

How cynical of you.

Fortunately, Now Compress combines both functions in one rather amazing pack-

age. It can double the size of your hard drive by compressing your data smaller than AutoDoubler", DiskDoubler™ or any other product. Additionally, it creates tiny archives that drastically reduce the time it takes to transfer files throughout a network.

What's more, it decompresses so quickly you won't notice when you're working with compressed data.

In the Now Software tradition, we've humanized the interface to make it far simpler to use than other

compression products.

Note the Inspector window on the left. It lets you see the status of any file, folder or

disk, and perform any compression operation with a click of your mouse. Now Compress. It's the fastest, safest, most useful compression package you can get.

For the full, non-compressed, story call us at 1-800-237-3611. Or talk to a dealer, Software

Fri, Jan 29, 1993 0 The, Feb 25, 1993

fri, Jan 15, 1993 &

Thu, Aug 27, 199 Fri, Sep 11, 1992 Thu, Feb 25, 1993 Hun, Feb 1, 1993

DODO CYES Name PHAS CPG None ALD4 ALE4 None NC++ AFFL None HSVD VERN None



Digno Software, Inc., 319 SW Washington, 11th Floor, Pariland, OR 97204, Phone: 503-274-2890. Fix: 503-274-0670, AnnaDaubler and DiskDoubler are trademarks of Salient Software

### SAVE \$5,960.05 ON COMPUTER TRAINING.

You say Mac training is vital, but you can't afford \$6,000 or more right now for an internal trainer? Consider these professionally-produced videos from the CSS Group. They're as low as \$39.95—and do far more than keep your training budget intact. They show step-by-step instructions on an actual Mac. They let you learn at your own pace. And they hold your attention with clear narration and colorful, entertaining graphics.



### FONTS: THE VIDEO. \$39.95

46 minutes of everything from A to Z about using, installing and managing fonts. Covers Adobe™ Type 1, TrueType™, Suitcase™ and Adobe Type Manager™ plus troubleshooting.



### MACSURVIVAL KIT. \$39.95

Learn how to recognize and repair common hardware and software problems - from an inert Mac to one with crashing applications. 48 stomach- calming minutes



### PHOTOSHOP: THE BASICS. \$39.95

You're only 45 minutes away from knowing and using all major Photoshop tools, terms and techniques to retouch photos, create art, merge and edit images, and more.



### **ILLUSTRATOR 5.0: WHAT'S NEW?** \$49.95

Practical graphic demos of all the new capabil-ities – Edit In Preview; new Redo/Undo levels; Layers; new Paint Style Palette; Gradient Fills; Plug-In Filters. 47 minutes.

### INTRODUCTORY PRICES!

Order now for that Mac user on your holiday gift list.

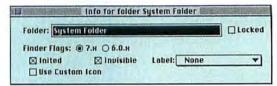
1-800-448-8432



Attn: Video Dept. (210) 496-0999 FAX: (210) 496-1070

Macintosh and TrueType are trademarks of Apple Computer, Inc. Adobe Type Manager, Adobe Type 1, Photoshop and Illustrator are trademarks of Adobe Systems, Inc. Suitcase is a trademark of Fifth Generation.

Circle 9 on reader service card



Cloaking Device You can make any folder or file invisible with ResEdit. Use the Get File/Folder command to bring up a window like this, and set the Invisible option in it. Then close the window, answering yes when ResEdit asks if you want to save changes.

both require PAL SIMMs. Where can I find PAL SIMMs? What are they and why do I need them?

> Stan Deeds San Ramon, California

The memory circuitry in the Mac II and IIx happens to activate a test mode built into the RAM chips used in standard 4MB SIMMs, making the RAM useless for computing. You can get 4MB SIMMs with special PAL (programmable array logic) chips that prevent the II and IIx from activating the test mode. Many of the companies that advertise in Macworld offer 4MB PAL SIMMs; dial a few 800 numbers and compare prices.

This problem arose because the RAM chips needed for making standard 4MB SIMMs didn't exist when Apple designed the II and IIx to use high-capacity SIMMs. Apple didn't anticipate that the RAM chip makers would include the test mode, which hadn't been in the previous generation of RAM chips. Later Mac models have no problem with the test mode and do not require PAL SIMMs.

### **Copy Fitting**

Instead of haphazardly copying batches of files from your hard drive to floppies and doing heavy mental addition to avoid having the Finder bark "There is not enough room on the disk," do what I do. Create a new folder on the hard drive and use the Finder's Get Info command to bring up the folder's info window. Begin dragging files into the folder; as you do so the Finder updates the folder's size in the info window. The new folder must be in a window, not directly on the desktop, or else its info window won't update. When the size approaches 1400K for a high-density floppy or 800K for a double-density floppy, you know you've got just enough to fill the disk.

Joshua Rafofsky Los Angeles, California

Here's another approach, suggested by Ernie Malaga of Oceanside, California. If the Trash is empty, you can collect items in it instead of a specially created folder. This method has two advantages: You can quickly return all items to their original places with the Put Away command in the File menu, and you don't have to wait for the Finder to make copies of items that come from several disks. The Get Info command only reports the size of the Trash to the nearest K. however, whereas it gives you the exact number of bytes in a folder.-L.P.

### Slicers Hate Cybermud

Are the new slicers in Spectre Supreme giv-

ing you a bad time? Just park yourself in some cybermud. They can't hurt you there, and then shooting them is just like shooting fish in a barrel.

Roland E. Miller III Laramie, Wyoming

### Securely Invisible

TIP Here's an inexpensive way to secure your Mac's control panels and other System Folder contents from other people. Use Apple's ResEdit utility program (which is available from online information services) to make the System Folder invisible, as shown in "Cloaking Device."

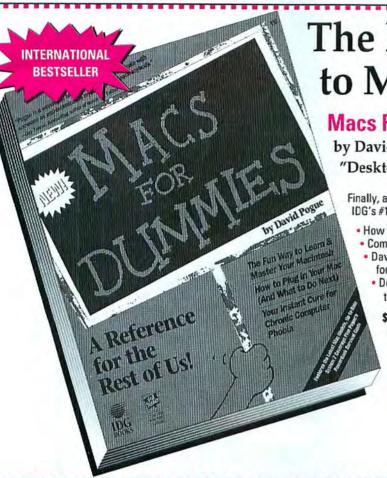
> Keanan Farr Hooper, Utab

Make sure you also remove obvious aliases for folders inside the System Folder, such as the Control Panels alias in the Apple Menu Items folder. After opening the Control Panels folder, anyone can access the System Folder (visible or not) by pressing # while clicking the title of the Control Panels window. If you want to permit access to some control panels such as Keyboard, Mouse, and Easy Access so other people can adjust the Mac for their needs, put aliases of those individual control panels into the Apple Menu Items folder.

ResEdit is also available from user groups, from APDA (800/282-2732 U.S., 800/637-0029 Canada, 716/871-6555 other countries), and with the book ResEdit All Night Diner, by Dave Ciskowski (Hayden Books, 800/429-5331). Other utilities, such as Norton Utilities for Macintosh (available commercially) and Blindfold by Robert Gibson (shareware that's available from user groups and online services), can also make folders and files invisible.—L.P.

We pay from \$25 to \$100 for tips published here. Send questions or tips on how to use Mac computers, peripherals, or software (by mail or electronically) to Quick Tips, Lon Poole, at the address listed in How to Contact Macworld at the front of the magazine (include your address and phone number). All published submissions become the property of Macworld. Due to the high volume of mail received, we're unable to provide personal responses. m

LON POOLE answers readers' questions and selects reader-submitted tips for this monthly column. His latest book is Macworld Guide to System 7.1 (IDG Books Worldwide, 1992).



The Fun & Easy Way to Master Your Mac

### **Macs For Dummies**

by David Pogue, Macworld Magazine's "Desktop Critic" Columnist

Finally, a friendly guide to plugging in and learning how to use your Mac! IDG's #1 bestselling computer book series now is now available for Mac users.

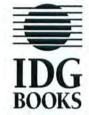
- How to turn your Mac on (and off) what makes it tick?
- Common computer tasks explained in everyday language
- David Pogue's Top Ten Lists of Tips on printers, disks, word processing, fonts, major software programs, desk accessories and more!
- Do it yourself Mac maintenance: what to do when bad things happen to good computers

\$16.95 USA/\$21.95 Canada ISBN: 1-878058-53-3 • 368 pages

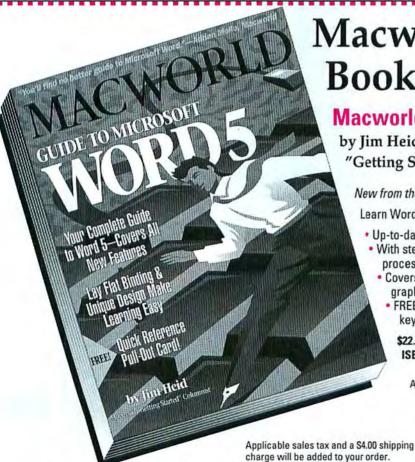
Available at your local book or computer store or,

Order Now! Call 1-800-762-2974, 8a.m. – 5p.m. PST.

Applicable sales tax and a \$4.00 shipping charge will be added to your order.



IDG Books Worldwide 155 Bovet Road San Mateo , CA 94402



Macworld Wrote the Book on Word 5

### Macworld Guide To Microsoft Word 5

by Jim Heid, Macworld Magazine's "Getting Started" Columnist

New from the bestselling author of Macworld Complete Mac Handbook! Learn Word 5 the easy way with this Macworld Authorized Edition.

- Up-to-date for Word 5 covers all new features
- With step-by-step instructions for mastering everyday word processing tasks
  - Covers editing, formatting, style sheets, tables, charts, graphics, and more!
    - FREE Illustrated Quick Reference Card includes handy keyboard shortcuts and type tips

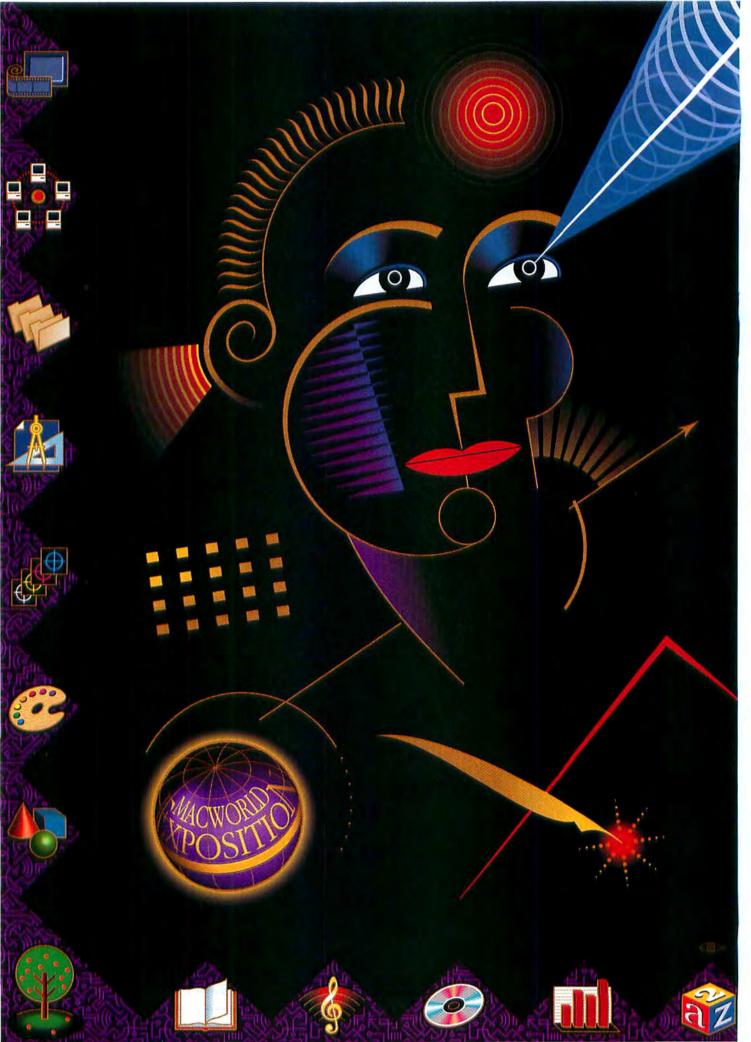
\$22.95 USA/\$29.95 Canada ISBN: 1-878058-39-8 • 448 pages

Available at your local book or computer store or,

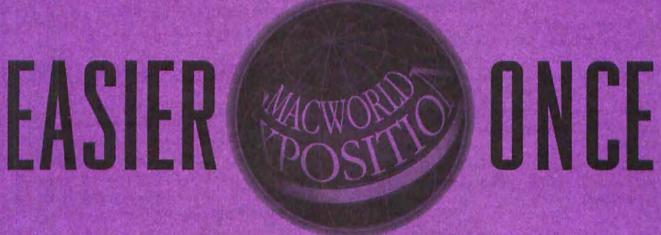
Order Now! Call 1-800-762-2974, 8a.m. – 5p.m. PST.



IDG Books Worldwide 155 Bovet Road San Mateo , CA 94402



## HERAIINS AKE



YOU SEE IT ALL FROM HERE.

MACWORLD EXPO/SAN FRANCISCO

WEDNESDAY, JAN. 5 - SATURDAY, JAN. 8, 1994

### SPEND A LITTLE TIME IN THE FUTURE

You know what you want.

You know where you're
going. But what's the best
way to get there? How
can your Macintosh
platform help you
achieve your goals?
As the global source for
Macintosh information,
MACWORLD Expo is your sin-

gle, best resource to get answers to these questions and more. With over 500 exhibiting companies presenting the very latest in Macintosh technology, MACWORLD Expo shows how you can get from "here" to "there." At MACWORLD Expo you can: Decide whether it's better to upgrade your system or buy new. See which model is best for you. Decide if you should buy now or buy later. Take a look at what's new in software. See what's out there to increase your productivity. And preview what will hit the market soon.

### DECISIONS ARE EASY AT MACWORLD EXPO

MACWORLD Expo offers you the opportunity to make side-by-side comparisons of thousands of Macintosh hardware, software, peripheral and service products. And with an army of Macintosh professionals on hand to answer your questions, decision-making is easy at MACWORLD Expo. MACWORLD Expo shows you new ways to turn your vision into reality. A visit to MACWORLD Expo is like spending a little time in the future.

### MACWORLD EXPO/SAN FRANCISCO 1994 JAN. 5 - JAN. 8

MACWORLD Expo/San Francisco 1994 will cover 400,000 square feet of exhibit space at San Francisco's Moscone Convention Center. When you come to MACWORLD Expo/San Francisco, you'll see uses and applications for the Mac in areas that include: Networking, Spreadsheet Analysis, Databases, Education, Research, Word Processing, Accounting, Law, CAD/CAM, Forecasting, Design, Publishing, Illustration, Animation, Music, Programming, Entertainment and Multimedia. With so much to see, this decision is easy: plan to be in San Francisco from January 5 - January 8 to experience the Macintosh at its absolute best!

### PREREGISTRATION SAVINGS ARE AVAILABLE NOW

Now is the time to pre-register for MACWORLD Expo/San Francisco! When you return the attached pre-registration form with your payment by December 1, you'll save \$30 on all Conference Sessions\* and Exhibits (\$120 now vs. \$150 at the door), or \$15 on Exhibits-only admission (\$25 now vs. \$40 cash only at the door). Pre-registration not only saves you money, it also saves you time. When you pre-register, we send your admission badge early so you can walk right into MACWORLD Expo and get a jump on the thousands of people expected at the show!

### SPECIAL EXPO OFFER: 6 ISSUES OF MACWORLD MAGAZINE

Your registration fee for MACWORLD Expo/ San Francisco includes a six-issue subscription to Macworld magazine. To receive your six issues, simply fill out the Special Expo Card at the Macworld booth during the show. Your first issue of Macworld magazine will be mailed to you soon after the conclusion of MACWORLD Expo.

### A CLEAR VIEW OF TOMORROW

The Conference Program

As your computer capabilities grow stronger, more powerful, and more sophisticated, your Macintosh is rising to the occasion. But you need to know more. You need to get an overview of what Mac technology can do today, and you need to know how you can slash costs, increase productivity, maximize your efforts, and even have fun in the process. You also need to know what the future will be for Macintosh computing. What's new and exciting in Macintosh technology? What's in store for tomorrow? What new directions is Apple taking and how will you be affected?

The MACWORLD Expo Conference Program takes a close look at all these issues and delivers answers you'll love to hear. You'll learn exactly how much you can achieve with your Macintosh now, and what's on the horizon. The Conference faculty offers you a clear view of tomorrow in 14 complete conference programs with over 140 individual sessions. MACWORLD Expo's one-price conference admission policy lets you create your own customized agenda. Spend as much time as you'd like at any or all of these conference sessions:

- 1. The Design Conference. Some of the most respected names in Macintosh design share insights and demonstrate breakthroughs in pushing the desktop envelope with: creative imaging; prepress; digital photography; interactive publishing; high-quality color input/out-put; 3-D modeling and rendering; new media; and more. Plus: power-user tips on maximizing Photoshop. LivePicture, Acrobat, and other key designer tools.
- 2. The Entertainment Conference. Top industry designers, post-production houses, directors, producers, animators, and other leading-edge users discuss the Mac's use in television, film and commercial applications. Featured here will be: professional video, digital audio, broadcast-quality graphics, animation, virtual reality, digital video effects, music, sound, and more.
- 3. Apple's New Horizons Conference. From consumer electronics products (such as the Newton MessagePad) to breathtaking sources of expanded computer power (such as the PowerPC and the multimedia Macs), Apple is blazing new trails that will have farreaching implications. These sessions will explore significant new industry trends that will have the biggest impact on Apple's customers.
- 4. The Enterprise Computing Conference. Providing the right information, to the right person, at the right time, to make the best decision. Enterprise-wide information delivery. Client/server problems and opportunities. Thorny Mac/IS issues. Downsizing/rightsizing. Open systems. New communications tools and technologies.
- 5. The Connectivity Conference. Insights on what lies ahead in Macintosh connectivity. plus hard-hitting how-to's on surviving and prospering with what's here and now. Includes: moving info between multiple platforms; connecting users in remote locations; essential network management tools; TCP/IP; AOCE; Mac/PC integration on a LAN; and more.
- 6. The Home Office/Small Business Conference. How to reduce the chaos and maximize your efforts in a Mac home/small business, along with a look at hardware and software especially designed to save you time and money, low-cost and no-cost programs and procedures, users' favorite utilities and shortcuts, and disaster-avoidance strategies.
- 7. The Science/Technology Conference. The Mac as a critical research tool, in scientific applications, management of technical data, the future of CADD, visualization techniques using QuickTime, telerobotics, and other outstanding applications of the Macintosh in laboratory and scientific settings.
- 8. The How-to-Get-Started Conference. Complete guidelines for those who are brand-new to the Mac. or

- need a concentrated lesson on popular Mac applications, including desktop publishing, databases, accounting, HyperCard, telecommunications, programming, design, multimedia, and QuickTime (to name but a few).
- 9. The Education Conference. Both new and classic examples of the Mac as an incomparable teaching tool in elementary education; in secondary education; and at the university level. Included will be: multimedia, desktop publishing. CD-ROM, HyperCard, networking, QuickTime, BBSs, Internet plus educator success stories with the Mac in math, science, language arts, and social studies.
- 10. The Advanced User Conference, Experienced users share their expertise and insider's tricks for squeezing absolutely the most productivity out of the PowerBook, desktop publishing, System 7's power user features, customizing your Mac, resolving system conflicts, and hot new ideas and insider's tricks galore.
- 11. The Special Interest Group Conference. For "birds of a feather" looking to compare Mac notes with others in a similar setting to solve special problems, to see how colleagues across the country are getting more mileage out of the Mac, and to develop an invaluable "user network." Here you'll find sessions on the Mac in the law office, in health care, in real estate, in government, and the Mac for senior citizens.
- 12. Application Workshops. Intensive training sessions, by the award-winning staff of MacAcademy, on such popular applications as: Claris FileMaker Pro; Microsoft Word: Aldus PageMaker; Microsoft Excel.
- 13. The You-Asked-for-It Conference. Fact-filled sessions covering latest market developments and emerging technologies, and responding to your special requests including the perennial favorite MUSE (MACWORLD Expo User Group Extravaganza).
- 14. The Multimedia Conference. More than 20 multimedia sessions will dazzle and delight attendees with: real-world experiences of multimedia users fresh from the trenches popular-demand topics on creating exceptional-quality productions and presentations with both high-end and low-end multimedia tools state-of-the-art reports from the industry's leading vendors on the most exciting new developments in the hottest multimedia technologies an invaluable treasury of how-to tips, insights.

an invaluable treasury of how-to tips, insights, and guidelines • how users are applying multimedia technologies to deliver the most powerful message possible to a target audience.

### PREREGISTER FOR MACWORLD EXPO/SAN FRANCISCO BY DECEMBER 1 AND SAVE \$15 TO \$30

Please choose your package and fill out the form completely. Incomplete forms will be returned. One form per person; make photocopies for additional people. Please do not staple check to form. Registration forms received after December 1 will be returned unprocessed. PURCHASE ORDERS CANNOT BE ACCEPTED. ALL REGISTRA-TION FEES ARE NONREFUNDABLE. A \$20 fee will be charged for all returned checks.

Send completed forms to:

09. □ Engineering/R&D

10.□ Government

11.□ Health Services

12.□ Higher Education

13.□ K-12 Education

MACWORLD Expo/San Francisco P.O. Box 4010 Dedham, MA 02027

U.S. Attendees: Badges will be mailed on or about December 20. Be sure to check box indicating where badge should be sent.

International Attendees (including Canadian): Badges will be held for pick-up at the International Pre-registration counter at Moscone Center. International badge pick-up hours are January 4-8, 10am to 6pm. For Federal Express service, check the appropriate box below and add \$45 to your preregistration fee. Fill in your exact street address (no P.O. boxes) and include your telephone number and country code. We will Federal Express your badge directly to you.

SPECIAL EXPO OFFER

6 Issues of Macworld magazine: Your registration fee to MACWORLD Expo/ San Francisco will include a six-issue subscription to Macworld magazine. To receive your six issues, simply fill out the Special Expo Card at one of the Macworld booths during the show. Your first issue of Macworld magazine will be mailed to you soon after the conclusion of MACWORLD Expo.

Please register me for:  Package One \$120  Conference sessions* and exhibits. Pregister by December 1 (\$150 at the	The state of the s	nly. Pre-register by tion only at the door).	Check if applicable. I'm an Interna- onal attendee and would like my badge ipped by Federal Express. Enclosed is an Iditional S45.			
Please send my registration b	adge and further information (	0:				
Please check one: □ Home Address	□ Company Address					
First Name/_/_/_//	_//_/ Middle Initial/	Last Name///_				
City////// Country (Other than U.S.)// If mailing to company address: (If m Title////// Company//_/_/_// □ Check enclosed (make payable to	ailing to your home address, leave th	State// Zip Telephone/ e next two lines blank.)///////				
Account Number/_/_/_/						
Expiration Date (include all number	s)//					
Card Holder Signature (Signature no	ecessary to be valid)					
If card holder is other than registran	t, please print cardholder's name bel	ow:				
First Name/_/_/_//	_//_/ Middle Initial/	Last Name/_/_/_				
After December 1, you must re	egister at the show.					
Please check the appropriate	information:					
Your industry or profession (choose one only)	14.□ Legal Services 15.□ Manufacturer (computer industry)	27.□ Educator 28.□ Art Director/Graphics	Which personal computer(s) do you own/use?			
01.□ Accounting/Finance 02.□ Art/Design/Creative Services 03.□ Arts & Entertainment 04.□ Communications/Publishing	Creative Services 17.  Marketing/Sales/PR/Communications 30. R&D Mac Quadra Series, ertainment 18. Other 31. Student Mac Centris Series. Was Il Series Mac Il Series					
05.□ Computer Reseller/VAR/VAD  06.□ Consulting  07.□ Corporate/General Management  08.□ Distributor/Dealer/Retailer/Service	(choose one only)  19.□ CEO/President/VP  20.□ DP/MIS Manager  21.□ Manager/Department Head	Size of your organization (number of employees natio and international) 33 Under 50	39.□ Mac Performa Series 40.□ Mac LC Series 41.□ Mac PowerBook-series, Duo-series 42.□ IBM PC (or compatible) 43.□ None			

34. 30-99

35. 100-499

36. 300-999

37.□ 1,000 & over

22.□ Network Manager

24.□ Engineer/R&D

26.□ Marketing/Sales

25.□ Consultant

23.□ Programmer/Analyst

43.□ None

45.0 \_

44. Other\_

Which hotel are you staying at?

<sup>\*</sup>MACWORLD Expo conference sessions are on a first-come, first-served basis with no guaranteed seating and are subject to change without notice. All registration fees are nonrefundable. Do not staple check to form. Send completed form, with check or money order to: MACWORLD Expo. P.O. Box 4010, Dedham, MA 02027.

#### CHOOSE THE WAY TO COMPLETE YOUR STAY

MACWORLD Expo/San Francisco 1994, Wednesday, January 5 - Saturday, January 8, 1994 at Moscone Convention Center, 747 Howard Street.

Show Hours

Conference Hours

10 a.m. - 6 p.m. daily

10:30 a.m. - 6 p.m. daily

Deciding to go isn't the only easy part about MACWORLD Expo/San Francisco 1994. We're pleased to offer a complete package of discounts and amenities that also make MACWORLD Expo/San Francisco decidedly easy to attend:

Fly American Airlines and Save. Receive savings on applicable fares when you fly American Airlines to MACWORLD Expo/San Francisco. As the official airline of MACWORLD Expo. American is offering additional discounts of 5-10% on most fares. To see if American Airlines can offer savings to you, dial 1-800-433-1790 and ask for Star File #S-0114AL. Savings are available on applicable fares only.

Car Rental Discounts From Hertz. If you're planning to rent a car, you'll get a great rate from Hertz. Call 1-800-654-2240, ask for Convention #2429, and tell the reservations operator you're attending MACWORLD Expo.

Take the Shuttle and Enjoy the Free Ride. Complimentary shuttle service is available from the Cow Palace and Cal Train. Look for specifics in your pre-registration package. Moscone Center is accessible from 80 East, 4th Street Exit; from the Bay Bridge, Fremont Street Exit; and from Golden Gate, Lombard Street Exit. Call 415-974-4000 for detailed directions.

Services for the Physically Challenged. Services are available to help make the MACWORLD Expo experience more enjoyable for the physically challenged. Call us at 1-800-945-3313 for details.

Prerecorded Information. To listen to pre-recorded information about MACWORLD Expo/San Francisco 1994, call the MACWORLD Expo Information Hotline at 617-361-3941. (24 hours a day, seven days a week.)

Early Bird Registration. If you miss the pre-registration deadline of December 1, you can still register before the start of the show! On-site Early Bird Registration is from 10 a.m. – 6 p.m. on January 4, at the full registration rates of \$150 for all Conference Sessions\* and Exhibits, and S40 (cash only at the door) for Exhibits-only admission.

Hotel Accommodations. Participating hotels in the San Francisco area are offering MACWORLD Expo discounts. To receive the preferred rates, simply call one of the hotels listed and mention you're going to MACWORLD Expo. There's a limited number of rooms available at preferred rates, and they sell out rapidly. Please make your reservation by December 2 for the best selections. If you are reserving ten or more rooms, you must supply the hotel with the first night's non-refundable deposit and a rooming list no later than November 18th.

MACWORLD Expo is sponsored by Macworld, the Macintosh™ Magazine, an IDG Communications publication.

MACWORLD Exposition is an independent trade show produced by World Expo Corporation, and managed by

Mitch Hall Associates and not affiliated with Apple Computer, Inc. MAC and MACINTOSH are trademarks of Apple

Computer, Inc. World Expo is an IDG company, the world's leader in information services on information technology.

#### Hotels

Please note: published hotel rates are starting rates and are priced for single and double occupancy. All hotel plione numbers are in the #15 area code.

ANA Hotel; \$149/\$165 50 Third Street, 974-6400

Fairmont Hotel; \$99/\$99 Atop Nob Hill, 772-5000

Four Seasons Clift Hotel; \$145/\$155 495 Geary Street at Taylor, 775-4700

Grand Hyatt San Francisco; \$139/\$139 345 Stockton Street, 398-1234

Holiday Inn Civic Center; \$99/\$114

50 Eighth Street, 626-6103 Holiday Inn Golden Gateway;

\$80/\$90 1500 Van Ness Avenue, 441-4000

Holiday Inn Union Square; \$117/\$137

480 Sutter Street, 398-8900 Hyatt Regency San Francisco; \$140/\$160

5 Embarcadero Center, 788-1234

King George Hotel; \$97/\$107 334 Mason Street, 781-5050

Hotel Nikko; \$138/\$154 222 Mason Street, 394-1111

Orchard Hotel; \$85/\$85 562 Sutter Street, 433-4434

Parc Fifty-Five; \$140/\$155 55 Cyril Magnin Street, 392-8000

Ramada Hotel at Fisherman's Wharf; \$85/\$85 590 Bay Street, 885-4700

Ritz Carlton San Francisco; \$150/\$170 600 Stockton at California Street, 296-7465

San Francisco Hilton; S145/\$165 333 O'Farrell/On Hilton Square, 771-1400

San Francisco Marriott; \$164, \$184 55 Fourth Street, 896-1600

Sheraton Palace Hotel; \$150/\$170 2 New Montgomery Street, 546-5000

Sir Francis Drake Hotel; \$100/\$100 450 Powell Street, 392-7755

Stouffer Stanford Court Hotel; \$135/\$155 Nob Hill, 989-3500

The Westin St. Francis; \$140/\$160 335 Powell Street, 397-7000

<sup>\*</sup>MACWORLD Expo Conference sessions are on a first-come, first-served basis with no guaranteed seating, and are subject to change without notice.

EDITED BY ELIZABETH DOUGHERTY

# networks

THE LATEST IN CONNECTIVITY AND COMMUNICATIONS

#### The Great (Little) Communicator

HAT MAKES A NEWTON MESsagePad more than a AA-batterypowered steno pad? Its communications capabilities. It comes equipped with an online service account and accepts a card that turns it into an enhanced pager. And a cellular link, coupled with a fax modem, can make the Newton a hand-held telephone/answering machine/fax machine.

The Messaging Card, a PCMCIA-based paging device developed by Motor-ola and marketed by Apple (408/996-1010), makes the MessagePad a pager. The card receives messages even when it's not in the Newton; you slip it back in to read the messages. And if the sender has a MessagePad or other suitable device, the pager card can save up to 240 characters per message. The price of the Messaging Card had not been announced at press time. Per-message pricing will be set by regional paging services, such as SkyTel.

All MessagePads come with an account for the Newton-specific Apple Online Services (AOS) communications network. For \$10 to \$30 monthly, users who have a modem can send and receive E-mail, including sketches, text, calendar information, and electronic business cards. Via AOS, users can also forward text-only mail to AppleLink addresses, commercial services like CompuServe and GEnie, and Internet.

Other companies will offer the MessagePad specialized information via modem. By year's end Strategic Mapping (408/970-9600), one of the first companies to cater to the traveling-salesperson crowd, plans to ship GeoAssist, which will let Newtons dial up to find business names, addresses, and phone numbers by locale or keyword, such as zip code, area code, or business type. The general version, whose price was not certain at press time, is expected to be available by the end



Communications applications for the Newton MessagePad make it more than a finicky steno pad. Here, the Messaging Card turns the Newton into a pager that can receive messages of up to 240 characters—verbose compared with the usual pager messages. The card can store 120K worth of messages at a time.

of 1993; vertical-market editions for different industries will follow.

Eventually MessagePad users will be able to access their E-mail accounts back at the office. CE Software (512/221-1801) has announced that it's working on QuickAccess, which will let MessagePad users exchange mail on QuickMail, Net-Ware MHS, and Apple AOCE Mailer E-mail transports. The company didn't say when QuickAccess would be available, nor what it would cost.

Even more intriguing is what's in the Newton's telephony future. Apple and Bell South are working on a mutual wireless communications project, expected to debut in mid-1994. "We are testing a screen-based telephony solution, and [Bell South] offers a host of applicable services, like voice mail and caller ID," said Apple PR specialist Tricia Chan. "There's a lot happening in the cellular and wireless world, but we're waiting to see standards established. Otherwise, the Newton could accommodate a cellular link today," she noted. A Swiss company, CTM Development (41 22 734 4747; or AppleLink CTM.DEV), will provide some similar services through touch-tone phones and its VoiceAccess software, which was slated to ship in September. VoiceAccess (\$149) supports personalized calling services, caller ID, and remote message retrieval, with captured voice mail played back via the Newton's builtin speaker.-MITZI WALTZ

188 December 1993 MACWORLD



New dial-up routers for the Mac automatically telephone to set up the remote link for a WAN whenever the traffic requires it. Shown here are Compatible Systems' Micro.Router 1000R (top) and the Pipeline 400, one of Ascend Communications' family of three (bottom).

#### Two Routers for Remote LANs

OR SMALL COMPANIES OR BRANCH offices trying to cut down on network telephone line charges, dial-up routers could be the answer. Dial-up routers let users connect LANs over the wide area using switched services instead of costly private lines.

Two companies have announced plans to ship, in the first quarter of 1994, dial-up Ethernet routers that include support for AppleTalk networks. These routers work without user intervention, automatically dialing up a telephone connection when data from a LAN workstation is ready to be sent over the WAN.

Ascend Communications (510/769-6001) announced a family of three routers called Pipeline. The Pipeline 100, which lists for \$3300, is designed for small remote offices, will come with wide-area network connections, and work with switched 56 and ISDN BRI services. The \$5000 Pipeline 400, for small central sites or remote sites with multiport connectivity requirements, will support switched 56, ISDN BRI, T1, E1, and PRI services, as well as 32 WAN connections. At \$11,000, the Pipeline 1600 is an expandable, high-bandwidth system-level unit designed for central sites with a large concentration of dial-up needs and multimedia requirements. All three units, which also work with leased lines, will support TCP/IP, IPX, and AppleTalk protocols.

Compatible Systems (303/444-9532), best known for its line of AppleTalk routers, is making its debut in the dial-up wide-area router market with Micro.Router 1000R, which will list for about \$1500. It will support switched 56, ISDN BRI, and leased-line services. It has just one WAN connection and will offer routing for TCP/IP, IPX, AppleTalk, and DECnet protocols.—MARTHA STRIZICH

#### Software Juggles Phone Lines

UGGLING E-MAIL MESSAGES, BULletin board calls, and faxes when you have just one phone line and a single serial port can be a frustrating experience. To help users handle the balancing act, a small group of Russian engineers have developed a \$79 communications utility called LineShare.

LineShare, from Stalker Software, sets itself up as an intermediary between the modem and the communications software, so that any number of communications applications can share the same Macintosh serial port for both outgoing and incoming calls. The utility works by partitioning a single serial port into several virtual ports, registering them with the Apple Communications Toolbox, and then assigning a virtual port to each communications application. Incoming calls automatically go to the correct program, outgoing calls to a modem.

LineShare, which is available now, works with all programs that run the Communications Toolbox, including AppleTalk Remote Access. LineShare supports all Hayes-compatible and Fax Class 2 modems.

The program is available in the United States from Global Way, 408/866-4722.—MARTHA STRIZICH

December 1993							
Bulley	Henday	Justin	Veterday	Charles .	Pille	SHOOL	
			1	2	,		
3	4 DOTSHIAM	12 50 I WILLY	10 di Carete a porjeten 6 por SACien	4 COMMENTS			
12	11	0.30 Corpey	400 resista 600 resista 600 resista	16	4.00 Parishe		
19			* 0071smels. 4 0078A Class		4 CONTANTA	7	
26			L COPPEA Class		4 00 Hatelm		

Meeting Maker XP shows color-coded schedules for Windows PCs and Macs connected to the same network. You drag items to reschedule and click to enter new events on the calendar.

#### A Meeting of Windows and Mac Minds

networked schedule-management software know how it can save meeting organizers' time and improve attendance at the conference table. Now, On Technology's Meeting Maker XP can coordi-

#### IN BRIEF

Know Your Rights, Electronically Syracuse University is sponsoring an experimental Internet service designed to improve the dissemination of government information. The Electronic Government Information Service (EGIS) recently added the first-ever electronically distributed Congressional report to its downloadable collection. A Citizen's Guide on Using the Freedom of Information Act and the Privacy Act of 1974 to Request Government Records, one of the most oft-ordered titles from the Government Printing Office, is now available via Gopher or Telnet. 315/443-3640.

Eudora Goes Commercial One of the most popular shareware E-mail programs now comes in a commercial version. Eudora By Qualcomm, which runs over Internet (and other TCP/IP networks), includes new functions and toll-free support not available through the shareware version. The University of Illinois will continue to develop its shareware version of Eudora and make it available through online services and Internet. Qualcomm, 619/587-1121.

Com Toolbox Tweaks
A new version of TCP/Connect II
(\$195 to \$495) lets users get new
file-transfer methods through the
Apple Communications Toolbox.
The mail, file-transfer, and TCP/IP
network access software also offers
keyboard mapping and support of
IBM graphics hosts with IBM
3179g emulation. InterCon Systems Corporation, 703/709-5500.

nate meeting schedules for all coworkers in a group, whether they use Macs or Windows PCs.

With Meeting Maker XP, administrators publish their schedules to the server, or authorize a proxy, such as a secretary, to handle their calendars. Users can call up meeting times with a keystroke; individual users can also set reminders and keep personal schedules. Filesynchronization capabilities are included for PowerBook toters.

Meeting Maker XP is priced at \$790 for a 10-user pack and \$3750 for 50 users. On Technology, 617/876-0900.

—MITZI WALTZ

### The Best Way To Get To Your Printer On Ethernet Is Now

# Way Better.

Call And Ask About Our New Token Ring Support!

Ether?

New version 2.0 is the best update we've ever made to our award-winning EtherPrint, the original and best way to put your LocalTalk printers on Ethernet.

#### 1. New Security Features.

For easier network management,



EtherPrint™ can now be named and password protected. And our new SecurIt™ protection

software lets you assign passwords and control access to any Local Talk device attached to any EtherPrint in any zone.

#### 2. Easier Installation.

EtherPrint has always been renowned for being remarkably easy to install and use, right out of the box. Well now we've made it even easier. You can power on EtherPrint and its LocalTalk devices in any sequence for fast, error-free start up.

#### 3. Connect More Devices.

A single EtherPrint now connects two printers or other LocalTalk devices.

That's double the device support for the



same low retail price of \$499. EtherPrint Plus connects up to four devices for just \$599, which makes

EtherPrint very well connected.

#### 4. More Ethernet Options.

All Ethernet cable types are supported, from thick and thin to 10BASE-T. But only EtherPrint offers the option of all three connectors on one model. And with

our auto-sensing technology, there are no switch settings to change when you switch cable types.

#### 5. Way Better Support.

Like all Dayna networking products, EtherPrint comes with a lifetime warranty, 24-hour turn around on repairs, and free technical support from the best trained technicians in the Macintosh networking industry.

Dayna led the way in Local Talk printing on Ethernet. It's only fitting that now we've made it better. Way better. Ask your favorite reseller about EtherPrint today, or call us directly for more information.



EtherPrint Owners Call For Upgrades. 801-269-7200



#### HOW TO SHARE FILES WITH WINDOWS PCS

Used to be that Mac users were Mac users and PC users were PC users and never the twain did meet. Then came Windows.

Now that most major Macintosh applications are available for Windows, people can work together regardless of which desktop computer they favor (see "Working in Two Worlds," this issue). Yet even a cross-platform program, such as Microsoft Word or Aldus PageMaker, does you no good if you can't move files from your

Mac to someone else's Windows PC.

Fortunately, there are several techniques for spanning the platform gap. From networks to electronic mail to floppy disks and high-capacity cartridges, each method has its own set of strengths and weaknesses.

#### Over a Network

Whether you use Novell's NetWare, Apple's Apple-Share, or something else as your networking software, you can transfer files between Macintoshes and DOS and Windows PCs. The technique depends on the network, but it usually comes down to one of two options: you mount a network volume and access files through your program's Open command, or you move files from a network volume to your computer, either by using a file-transfer utility or by dragging the file to your desktop.

Under AppleShare and System 7's personal file sharing, DOS and Windows PCs can't act

as servers. So, while PC users on an AppleTalk network can access a Mac as simply another hard drive, Mac users can't access the PCs through the Chooser.

Farallon Computing's Timbuktu (510/814-5000) partially solves this problem. The AppleTalk-based software includes PhoneNet PC, software that connects PCs to LocalTalk or Ethernet networks using Apple's protocols. Timbuktu lets both Macs and PCs browse one another's folders and

CROSS-PLATFORM FILE TRANSFFR



DAVID VAN

BY GALEN GRUMAN

files and easily transfer files between platforms without using the Chooser or mounting an AppleShare volume. You can also share printers or view and control another user's screen (Windows or Mac) from either type of computer (see *Reviews*, *Macworld*, March 1993).

However, Timbuktu does not solve the basic AppleShare and System 7 personal file-sharing limitation that keeps servers from accessing client volumes directly. Plus, only one computer at a time can connect to another. Software for one user costs \$199; multiuser packs are also available. The Timbuktu for Windows PhoneNet Kit, which includes a LocalTalk network card for PCs, costs \$379 for standard ISA bus PCs and \$439 for MicroChannel Architecture (MCA) bus PCs, such as IBM's PS/2. You can also run Timbuktu over Ethernet with a separately purchased card.

A Windows-based product, Miramar Systems' Personal MacLAN Connect (805/966-2432), takes the opposite tack. It makes the Windows PC the server, letting the PC appear on the Mac's desktop so that you can access PC files directly from a Mac application's Open command. Many Macs can use the Windows server simultaneously, although the more users, the slower the response time. Unfortunately, it can't be set to launch the server on start-up. Personal MacLAN Connect is \$199 for a single server; multiserver packs are available.

Personal MacLAN Connect shares files in much the same way Timbuktu does, but it doesn't offer remote control or screen-sharing options. Editable extension mapping (along with a detailed list of DOS extensions and Mac creator and file types) matches DOS and Windows

files with the correct Mac applications. With extension mapping, transferred DOS and Windows files appear on the Mac with the correct icons and can be opened by doubleclicking. Otherwise, they must be opened from within an application.

When paired, Timbuktu and Personal MacLAN Connect can simulate a peer-to-peer network. With a Windows PC and a Mac as simultaneous servers, other computers can be clients of either one. The servers are also clients of each other.

This dual-product setup does add a layer of installation and administrative complexity, as well as memory overhead for the server (which is a big deal given the memory constraints of DOS). It took me a couple of hours to figure out how to configure my system to run both. An advantage to the dual-server approach, however, is that if one server goes down, you still have another server working.

Another product, Coactive Computing Corporation's Coactive Connector for Macintosh (415/802-1080), offers a more limited transfer capability. The Windows-based hardware-software combination essentially emulates AppleShare on a PC. The control box (about \$165) plugs into a PC's parallel port and has its own control firmware on board, which frees up precious memory. A \$29 adapter box (with no control circuitry, since it uses the Mac's built-in networking functions) plugs into a Mac's serial port.

PCs on a Coactive network divide their files into two folders, shared and private. (Unlike the Mac's own file sharing, with PCs on a Coactive network you can't simply designate which folders and drives can be shared.) When selected through the Chooser, the shared PC folder appears on the desktop of a Mac on the network. (Macs can only be clients; Windows PCs can be either clients or servers.)

#### Sharing by E-Mail

The major mail applications—Lotus Development's cc:Mail, CE Software's QuickMail, and Microsoft Mail—all work on both Macintoshes and Windows PCs. You can use E-mail to exchange files as mail enclosures.

QuickMail lets DOS and Windows users set up extension maps, so the files they send to Mac colleagues have the right icons when downloaded; but Macintosh users cannot set such maps. When

someone on a Mac sends a file to a PC, QuickMail converts the Mac file name to the shorter DOS format.

cc:Mail doesn't automate file renaming when you move files from Mac to PC, but it does perform extension mapping when you move files from PC to Mac. You also have the option of launching a file within a cc:Mail window (if you have a Mac program, like Excel or Word, that can read its DOS and Windows counterparts' file formats). Or, you can drag a file to the desktop or translate it to a Mac format (such as from Lotus 1-2-3 to Excel) via Claris Corporation's XTND software, which is bundled with cc:Mail. cc:Mail also lets you edit the extension maps so that you can update them as programs are revised or as you add new software.

Since Lotus Notes uses cc:Mail for its cross-platform E-mail function (see Reviews, Macworld, September 1993), file exchange between Mac and Windows Notes users works the same as for any cc:Mail system.

Like cc:Mail and QuickMail, Microsoft Mail offers automatic extension mapping. Both PC and Mac versions of Microsoft Mail come configured with maps for Microsoft's applications, but the mail administrator can add maps for any other Mac programs.

#### A Note on Compression

No matter which E-mail system you use, it's smart to send compressed files to save transmission time.

Unfortunately, PCs and Macs use different compression formats: Aladdin Systems' StuffIt is popular on the Mac, PKZip on PCs. But with Aladdin's shareware UnStuff/PC (available on major electronic services such as GEnie and

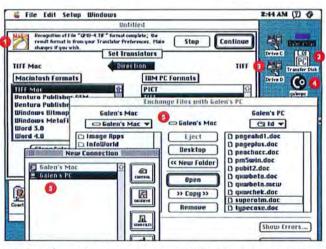
America Online), a PC can decompress nonencrypted Mac StuffIt files.

Peter Maika's freeware Unzip 2.01 (available on CompuServe and other online services) lets Macs decompress PKZip files. Unzip even includes extension mapping so the decompressed files have the right Macintosh icons and resources.

#### Using Disks to Swap Files All new Macs have a Super-

Drive, which can read DOS formatted 1.4MB and 720K disks, when using the proper software.

Apple includes Apple File Exchange with System 7, but it's an ungainly program: to read from or write to a DOS



Windows from Mac Methods to access PC files from a Mac include (clockwise from upper left) (1) exchanging and translating files with MacLinkPlus/PC, (2) reading floppies with Macintosh PC Exchange, (3) accessing PCs as servers via Personal MacLAN Connect, (4) using share folders via Coactive Connector, and (5) exchanging files and sharing resources via Timbuktu.

disk, you must first load Apple File Exchange and then insert your disk.

Three sleeker options, all of which are System extensions (INITs), let vou insert a DOS disk at any time and work with the disk on your desktop and from your programs as if it were a Mac disk. You can even initialize a disk in DOS format on your Mac with Dayna Communications' DOS Mounter Plus (\$99.95, 801/ 269-7200), Insignia Solutions' AccessPC (\$129.95, 415/694-7600), and Apple's Macintosh PC Exchange (\$79, 408/996-1010). PC Exchange is also bundled with DataViz's Mac-LinkPlus/PC (\$199, 203/268-0030), a bundle of cables and software that lets you transfer

Macintosh PC Exchange has a cleaner interface, but AccessPC and DOS Mounter Plus support more types of disks (such as SyQuests) (see Reviews, Macworld, October 1992). The new AccessPC 3.0 also includes Mastersoft's Word For Word Macintosh translation filters, so you can directly import, for instance, WordPerfect 4.2 for DOS files into

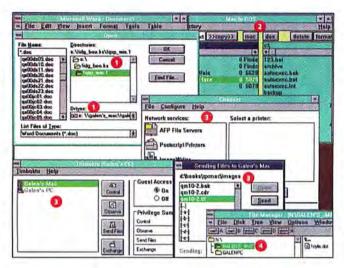
Word for Mac.

and translate files between Macs and PCs.

Note that each program handles Mac directory information differently, so, for example, the folder and file names created by PC Exchange will not be understood by DOS Mounter. Therefore, a file originally named 1994 Budget Report under Macintosh PC Exchange, appears as 1994BUDG.ETR under DOS Mounter Plus, and the Mac creator and file types may no longer be associated with the file. You can still use the files, but you should rename them and ensure that the correct creator and file types are associated with each file. (Opening the file from within the appropriate application and saving it will do the trick.)

It's only fair that DOS and Windows users also take responsibility for reading Mac data. Windows users have three options to read and write Mac disks. Two expensive options—PLI's Mac-to-Windows (\$199, 510/657-2211) and Pacific Micro Electronics' Mac-In-DOS for Windows (\$249, 415/948-6200)—like Apple File Exchange, must be running before you insert the Mac disk. Both support only file transfer. (You can't access their data from a program or through DOS, as you can with the three Mac INITs.)

The third, Insignia Solutions' Mac-Disk for the PC (\$99.95, 408/522-7600),



Mac from Windows Methods to access Mac files from a Windows PC include (clockwise from upper left) (1) opening a file directly over the network, (2) reading a disk with Mac-In-DOS, (3) exchanging files and sharing printers via Timbuktu, and (4) using share folders via Coactive Connector.

is the PC equivalent of an INIT. It lets you insert a Mac disk in a PC drive and access it through normal DOS commands. When in Windows, you can also format a disk in Mac format and view full Mac names. Unfortunately, MacDisk does not include extension mapping.

If your DOS colleagues still use 5½-inch disks, you can read them through Dayna Communications' \$599 external DaynaFile II floppy drive. But, since 3½-inch disk drives are standard and cheap today (about \$75 each), it makes more sense for DOS users in mixed situations to modernize their drives. PC users can even buy a new kind of drive from Teac that reads and writes to both 3½-inch and 5½-inch disks (about \$150) but takes just one drive bay, like a regular floppy drive.

#### **Using High-Capacity Cartridges**

Like the Mac market before it, the PC market is increasingly embracing SyQuest and Bernoulli drives for their usefulness for archiving, backing up, and transferring huge data files. Because these sorts of drives are expensive, sharing them is an attractive option, even if you don't do many cross-platform file transfers.

The key to sharing removable drives across platforms is to get SCSI drives for your PC, which means getting a SCSI host adapter board. A few years ago, that would have been an exercise in frustration, as one company's drive typically did not work with another company's adapter board. And you usually couldn't daisychain multiple drives to one adapter board. This was not the SCSI that Mac owners knew. But today, thanks to the de facto adapter hardware and driver standards set by Adaptec and Corel Corporation, PC users can install a SCSI that

works like it always has on the Mac, allowing easy exchange of drives between systems. For example, in my testing I used Procom Technology's ISA SCSI Xelerator (\$359 including cables, 714/852-1000), which was easy to install and easy to use in a cross-platform setup. Sharing a drive was simply a matter of disconnecting it from one system, connecting it to another, and mounting the drive.

If your PC colleagues don't have free slots in which to install SCSI host adapters, they can use external SCSI adapter boxes that plug into the PC's parallel port. But PC SCSI adapters are slower than Mac SCSI adapters. If your PC has a parallel-port-based re-

movable drive and your Mac has a SCSIbased one, you can't exchange drives, but you can still exchange the cartridges.

Although SCSI drives can be run from a Mac or PC, the data on the cartridges is not formatted the same across platforms. But you can get around that, too, meaning you can read cartridges formatted on a PC from your Mac, and vice versa. The DOS Mounter Plus and AccessPC INITs that let Macs read DOS disks also let Macs read DOS cartridges. And PLI's Mac-to-Windows and Pacific Micro Electronics' Mac-In-DOS Plus (\$199) and Mac-In-DOS Plus for Windows (\$349) let a PC read Mac-formatted SyQuest (44MB and 88MB only), Bernoulli, and Sony magneto-optical cartridges. Mac-in-DOS Plus requires DOS users to set the removable drive as C or D, designations usually reserved for hard drives. You can change the hard drives' letter assignments, but most users don't know how. Doing so also goes against DOS's automatic drive-labeling conventions, which can cause confusion.

#### What's Right for You

Transportation may be half the challenge of cross-platform file sharing, but there are plenty of solutions, and at least one is right for you. Whether you use a file server, peer-to-peer connections, or E-mail, networks are the conduit of choice because of their availability and ease of use. But sneaker net is still an appropriate option, especially when dealing with service bureaus, clients, or remote offices that may not be connected to your network. Whatever methods you use, there's no longer an excuse to keep from collaborating with your DOS and Windows counterparts. **m** 

# Your opinion counts.

**As an active buyer** of Macintosh products, your purchase decisions may affect tens of thousands of people. Now, with emerging technologies on the horizon, you need to gather and process as much information as possible to make informed product buys.

**PowerPC** is the next generation of computing. How will it affect your business? What plans have you made to ease the transition?

**Macworld magazine,** together with top Macintosh product manufacturers, want to know the answer to these questions—and more.

**Macworld Vision '94: The PowerPC** will explore every aspect of planning for the PowerPC: from developing and marketing to buying and implementing.

#### Join us on Tuesday, January 4, 1994

(the day preceding Macworld Expo) as Macworld magazine launches into the next decade. Registration is complimentary, but limited. Simply complete the form below and return no later than **Monday**, **November 29** to receive a registration packet to what will be the industry's most talked about event.

MAGGIONI 94:
THE POUGFPG

☐ Yes! I'd like to attend

Macworld Vision '94:

The PowerPC. Please send
me a registration packet.

Name	Title	
Company		
Address		
City	State Zip	
Phone	Fax	

Clip and mail to: Macworld Vision '94 \* 501 Second St. \* San Francisco, CA 94107 or fax to 415-442-0766 no later than Monday, November 29, 1993.



# There's a new class leader in the study of accelerator economics. And its name is Harris.

There's a lot of competition in Macintosh accelerators these days. Harris has been making Macintosh accelerators since 1986. And

But SE, Classic and LC/LCII owners who do their homework can only come to one

	F	Applied Ingineerin	Daystar	Harris
SE/Classic	16MHz	NA	NA	\$129
SE/Classic	25MHz	\$229	NA	\$199
SE/Classic	40MHz	\$349	\$698	\$299
LC/LCII Performa 400	32-33MH	z \$449	8498	\$349
Warranty		3 yrs	3 yrs	5 yrs

conclusion. Harris accelerators are the best buy. Period.

New of the longest warranties in the LC/LCII business (5 years), and a Now Shipping! 30-day, no questions

Harris accelerators are designed for easy plug 'n play installation and

100% software

asked, money back guarantee.

So if it's your time to go to school on Mac accelerators, put Harris to the test. Order direct today and polish up your Apple tomorrow.

Order Direct 1-800-783-3726

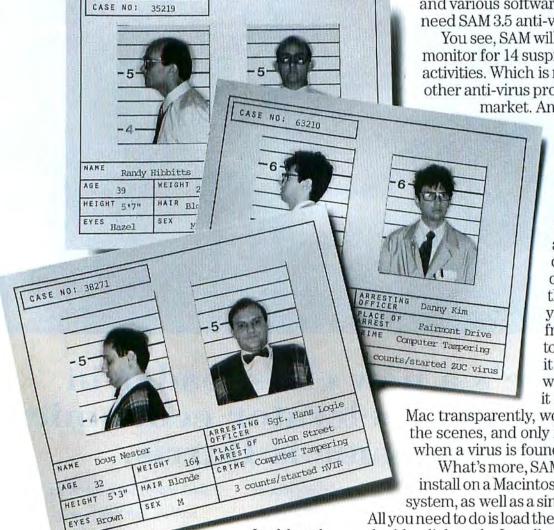


Making Macintosh Accelerators since 1986

400 Commerce Court, Vadnais Heights, MN 55127 Phone (612):482.0570 Fax (612):482.0762

Circle 160 on reader service card

### WE OFFER THE MOST PROTECTION FROM RUTHLESS CRIMINALS LIKE THESE.



Junk bond dealers? Drug lords?

Savings and Loan presidents?

Nope, they're computer hackers. And judging by their physical appearance, you wouldn't think you'd need any protection from them. But you do. Or should we say, your computer does.

And to keep these criminally minded people from infecting your files, floppies and various software programs, you need SAM 3.5 anti-virus software.

You see, SAM will constantly monitor for 14 suspicious viral activities. Which is more than any other anti-virus program on the market. And it's the only

> program that will scan compressed files in System 6.0 and 7.0.

So basically, if your Mac has a virus, SAM will detect it, get rid of it and repair the file. And if vour Mac is virusfree, SAM will help to make sure it stays that way. Because it monitors your

Mac transparently, working behind the scenes, and only interrupting when a virus is found.

What's more, SAM is simple to install on a Macintosh networking\* system, as well as a single-user Mac.

All you need to do is load the program disk, double-click on the Installer Icon and let MACWORLD

SAM handle the rest.

For the most anti-viral protection, pick up SAM 3.5 at your local retailer. It's the most popular anti-virus program

in the world, and will keep you from ever having to deal with this ugly crime. Or these ugly criminals.



World Cless Award Winner

Winner of

NETWORKS

BY CARY LU

# PowerBook Notes

#### Remote-Control Computing

THERE ARE TIMES WHEN A POWERBOOK cannot replace another Mac; for instance, when the other Mac has something you need-a software package or a resource or some information tucked away in a file. When you can't be there in person, remote control is the next best thing. With remote control, one Mac-the local (guest) Mac, such as your PowerBook-controls another-the remote (host) Mac. The control link can be over an AppleTalk local area network (running on any Apple-Talk-compatible wiring and protocol), using AppleTalk Remote Access (ARA) via modems, or by direct modem connection without AppleTalk.

Two companies offer remote-control programs in several versions; all require a different copy—or at least a different serial number—for each Mac.

ScreenLink, previously called CarbonCopy/Mac (Datawatch Corporation, 919/490-1277), runs only on Macs; it is not compatible with CarbonCopy/ PC. ScreenLink is sold in three different versions: a \$99.95 Twin-Pak for two Macs, a \$299 Zone-Pak with a license for unlimited Apple Talk nodes within a single zone, and a twin pack as part of the \$149.95 SuperSet utilities. Each twinpack version works over AppleTalk or by direct connection via modem, but the Zone-Pak version works by modem only via Apple Talk Remote Access (ARA), not by direct-modem connection. SuperSet includes the excellent Citadel with Shredder security program as well as the Virex virus-detection program, the 911 Utilities disk- and file-recovery program, and Complete Undelete, which lets you recover accidentally trashed files.

 Timbuktu (Farallon Computing, 510/814-5000) is available in three forms.
 Timbuktu for Macintosh (\$199 per copy) works over Apple Talk networks and via



ARA. Timbuktu/Remote (\$195 per copy; \$295 for a twin pack) also works on Macs, through direct modem connection but not over AppleTalk. Timbuktu for Windows lets a Windows computer control or be controlled by a Mac—to which it's connected via AppleTalk—running Timbuktu for Macintosh. (Timbuktu for Windows also lets one Windows computer control another, but it isn't suitable for pure Windows networks, since they rarely employ AppleTalk protocols.) Neither Timbuktu for Macintosh nor Timbuktu for Windows is compatible with Timbuktu/Remote.

#### **How Remote Control Works**

All the various Mac versions of both programs install an extension and a control panel in each Mac. When you turn on the program, you can set a Mac to be the local or remote computer. The screen of the remote computer appears on the local Mac, which can either control or simply observe the remote Mac. When the local Mac is in control mode, all its keyboard

and mouse activities within the remotecontrol window are transferred to the remote Mac. All of these programs also support bidirectional file transfer; you select files from a standard file-selection dialog box without going through System 7's file-sharing procedure. On the remote Mac, you can set password security and access levels.

Depending on the situation, you may need to set up some special arrangements for access to the remote Mac:

• Attended remote Macs. If an associate is available when you connect to a remote Mac, you can simply ask that person to turn on the Mac, start the remote access program, deal with modems, even run scanners and change CD-ROMs as required. Two phone lines help out; one for the modem connection, the other for conversation. In this mode, two Macintosh users see the same screens—an ideal setup for instruction or troubleshooting.

• Unattended remote Mac left running. An unattended remote Mac is fairly easy to deal with; just put the remote-control program (or its alias) in the Startup Items folder within the remote Mac's System Folder so if you need to restart the Mac, the program will automatically load.

• Unattended remote Mac that isn't running. To turn it on with a phone call, you'll need a remote power switch—such as the PowerKey (Sophisticated Circuits, 206/485-7979) or the PowerSwitch LT (Radiant Enterprises, 415/296-8040); which one you get depends on the type of Mac being accessed (for more details, see PowerBook Notes, August 1993).

#### **Basic Operation**

When you sit at your local Mac with remote control running, you are, in effect, continues



#### CheckMark MultiLedger

MultiLedger combines G/L, A/R, A/P, and Inventory into a fast and efficient accounting solution.

- Speed up transaction entry with pop-up lists.
- Simplify bookkeeping with automatic updating of accounts and reports.
- · Accelerate business decisions with upto-the-minute status reports.
- Save time with the multiuser version that allows more than one person to work on your books.

#### CheckMark Payroll

Called "an ideal product for small businesses (Accounting Today) and touted as "the best of all Mac payroll programs." (Macworld)

- Calculate payroll automatically, including all taxes and deductions, such as 401(k) and cafeteria plans.
- Enter all employee hours in one spreadsheet-style window.
- Use as a stand-alone, post into MultiLedger or Cash Ledger, or export to Teleware's M.Y.O.B.TM

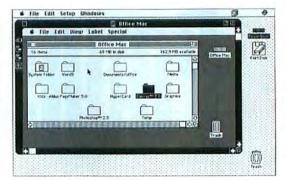


SOFTWARE INC.

724 Whalers Way, Bldg. H Fort Collins, Colorado 80525 303-225-0522 FAX 303-225-0611

Call 800-444-9922 today for a free demo disk

Circle 34 on reader service card



Remotely Controlled When you're using a remote-control program-such as Farallon's Timbuktu for Macintosh, shown herethe screen of the remote Mac being controlled (here, Office Mac) appears in a window on the screen of the local Mac that's doing the controlling (in this case, a PowerBook). All keyboard and mouse activities taking place within the PowerBook's remote-control window are automatically transferred to the screen of the remotecontrolled Mac.

sitting at the remote Mac. There are some complications. First, the remote's screen updates slowly (see the chart "How Slow Is Remote Control?"). Over LocalTalk, the screen updating is fast enough that you can perform most computing tasks without undue discomfort. A complex graphics-intensive document may stretch your tolerance, however.

Connections by modem-either by direct connection or ARA-are much slower; you'll probably be willing to put up with the process only for important tasks that can't wait. Use 14.4-Kbps modems for the link; 9600 bps is absolutely the slowest tolerable speed for running a text-based program. Only the really desperate will ever run a graphics program over a modem.

For Finder tasks, such as searching hard disks for a file, remote control by modem works adequately. Why would you want to use remote control for a file search when you could set file sharing for the entire hard disk and use ARA to look through the files? Because remote control gives you all the resources of the remote machine. You can launch a program or reconfigure the computer. Programs on the remote machine run as fast as usual, except for the screen updating-which is a major limitation, since most programs do a lot of screen updating.

As delivered in the box, ScreenLink in its direct-mo-

dem mode and Timbuktu/Remote support mostly older modems. If you have a newer modem, you should contact Datawatch or Farallon to get support files by mail or by modem. Neither program supports Apple's Communications Toolbox, which would have made installing new modems easy. ARA uses the Comm Toolbox, so if you have problems with modem compatibility, you can use ARA instead.

#### Screen Size and Bit Depth

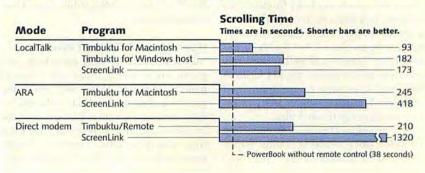
The remote Mac's screen will probably be larger than your PowerBook screen (640 by 400 pixels for most models). To accommodate large screens, both Screen-Link and Timbuktu put the remote screen in a scrollable window. Both autoscroll: in continues

#### **How Slow Is Remote Control?**

To test relative performance of remote-control programs in various operating modes, I measured the time for scrolling a Microsoft Word document from a PowerBook connected to a desktop host via LocalTalk or a 14.4-Kbps modem.

For equivalent modes, Farallon's Timbuktu for Macintosh runs almost twice as fast as Datawatch's ScreenLink, an advantage that justifies Timbuktu for Mac's much higher cost-three to four times more than ScreenLink. And Timbuktu for Mac is the only program that supports Clipboard transfer between Macs.

In direct-modem mode ScreenLink runs about one-third the speed it does in ARA (AppleTalk Remote Access) mode, so use ARA instead. ScreenLink is adequate for occasional use, but if you rely on remote control regularly, you'll want Timbuktu for Macintosh. Although Timbuktu/ Remote runs a little faster over phone lines, the greater flexibility of Timbuktu for Macintosh makes it the best choice.





### PowerBook battery breakthrough!

Now you can use your PowerBook up to <u>five times</u> as long— <u>without</u> constantly swapping and recharging batteries, dimming your screen, slowing your processor to a crawl, or staying within six feet of an AC outlet

Remember the day you first brought your new PowerBook<sup>™</sup> home?

It was faster than a speeding bullet. More powerful than a locomotive. Able to leap tall buildings in a single bound. In fact, the two of you could do anything.

But then it happened...

#### The Big Chill

Your first low battery warning. That's when *everything* changed.

You quickly discovered that if you use all the performance your PowerBook offers, the battery just doesn't last long enough.

Finally, there's a solution.

#### PowerPlate Mini 3

Ultra-compact design provides 2.5 to 3 times the battery life of PowerBook battery alone. Only 9.4" by 5.6", and less than 1/2" thick — an easy fit in any carrying case. Our most cost-effective power solution. **\$169.95** 



- ▶ 3 or 5 times the battery life
- Attaches easily to PowerBook
- ► No more battery swapping
- **►** Cost effective
- ► No "memory-effect"
- ► Charges with Apple AC adapter

#### Power Breakthrough

Introducing PowerPlate<sup>™</sup> rechargeable power systems, designed specifically for PowerBooks.

Quite simply, PowerPlates solve <u>all</u> your battery frustrations. (In fact, you may wonder how you ever got along without one.)

#### PowerPlate 3x

Integrated design attaches easily to PowerBook and provides 2.5 to 3 times the battery life of PowerBook battery alone. "Smart" two-stage charging with LED indicators. PowerBook footprint, less than 5/8" thick. \$239.95



And the system cost is no more than you would spend buying a couple extra PowerBook batteries and an external charger to keep them charged.

#### Call Toll-Free Today

Ask your dealer about PowerPlate systems today, or for more information just call us toll-free.





Technöggin Inc. 1018 Delta Ave • Suite 303 • Cincinnati OH 45208 Phone 513-321-1777 • Fax 513-321-2348

#### PowerPlate **5**x

The ultimate rechargeable power system; perfect for power-hungry color PowerBooks. Integrated design attaches to PowerBook and provides four to five times the battery life of PowerBook battery alone. \$299.95



© 1933 Technöggin Inc. Technöggin and PowerPlate are trademarks of Technöggin Inc. PowerBook is a trademark of Apple Computer, Inc.



### The Time Has Come...

...to send for the latest copy of the free Consumer Information Catalog.

It lists more than 200 free or low-cost government publications on topics like money, food, jobs, children, cars, health, and federal benefits.

Don't waste another minute, send today for the latest free Catalog and a free sample booklet. Send your name and address to:

Consumer Information Center Department TH Pueblo, Colorado 81009



A public service of this publication and the Consumer Information Center of the U.S. General Services Administration ScreenLink, when the cursor reaches the edge of the window; in Timbuktu, when it gets within an inch of the edge. If you find the effect disorienting, you can turn off autoscrolling and use standard scroll bars to move around the window. However, if you're accessing a remote Mac with a very large screen, be prepared for a lot of scrolling; the disk icons and Trash Can are always off in the distance. Setting windows on the remote Mac to a smaller size helps, but the best solution is to set the screen size of the remote Mac to the size of the PowerBook's screen. The \$39.95 system extension MiniScreen from The Morgan Davis Group (619/670-0563) lets you change a Mac's screen size-the predefined 640-by-400-pixel PowerBook size works best. Then you can give the remote window the full screen on your local PowerBook. Don't worry if you forget to set the screen size in advance. You can start the remote-control session, change the screen size with the Mini-Screen control panel, and restart the remote Mac; but you will need to reestablish the connection after a restart. MiniScreen was originally designed to let software developers simulate various screen sizes; a time-limited demonstration version is available from online services and user groups.

The bit depth of the remote Mac's screen can create some problems. For ScreenLink, which works only on 1-bit black-and-white screens, this is a moot point. Timbuktu supports grays and colors; however, black-and-white works fastest. And if you switch the remote Mac to black-and-white, you can avoid the occasional legibility problems that may arise when viewing gray or color images on a black-and-white PowerBook screen.

#### **Doing DOS and Windows**

Timbuktu for Windows lets you extend the remote-control concept beyond the Macintosh. A Mac can control a Windows computer and vice versa, and the computers can exchange files. There are some special considerations.

• Timbuktu for Windows does not support a modem directly, and there is no equivalent of ARA for a Windows computer. The only way to control a Windows computer over a phone line is to set up a Mac with ARA as an intermediary. You dial into an ARA-equipped Mac, run Timbuktu to take control of it, and start another Timbuktu session of the ARA Mac that takes control of the Windows computer. Your PowerBook thus controls a remote Mac that in turn controls a Windows computer. This three-point operation is for the truly desperate; percontinues

MacUser and MacWorld agree, Mirror displays are the best value. Against tough competition, our Fullpage display garnered Editor's Choice and 4 Mice, while our Two-page display was awarded 41/2 Mice.

#### Number I in **Customer Loyalty**

Equally important is the feedback we get from our customers. A recent independent survey of monochrome monitor owners ranked Mirror #1 in customer loyalty (beating out Radius, SuperMac and RasterOps).



"Our panel of editors judged the Mirror monitor to be the best, with sharp focus over the entire screen ...an excellent value." Macworld, May 1993

\$399

#### Mark-up It's one thing every bit as good

No Dealer

to design a product as Radius and SuperMac (who

we think set the standards for great displays). But delivering them without dealer mark-up at savings of up to 40% makes them unquestionably the best value on the market.

All Mirror products come with lifetime technical support and the confidence that comes from dealing with a



Thousands of satisfied customers have discovered our 19 PixelView Two display. With our risk-free satisfaction guarantee, you can too.

#### See the Future

The PixelView Two-Page Display lets you view 12 months of your budget or both pages of your newsletter layout. It features 72 dpi resolution—a must for desktop publishers.

#### See a Whole Page

Whether you're writing a letter or working on this month's budget, with the PixelView Full-Page Display you'll be able to see a whole page effortlessly.

Its ergonomic design takes a minimum of deskspace.

#### **Exclusive Desktop Designer Software**

Our exclusive Desktop Designer software allows you to use the built-in screen on a Classic, SE, or SE/30 as an extension of the large MIRROR BESETOP screen, giving you even more workspace.

And adds productivity enhancements

like pop-up menus, enlarged cursor and a screen saver.

**Need Color?** Call about our ProView color displays. company that's been in the Macintosh business since 1985. Backed by our risk-free 30-day

"love it or return it" satisfaction quarantee?

\$399 PixelView Full-page For built-in video PixelView Full-page \$549 With card for Classic, SE, SE/30 or any modular Macintosh PixelView Two-page \$799 With card for Classic, SE, SE/30

PixelView 21-Inch Grayscale For built-in video

or any modular Macintosh

\$999

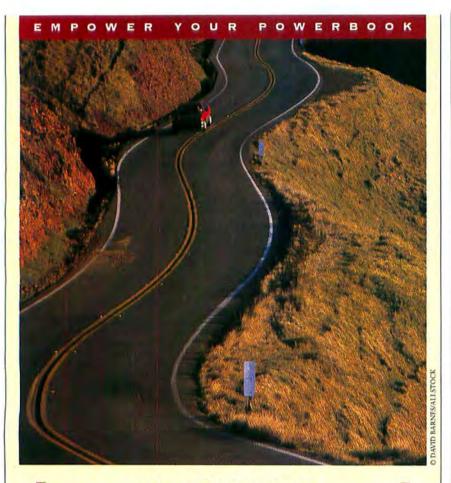
**Order Direct Anytime** 







\*You pay shipping Priess are E.O.B. origin: All pries subject to charge. Priess are for US widen only, call for international facing. To 1991 Nature Technologie: Mirror, ProVins, and Desiden Designer are inademirks of Mirror.



#### WE CAN TURN YOUR POWERBOOK INTO A SERIOUS ROAD MACHINE.



Lind Power Adapters are part of the complete Lind line of PowerBook

If you're on the road and your trip will last longer than your PowerBook's battery, Lind has the solution.

#### LIND AUTOMOTIVE POWER ADAPTERS

With Lind Automotive Power Adapters, you can operate your PowerBook from a standard

auto lighter socket, or

simply charge

the internal battery while you drive. The PB-2 supplies the

POWERBOOK-RELATED ACCESSORIES Automotive Power Adapter PB-2 Automotive Power Adapter PB-3 (Duo) 599.95 Charger-Conditioner Twin Traveler-Charger \$89.95 \$69.95 SuperCharger-Conditioner Auxiliary Power Pack (Rechargeable) \$169.95 Auxiliary "D" Cell Power Pack \$99.95

THE LIND FAMILY OF

necessary power for all PowerBook models 100 through 180. The PB-3 does the same for the PowerBook Duos. Priced at

under \$100. Call us today at

800-659-5956



or order through your dealer. PowerBook is a trademark of Apple Computer, Inc.

Lind Electronic Design, Inc. 6414 Cambridge St, Minneapolis, MN 55426 Phone: 612-927-6303, Fax: 612-927-7740

Circle 82 on reader service card

formance is excruciatingly slow.

· The standard Windows color screens are often illegible in black-andwhite; menu items frequently disappear. For screen legibility and maximum speed, when setting up the Windows computer choose VGA with the monochrome screen video driver supplied with Windows 3.1 (in the Main program group, choose Windows Setup, then System Settings).

· You can also control DOS software by running the DOS prompt from within Windows. The default setting for the DOS prompt gives it the entire screen, bypassing the Windows screen driver; since Timbuktu can only transfer Windows screens, the DOS session disappears from the controlling Mac's screen. At this point you can't press control-enter to switch to a DOS session in a window, since the Windows computer will not respond. To correct this problem, change the Windows setup. Use the PIF editor in the main program group, and edit the file DOSPRMPT.PIF in the main Windows subdirectory. Set display usage to Windowed instead of Full Screen; the DOS session will then come up in a window that Timbuktu can transmit to the remote computer.

 Windows programs typically make heavy use of function keys (F1 through F15, home, end, and so forth), which are missing on PowerBook keyboards. Use Connectix PowerBook Utilities (CPU) 2.0 to get these function keys on a Power-Book. A potential problem, however, is that CPU doesn't support compound keys, such as control-F1. In addition, CPU's function-key emulation does not work reliably in DOS sessions. An alternative is to connect an extended keyboard to the ADB port of your PowerBook.

#### **Future Steps**

Faster telecommunications should mitigate the performance problems. Higherspeed modems and digital connections via ISDN (64 Kbps) or switched 56 Kbps will help overcome the sluggish operation inherent with 14.4-Kbps modems. Future Macintosh applications might include an option to suppress unnecessary screen updating to make the remote-control process smoother.

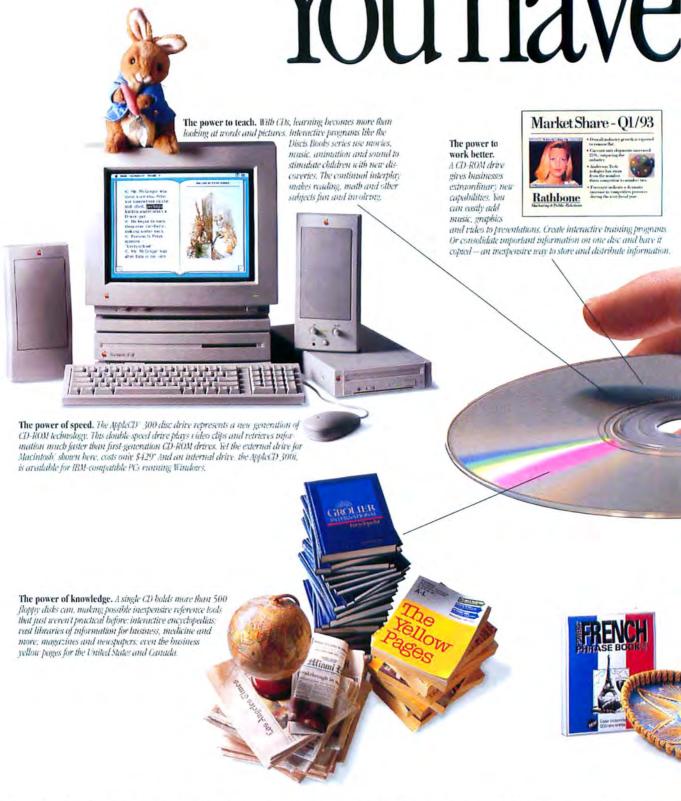
Even though today's remote-control programs are far from perfect, they do provide you with the essential ability to go on the road without leaving your office behind. m

CARY LU is a Macworld contributing editor who covers mobile- and remote-computing issues in this monthly column. His books include The Apple Macintosh Book (Microsoft Press, 1992).

# your could turn your computer into a librarian, an artist, a teacher, a research assistant, a historian, a marketing expert and an entertainer.



# Youhave



You already know that a personal computer is an extraordinarily powerful tool for working with documents, spreadsheets and vast quantities of information. What you may not realize is that these capabilities represent only a fraction of the things a computer can do. It can also give you the power to work with sound, video, photographs, animation and other kinds of digital

# the power.

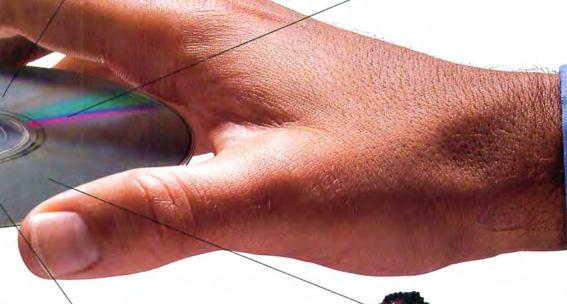




The power to design. CDs are an incredibly rich resource for graphics—thousands of pieces of clip art fit on one disc. You'll also find buge libraries of photographs, type fonts, a sound effects.

find buge libraries of j music and video clips. Even something as simple as a professionally designed background can give your work a crisp, professional look.







The power to explore. Nature. History Art. Sports. Travel. From the Great Cities of the World to the Think & Talk language series from Berlitz, there are hundreds of subjects you can explore and new

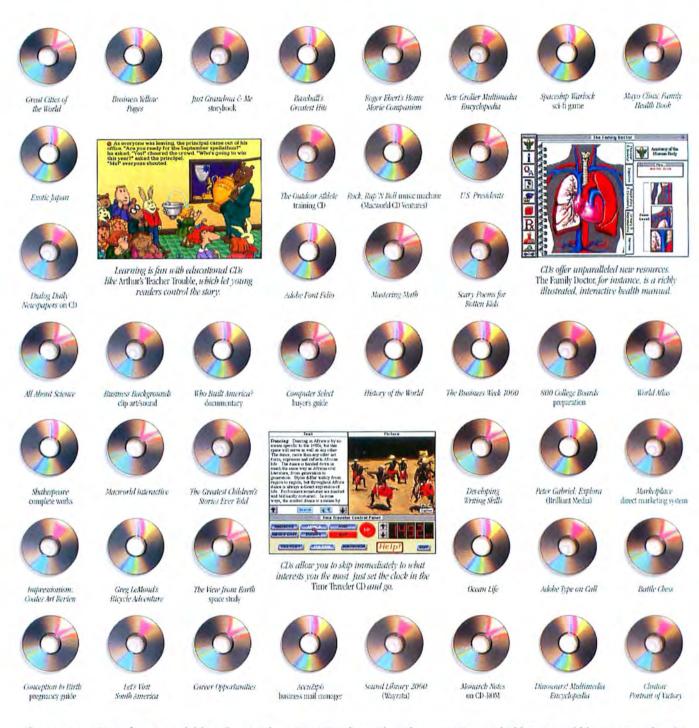
skills you can learn. And with interactive CD-ROM discs, you can learn at your own pace.



The power of sound. A CD-ROM drive brings CD-quality sound to your computer. You can make your own music with Rock, Rap 'N Roll from Macworld CD Ventures, or enjoy the performance, commentary and interactive tour of Voyager's Beethoven: Symphony No. 9. You can even play your own music CDs while you work.

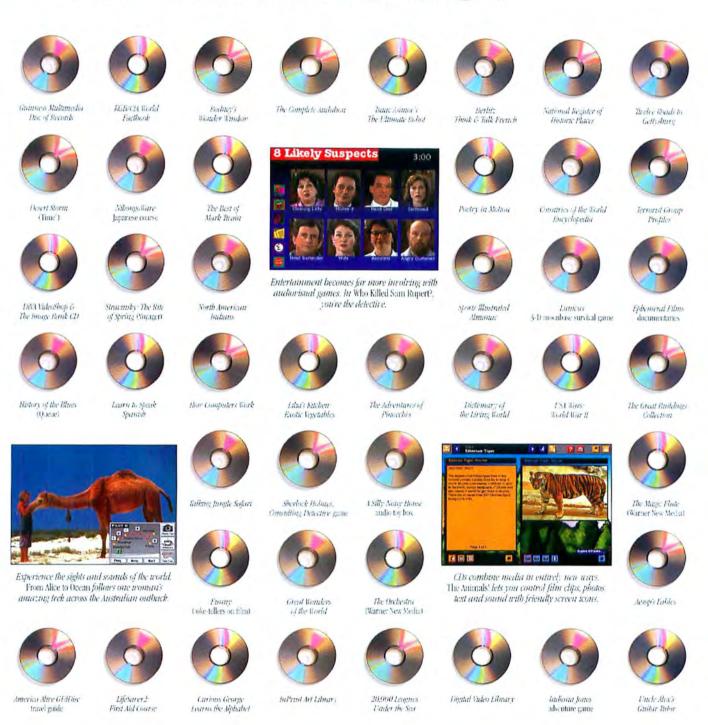
information as easily as you work with words and numbers. You probably don't even need to buy a new computer. All you need to do is add a CD-ROM drive to the computer you already have. It's easy to do. It's inexpensive. And it can add an entirely new dimension to the way you work, learn and even have fun. So read on, and find out just how much more your computer can do.

# Youhavet



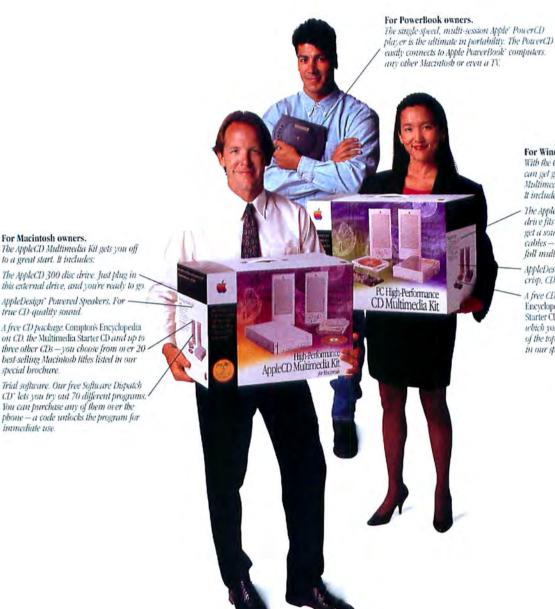
The most exciting software available today is only on CD-ROM discs. That's because CDs can hold an incredible amount of audiovisual information, making possible software that would be too impractical or too expensive with floppy disks, or even with a hard drive. Right now there are thousands of titles for Macintosh and PCs running Windows. They cover virtually every conceivable

# he choices.



topic and interest, from business directories to cooking lessons, from nature programs to a street-by-street atlas of the United States. Only a fraction of the available CDs are shown here. New releases come out every week, and there are hundreds of titles in development. So if you don't have a CD-ROM drive in your computer, you're not just missing the fun. You're missing the future.

# vounee



For Macintosh owners.

true CD-quality sound.

special brochure.

immediate use.

to a great start. It includes:

AppleDesign\* Powered Speakers, For

You can purchase any of them over the

#### For Windows owners.

With the CD Multimedia Kit for PCs, you can get going right away. And it exceeds Multimedia PC Level 2 specifications. It includes:

The AppleCD 300i. Our internal disc drive fits neatly inside a PC. You also get a sound card, software and cables - everything you'll need for full multimedia capabilities

AppleDesign Powered Speakers. For crisp, CD-quality sound

A free CD package. Compton's Encyclopedia on CD, the Multimedia Starter CD and up to three more CDs. which you can select from over 20 of the top titles for Windows listed in our special brochure.

If you have a Macintosh," or a PC running Windows software, you can take advantage of great deals on pre-The deals. mium multimedia bundles. Each of these bundles is valued at over \$1500,\* yet the AppleCD\* Multimedia Kit for Macintosh is only \$659\* and the CD Multimedia Kit for PCs is just \$709.\* To get your kit, or the portable PowerCD, call today.

# is the drive.



Recently, the AppleCD 300 disc drive was named *Macworld*'s Editor's Choice for Overall Value. Why? This double-speed drive is significantly faster than many other CD-ROM drives available today, yet it's still quite affordably priced. At \$429,\* the AppleCD 300 is a great deal. And to get it, all you have to do is call the phone number above.

# If there's a computer in your future, make sure there's a future in your computer.



Integrated Apple CD-ROM. From this point on, a computer without a CD-ROM drive won't allow you to take advantage of the best computing has to offer. So if you're thinking about a new computer, consider one of the many Macintosh models with the AppleCD" 300i already built in. That's the easiest way to start exploring the vast array of CD titles available for Macintosh, and the many more to come. Call 800-732-5151, ext. 100, to locate an authorized Apple reseller, and stop in for a demonstration. With a CD-ROM drive inside it, you'll find that a new Macintosh delivers the most impactful kind of power. The power to be your best. Apple



### The Desktop Christmas '93

Cheap and cheery things to put under the Apple tree

EY, WHAT IS WITH EVERY-body lately? You can't pick up a newspaper without reading about the gloom and doom at Apple Computer. Columnists are ranting about the Death of the Macintosh. Apple's stock price keeps having system crashes. I haven't heard such paranoiac hysteria since the original Macintosh model—remember that one? the toy? the one that would never last?

Anyway, I'm certainly sympathetic to those affected by the Great Mac Depression of '93: to those laid-off Apple employees, to the columnists who write about them, and to the Mac fans everywhere who're alarmed by all the alarmism. Thus, in an effort to inject a little cheer into this gloomy season, I offer my fourth annual Holiday Gift Ideas for the Mac Nuts in Your Life. As always, the rules are simple: nothing over \$50 and nothing buggy, cheesy, or predictable.

#### **Apple Golf Ensemble**

—hit the streets.

Apple: it's not just for computers anymore. Perhaps in an effort to reassure its jittery stockholders, Apple now sells such circuitry-free equipment as wristwatches, felt-tip pens, and directors' chairs.

And golf gear.

Don't ask—I can't explain it—but there it is in the Apple Catalog (800/795-1000), nestled between the LaserWriter Select and the Apple II SuperDrive Controller Card. The Apple-logo golf balls are \$30 per dozen. The \$35 Apple Golf Umbrella, according to the catalog, "protects an entire foursome from unexpected showers!" (It's 58 inches across, nylon, and fiberglass. The umbrella, I mean, not the catalog.)

Of course, your favorite Mac/golf lover will also go for an Apple Golf Shirt, pure cotton, with shoulders "reinforced with double-needle tailoring" (black or white, \$30). And to top off your gift, top off its lucky recipient with an Apple Golf Cap. "Nylon and plastic? Never! Our cotton poplin cap is designed for comfortable sun protection." With its genuine leather

band and solid brass buckle, this \$11 item could be the best value from Apple since the PowerBook 145.

#### **APS PowerBook Ensemble**

APS Technologies (816/373-5800) makes two stunningly useful stocking-stuffers for your favorite PowerBook owner. First, complying with the industry trend of ditching Apple's monochromatic palette of gray paint shades for more colorful alternatives (see "Screenies," below), there are the APS PowerBalls. These Day-Glo trackballs replace the soot-colored one that comes with each PowerBook (\$9.99 apiece, in neon orange, shocking yellow, violent green, and obscene pink; specify PowerBook model). For best present-unwrapping reactions, give the full \$19.99 four-color set (but failing to mention that

CHRAP 3327-3
0 1704-72327-3 2

these are not, in fact, gumballs could have unpleasant results).

But the PowerBalls can fill up only four toes of the stocking. If you want to fill the big-toe slot with something useful, consider this. A PowerBook's SCSI jack is an odd-looking square matrix, not the wide rectangular 25-pin jobber we're used to. Apple would be delighted to sell you a \$39 converter cable so that you can, in fact, plug a SCSI device into the jack.

APS's SCSI Boy, however, is a simple plug that performs the same feat with less clutter and expenditure (\$29). And for \$49, you can get the less funnily named but doubly useful SCSI Doc: an identical-looking plug that, with the flip of a switch, becomes an adapter for use with SCSI Disk Mode (where the PowerBook itself becomes an external hard drive for another Mac), thus saving you from having to purchase yet another, different \$39 Apple cable.

#### Screenies

If you could meet the people I teach about the Macintosh, you'd understand why the Cupertino Corporate Doldrums are irrelevant. These are people who've never used a computer before. In fact, they're not particularly crazy about even having one. But they tolerate the Mac because it's far less intimidating and machinelike than

any other computer. Mention QuickTime, virtual memory, or even RAM, and they cover their ears and start singing "Tomorrow" at the top of their lungs. What they want to know is how to get double-spaced text. Or print an envelope. Or find a chapter they typed last week.

These people want to make the computer as uncomputer-like as possible. To that end, Rusty Schwartz offers a unique twist on masking the nerdiness: interior decoration for your monitor. Not wallpaper, really, but a Velcro-backed cardboard

frame that covers up the boring gray bezel with a lush colorful painting (available from CompUSA, Egghead, MacWarehouse, and Hallmark; \$11.95 each, SE size \$9.95). (Whatever's on your screen is still visible, of course, through the cutout center of the frame. On the other hand, I've got a couple of students who'd probably prefer one that doesn't have the center cut out.)

There are 51 different designs. Many resemble, as I said, wallpaper: tropical, continues

patterned, floral, whatever. Others make your Mac look like some more comforting American knickknack: a giant red Etch A Sketch frame; a 1950s-style TV set; an ornate, theatrical, rococo frame showing cupids and fleurs-de-lis. As a jaded pragmatist from New York, my personal favorite is the one made of write-on, wipe-off material. I scrawl phone numbers and other notes on it during the day, giving "I wrote it on my computer" a whole new meaning.

#### The Macintosh Reader

Great book. Interviews. Secrets. Insider Apple stories. Little essays—54 of 'em. Funny, alarming, surprising, sometimes maddening. Interesting? Always.

What went wrong with Steve Jobs. Sculley vowing never, ever to license the Mac Operating System. An Apple head-programmer's 1984 interview: future of the Mac.

Kawasaki, Alsop. Bunnell. Shapiro. Tognazzini. Famous folks with something to say. Style? Yes. Too much. Short sentences, almost obnoxious. Doug Clapp wants to be Hemingway, I guess. Dashes—and ellipses... and very short sentences. And lots of italics. The hand of one Clapp sounding.

Still. He didn't write all 450 pages of it: only the intros and a few of the essays. Otherwise—juicy stuff. Random House Electronic Publishing (212/572-2600). \$25.

#### CopyDoubler 2.0.1

I'm ordinarily leery of giving a piece of software as a gift. I mean, someone unwraps 16 layers of paper and cardboard, and at the center is—a floppy disk. The joy is somehow not as visceral as when, nestled in the mounds of ripped-off wrappings, lies, say, a camcorder or a BMW.

Still, CopyDoubler (Fifth Generation Systems, 504/291-7221, \$59, about \$40 by mail order) will bring joy to any System 7–savvy Macintosh user. And it's a bliss that renews itself every time your recipient tries to copy something or empty the trash. Beautifully, simply, and quietly, CopyDoubler intercedes, taking over these interminable tasks from the Finder and doing them at least twice as quickly.

One more point: It's easy to set up CopyDoubler to copy specific folders to a certain location, either at the touch of a key or at shutdown. This is news. It means that you never again have to think about backing up! Each day when you choose Shut Down, CopyDoubler backs up whatever folders contain your documents—quickly and automatically—and then dutifully turns off the computer.

#### **Icon Gallery**

Can you figure out what's missing from these instructions for replacing an icon in System 7? (1) Copy a graphic to the Clipboard; (2) highlight an icon; (3) choose Get Info from the File menu; (4) click on the existing icon and paste.

What's missing, naturally, comes before you even start: how you're supposed to *create* the replacement icon to begin with. We are not all, alas, Norman Rockwell. (Many of us aren't even Jackson Polcontinues



Icon Heaven The lucky recipients of Icon Gallery can have a different hard drive icon every day for 2.3 years, if they are so inclined.



#### ISN'T IT TIME SOMEONE DEVELOPED A PAINLESS VIRUS PREVENTION PROGRAM?

The only thing that's worse than a virus is anti-virus software that's a pain to use.

Which is why we developed Virex 4.0. Powerful protection you simply put in and forget.

It's the simplest to install. The easiest to use. And the only one that never bombards you with false positives.

But while it's painless for you, it's deadly for viruses. Because Virex handles everything from checking for any unknown viruses to repairing infected files.

Plus, your first upgrade is free. And our subscription service is an effortless way to get a lifetime of

> up-to-the-minute virus updates on disk.

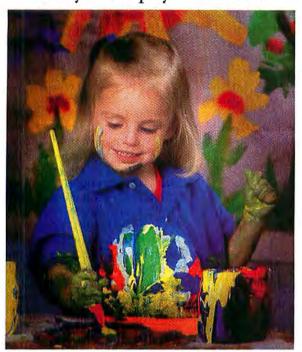
So ask your retailer for Virex or call us about site licensing programs today. Both you and your computer will feel much better.



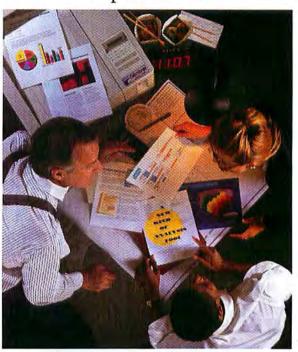
PATAWATER 919-490-1277, ext 421 / FAX 919-490-6672 / BBS: 419-1602 (8,1,N). Datawatch and Virex are registered trademarks of Datawatch Corporation.

Circle 37 on reader service card

#### June 14, 1963. Cindy Smith plays with color.



### Thirty years later her business depends on it.



### Introducing the QMS ColorScript Laser 1000. Now your business has total freedom of expression.

For Cindy, communicating decision-critical information quickly, flawlessly and in brilliant color is now her livelihood. That's why she depends on the QMS ColorScript® Laser 1000 Print System. It frees her to print entire forms and letterhead with color logos, images and high quality text without changing paper. It saves her the cost of stocking special forms, letterhead and multiple sets of supplies and uses standard paper and transparencies. It improves her message by highlighting key data with color in multipage presentations and documents. Add direct connection to a variety of networks and anyone can realize both greater productivity and a per user cost that rivals personal printers. Plus, our easy software loadable upgrades

Save money. Save time. Free yourself from limitations. Discover the advantages of the QMS\* ColorScript Laser 1000 Print System.

virtually eliminate obsolescence.

Laser color and monochrome printing • Compatibility with PostScript<sup>™</sup>
 Level 2 and Level 1, HP PCL<sup>®</sup>5C and HP-GL<sup>®</sup> • TrueType font scaling

Automatic collation
 Simultaneous input and automatic emulation switching
 65 resident type fonts
 EfiColor™ and Colorimetric color dictionaries and Apple ColorSync™ device profile
 Supports DOS, Windows,™ Macintosh® and Unix® applications
 Software loadable system upgrades

Expression is a serious business.

Call QMS today at 800 392-7559 or 205 633-4300 for the name of a reseller demonstrating the QMS ColorScript Laser 1000 in your area.



QMS, QMS ColorScript and the QMS logo are trademarks or registered trademarks of QMS, Inc. PostScript is a trademark of Addie Systems Incorporated which may be registered in certain juriedictions. All other product and company names mentioned are trademarks or registered trademarks of their respective companies.

InfoFAX

Please see page 256 for instructions.



lock.) Even icon-editing programs are useless if you're talent-free (see *The Desktop Critic*, July 1993, for more on these).

Enter the simple, sweet, serendipitous concept of Icon Gallery (\$59.95, about \$35 by mail order; Component Software Industries, 609/497-4501). It's 850 professionally painted color icons. People, appliances, logos, plants, design—disk upon disk of them (see "Icon Heaven"). They're enfoldered by category, almost universally usable, and unbelievably tempting.

Within 30 seconds, you can make your landscape of files and folders more personal, more colorful, and funnier.

(Techie note: Each icon in this collection is actually a ResEdit resource file containing the large, small, color, and black-and-white versions of that icon. If you are handy with ResEdit, therefore, you can slap these icons even on System 6 files, or install them permanently in your own files instead of using the Get Info method.)

#### America Online Starter Kit

For the fourth consecutive year, I've prodded America Online to develop a gift certificate good for using its dial-up modem wonderland. Such a certificate would make a perfect gift. They're still saying "Good idea. We'll look into it." Meantime, if you're a Santa on a budget, call 800/827-6364 and ask for a free America Online starter kit. It comes with ten free hours of dial-up time—more than enough to get your recipient hopelessly addicted.

**Newton MessagePad** 

Now, don't get huffy that I'm breaking my self-imposed \$50 price barrier on this one. The list price for Apple's remarkable, palmtop, keyboardless, handwriting-recognizing, note-taking, quick-faxing, phone-dialing, day-scheduling, Etch A Sketch-descended, snazzy corporate show-off computer is more like \$700 (408/996-1010). If the price bothers you, look at it this way: give somebody a MessagePad, and you're covered, giftwise, for the next 14 years.

And if you give a loved one a Newton, you'll also be covered kiss-wise. One guy's opinion: this is a *funtastic* machine. Yes, OK, fine, be that way. It takes three days before you and it reach a handwriting understanding. There. I've said it.

But oh, what a world opens then. You're checking your answering machine for messages; as you jot down the phone numbers on your MessagePad, you're actually entering them into your phone-dialer for future use. Or you're drifting to sleep, and you get an idea for tomorrow's presentation. Scrawl it on the MessagePad and go back to sleep. Or you write the dinner tab on the MessagePad's Conversion screen, and you instantly know what the tip should be. And so on.

Advice-wise, here's my offering: The way to a Mac or gadget freak's heart is with a MessagePad.

#### The Upshot

Day-Glo trackballs . . . hand-held computers . . . jumbo golf umbrellas . . . You know what? I find it impossible to buy into the Mac Is Dead school. Not for an instant. I think this must just be a slow news year. I'm no MBA, but I can't see how any company that makes a machine this great couldn't come back from a slump. Stockholders, schmockholders—my computer plays movies and talks! **m** 

Modesty forbids DAVID POGUE from mentioning the Christmas-gift candidates he had a hand in creating: Hard Drive, a \$5 paperback thriller (Berkley Publishing Group, 1993); Macs for Dummies, 2nd Edition; and Macworld Macintosh Secrets (both IDG Books Worldwide, 1993).

# IMAGINE PROJECTING A FULL COLOR PRESENTATION DIRECTLY FROM YOUR COMPUTER



If you want to have impact, your ideas have to be big. Slides and overhead film just won't do. Large images, brilliant color, crisp data, beautiful video.

Display your presentation—directly from nearly any computer or video source—with the nVIEW projection



product that is right for you.

Award-winning presentation solutions which are easy to use and completely portable.

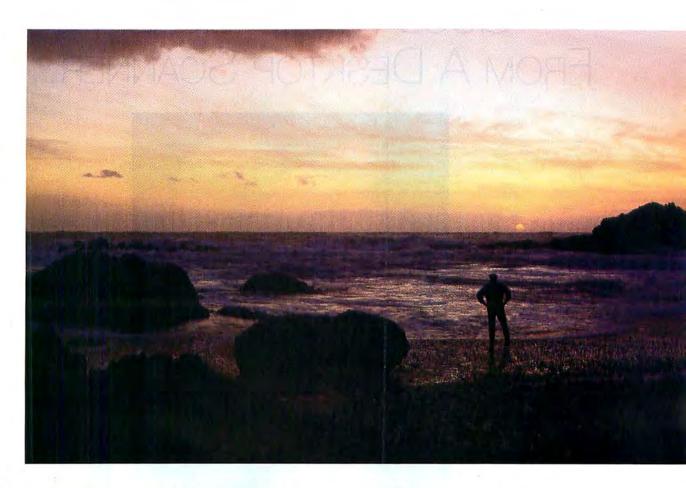
nVIEW. The leader in high-

performance projection displays. For more information call 1-800-736-8439 or 804-873-1354.

NVIEW
VISIONARY DISPLAY TECHNOLOGIES

WEW products are translatured under U.S. Parent At 70,993, 74,976,535, 65 153,624, at 3 63,150,236. Other and transpary grant spending in WAV and Vicent rane are neglected to demoke a and Mediatria, committee and AS CAH are no demoke and WAV Cooperation.

Circle 117 on reader service card



## You can get your feet wet, or plumb unimaginable depths.

In a way, it's a lot like CompuServe.

CompuServe members who join for the basics quickly discover an ocean of opportunity. Like athome shopping, financial data, travel information and reservations, and entertainment, and free time to sharpen their online skills.

Computer professionals who join to access a wealth of high-tech expertise find much more. Like sophisticated research tools, hardware and software support forums, and lots of free software and shareware. In fact, no other information service offers the number and quality of choices that CompuServe does.

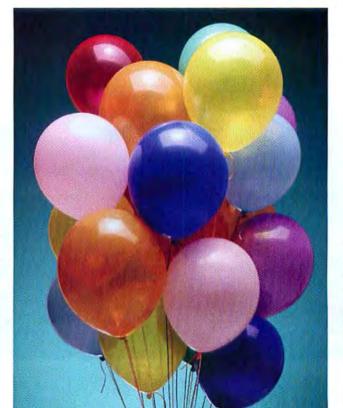
Now, for just \$8.95 a month, and a one-time membership fee, you get all the basics as often as you like: news, sports, weather, shopping, a complete encyclopedia, and much more, plus up to 60 E-mail messages a month. And, there are lots of other valuable services available on a nominal payas-you-use basis.

To make the right choice in selecting an interactive service, pick the one that will always help you get the most out of your computer. For more information or to order CompuServe, see your computer dealer or call 1 800 848-8199. Outside the United States, call 614 457-0802.



Circle 66 on reader service card

### So You're Not Supposed To Get Good Repro Quality From A Desktop Scanner...



MODEL: RELI 9600DPI LIST PRICE: \$3495.00 TRANSPARANCY UNIT: INCLUDED.



#### PRODUCTION NOTES

Picture scanned at 150%, 400 dpi

from a 4" x 5" transparency using the

default settings. Final line screen was set

in Adobe Photoshop and exported as a

CMYK eps file. No color correction was

made. Film was output from a Quark file

at 133 line screen.

### OOPS!

SCANNER BY RELISYS.

Les, you can get wonderful color reproduction quality from a desktop scanner. Yes, you can walk into your next meeting with full, rich repros that live up to your designs.

Introducing a full range family of desktop scanners designed for the designers! They're self calibrating, ready when you are, work long hours and produce incredibly accurate scanning for either the Macintosh or IBM PC platforms.

For more information call



**1-800-944-8855** FAX: 312-549-6447



Circle 262 on reader service card

Macintosh is a registered trademark of Apple Computer, Inc.
IBM is a registered trademark of International Business Machines Corporation.
Quark is a registered trademark of Quark, Inc.
Adobe Photoshop is a trademark of Adobe
Systems Incorporated.



### Duo Trouble

Is it too late for Apple's lightweights?

PPROXIMATELY ONE YEAR after the October 1992 introduction of Apple's Duo notebooks, I ventured to a New York hotel suite for an advance look at the new models. It had not been a great year for the Duos. Apple had presented these as the Certs of computerdom: two computers in one. In theory, a Duo provided half of the ultimate solution to the conundrum facing self-styled road warriors who yearn for portability on the road and workstation power in the office. When the ultracompact notebook met its other half-the docking stationthe union of Duo and mothership would result in a fire-breathing modular-style Macintosh.

That was the theory. In practice, Duos weren't selling as well as Apple had hoped. The Duo line's product manager, Peter Fletcher, was claiming a somewhat limited satisfaction at their performance—"after a slow start-off, things are much better," were his actual words. But elsewhere in this issue Cary Lu's feature, "New PowerBook Duos," reports an estimate that only about 100,000 had been sold through June. Considering that Apple has hopes for Duo sales to run neck and neck with traditional Power-Books—which sell in the millions—that figure is abysmal.

Will the new models turn things around? I'm guessing not. The problem is not so much the Duos but the docking—a concept whose time never really arrived.

#### Birth of the Duos

Trouble came as soon as Apple unveiled the first two Duos. Their primary virtue was subtraction: by shedding certain parts, such as floppy drives and connection ports, Duos weighed in at a mere 4.2 pounds instead of the PowerBook's 7. This was good—very good. What's more, these newcomers were heavy-duty computational beasts. They may have been light, but they were certainly not lite. On the more powerful model, the Duo 230, the microprocessor runs at a blistering 33MHz. (The 210 clocks in at 25.)

Then there were the docks, which by virtue of a simple connection would make a Duo into a regulation Macintosh. The smaller ones—let's call them baby docks—fit onto the back of the laptop. The bigger ones—Duo Docks by Apple's description, papa docks by mine—actually swallow up the whole thing like some desktop leviathan. Once docked, your little laptop suddenly transforms itself into the heart of a full-blown Macintosh cockpit that could support color monitors, printers, floppy disk drives, full-size mice, and even Nu-Bus cards.

Apple's expectation was that people would snap them up: Duos on the road, docks at home or in the office. The pundits of technoland lined up to blow the alarm—few Apple products have garnered such rave reviews as did the Duos last fall. The Duos' nifty dimensions had gotten

right, problems multiply logarithmically.

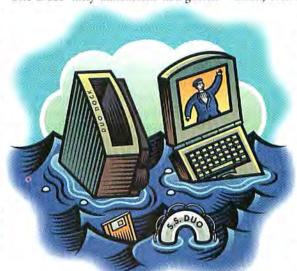
So imagine the problem when Apple began selling Duos but was not able to immediately offer the other half of the equation—the docks. It was like salt without pepper, the Captain without Tennille. Further compounding the problem was the fact that Apple's Express Modem, for one year the only internal modem that fit into the nonstandard viscera of the Duo, was also a no-show. And when it did arrive, it was plagued by demonic glitches.

Even now the folks at Apple have no good explanation for this bungle. "There was no one thing that slowed us up," says Fletcher. "We failed to make some pieces available that were important to the concept." As a result, the first Duo customers were not docker types, but those who simply loved the idea of a 4-pound Power-Book, even if it had no floppy disk drive.

They already had Macs. To get files into and out of the machine, Duo owners used their laptops as remote SCSI hard disk drives to desktop machines—or they used a different adapter to hook up the optional external floppy drive.

In the confusing demolition derby of Apple's product introductions, price cuts, and discontinuations, the whole docking concept got lost. Only recently have the components become available—not only Apple's baby and papa docks, but a host of third-party products described by Lu in his article.

Yet I suspect it is too late. Apple may have pulled off the concept with more panache than Compaq and other hopefuls, but there is something essentially flawed about the idea itself. The public indifference to Duos thus far suggests that the whole idea is headed into the dustbin of technology.



the company off on the right foot.

But that foot promptly stepped on a banana peel. While the Duos were impressive, the docks were missing in action—an especially embarrassing situation since Apple had made a big deal about how, unlike some docking schemes attempted in the DOS world, the Duos were going to prove that the two-in-one concept could work. It's a touchy business, selling a new paradigm like docking. Even if everything goes right, you have a big job ahead of you. But if things don't go

#### Small Is (Almost) Everything

I do want to emphasize that in some ways the Duos are very cool machines. I am continues



### ESSENTIAL UTILITIES FOR YOUR MACINTOSH!

The sky is the limit with new software from MSA that makes your Macintosh® computer look, feel, and work the way you've always wished it did. Breeze through directory dialogs. Tame tangled INITs. Modify menus to your heart's content. And that's just the beginning.

**GO WILD!** Annotate your work with digital sticky notes. Place brilliant Notes anywhere. On the desktop, or perhaps hotlinked to a folder. Have them auto-play sounds and QuickTime<sup>®</sup> movies. Do anything you want. It's your Mac. Go wild.



**BE PRODUCTIVE!** Complete repetitive tasks with a keystroke. Click buttons, use menus, open documents, launch applications, and copy files. All without ever leaving

your keyboard. It's that easy.

**SAVE TIME!** Copy files in the background, switch printers without ever looking at the Chooser, link your favorite sounds to just about anything, automatically backup your valuable documents, and save your precious time, energy and money.

**SAVE MONEY!** There's still more, but you get the point. Everything you want. In one intuitive, inexpensive software package — with no fluff. It's called ALLright. It's from MSA. And it's available now.

Call 800.366.4622 and we'll show you how to soar.





Dealer Inquiries Welcome
Also available through these quality software resellers:
Dr. Mac 800.825.6227 • Mac's Place 800.367.4222
MacWarehouse 800.285.6227

(b. 1993 Management Science Associates, Inc.
Management Science Associates, Inc., CSG Technologies Division,
530 Wilkins Penn Pixes, Soin GSP, Pittsburgh, PA. 15219-1620

600.366 A822 • 412-417-1710 • Fax - 412-417-1773

Applatnix MSA - America Online: MSA

Allright is a raddmark of Management Science Associates, Inc.

4 All Rights Reserved Workhold: Macratish and Culcultims are registered tracemarks
of Apple Companyer; Inc. Now Unitides is a raddmark of Now Software, Inc.

impressed with the way Apple has managed to squeeze near-Quadra power into such a little container. After lugging a standard PowerBook for a couple of years, I certainly appreciate the fact that a Duo fits snugly in a briefcase and doesn't stretch your pecs. But that's the end of the positives. In case you blinked, let me repeat: a Duo is smaller than a PowerBook and lighter than a PowerBook. But in every other respect, a standard PowerBook—anything from the 160 on up—is far superior. Because Apple figured that people would supplement Duos with docks, they left off all sorts of goodies.

The biggest hole, of course, is the missing built-in floppy drive. Maybe it's me—I do know people who love Duos—but I am constantly ill at ease when using a computer without an easy way to get information in and out. Carrying around a separate external floppy disk drive and adapter certainly isn't a solution—if you're going to lug all that junk around, why not just use a standard PowerBook? And constantly venturing over to my desktop Mac—or to my papa dock, if I had one—seems a perpetual annoyance.

Even though Apple's various solutions for getting software in and out of Duos seem to work, they are all a pain in the neck. Just because it's easy to hook up a cable or two doesn't mean that the process isn't annoying. What makes it worse are various mandatory shutdown features when docking. They are there for a good reason—to keep everything in the fidgety SCSI chain working properly—but who wants to restart just to load a program?

On the road, the situation can get dire. What if an application becomes corrupted and you need to reload it? What if someone slips you a disk with his or her new book on it—or one of those Voyager electronic books—and you want to read it? What if you call up a new application and you get a message reading, "Insert master disk for verification"? If one of these events crops up on an airplane, you have no choice but to slam down the lid of the Duo and watch the movie.

Then there are the less onerous compromises. The slightly smaller screen one can get used to, but the Duo keyboard is, to my dancing fingers at least, just a tad too tiny for adequate touch-typing. At least it comes close, though. On the other hand, the shrunken Duo trackball—no bigger than a malted-milk ball—is inadequate for the task. Every cursor move is an adventure.

The docking option was supposed to redress the compromises, of course. But the economics don't make sense. Those docks are expensive—even a baby dock, which basically bequeaths the Duo with

the ports and connectors of a PowerBook 160, lists for \$579. (Prying one of those things off a Duo is like solving one of those wooden Japanese puzzles.) And if you use a baby dock, you're still stuck with the smaller keyboard and the thumb-twiddling trackball. Of course, if you use a papa dock, your Duo can be attached to a full-size keyboard and a regulation mouse. But that monster starts at \$1079—not much less than the street price of a lowend Centris!

If you lust after a Duo, buy one—but if you work at a desktop at all, forget about buying a dock—get a standard-issue Mac instead. That way, you have two independent units—invaluable if you ever share your machine with a friend or colleague, and surprisingly useful even if you're a one-person operation.

#### **Dry-Docked**

I suspect that even Apple is beginning to realize the futility of pushing the dock concept. When I attended the road show of the new Duos, the 250 and the 270c, they were sitting on a tabletop-without a docking unit in sight. In fact, the key improvement in the machines themselves, the active matrix screen technology (which, I do admit, is quite beautiful), is in a sense antithetical to the docking ethos. If people want to split the machine function between travel and docking, wouldn't they want to perform their serious display work on a large-screen monitor? The answer is that people aren't docking and don't care about docking. That is why Apple believes that customers will pay for expensive and gorgeous active matrix screens-because Duo 250s and 270c's are very rarely going to find themselves swallowed up by papa docks, and that makes other screens irrelevant. Further evidence that Apple is fudging on the docking concept comes from its intention to sell the Duo 230 in a lowcost bundle (around \$1500) with a floppy disk drive.

Which brings me to the obvious conclusion: instead of coming up with elaborate schemes to mitigate the incomplete nature of the Duo, Apple should devise a new generation of PowerBooks that gives us *all* the features we need in a smaller, lighter package.

When Apple figures out how to get the PowerBook down to fighting weight, the Duo will go the way of the dinosaur. I bet we won't hear many requiems for that trackball.

See you later, dock! m

STEVEN LEVY's new book, Insanely Great: The Life and Times of Macintosh, the Computer That Changed Everything, will be published by Viking in January.

## The More Windows You i, The Cooler It Gets.



Macworld Online



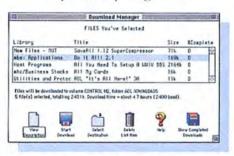
Microsoft® Small Business Center



Searchable News



Expert Computing Advice



Fast, Easy Downloading



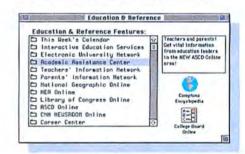
Stock Quotes & Portfolio Management



Internet E-Mail Gateway



More Than 30,000 Software Files



Encyclopedia & Homework Help



Free Trial Offer. See Other Side For Details.

#### Yes! I'd Like To Try America Online — Free.

Send me the free software and trial membership.\* I understand there's no risk if I'm not completely satisfied, I may cancel without further obligation.



\*Free trial limited to one per household.

Use of America Online requires a major credit card or checking account America Online is a registered service mark of America Online, Inc. Other names are service marks or trademarks of their respective holders

8156/Mac

# menca

There's only one way to get the big picture about America Online. Try it. That's why we make it so easy. We send you the software and let you try it, absolutely free. You'll be impressed by everything you can do with your computer, a modem, and America Online, and how easily you can do it.

Microsoft\*

#### Just Point And Click.

Get advice from hardware and software developers, experts and reviewers - even ask them questions directly. Download any of thousands of programs from our software libraries and use them offline. Monitor your investments and the latest news. Manage your business better with the help of our

Microsoft® Small Business Center. Save time and money in hundreds of different ways, from browsing for gifts in our online shopping area or booking your own airline tickets to using our great computing support forums.

#### Read Macworld Online.

America Online offers Macworld Online, where ye can send opinions and questions directly to Macworld editors, and receive answers. Download software

they recommend. Read equipment reviews. Che out past Macworld issues Or use America Online as gateway to the Internet, linking you to members of other e-mail and online systems for no additional

cost. And new services are being added to America Online all the time. When you connect to America Online, you connect to t electronic community of the future - today.



Computing Forums:

District In The Forum Check for Retive R

#### As Easy To Try As It Is To Use.

If you've never tried America Online, now's the tim If you have in the past, try us again – there's a world of

new services available. We're sure you' love America Online, but don't take ou word for it. Try it yourself - absolutely free. We'll send you free software, a free trial membership and free connect time so you can learn just how much you ca accomplish when you open our windows. All you have to do is call 1-800-827-6364 ext. 8156 or mail the postage-paid coupon.



#### BUSINESS REPLY MAIL FIRST CLASS PERMIT NO 8567 VIENNA, VA

POSTAGE WILL BE PAID BY ADDRESSEE

8619 Westwood Center Drive Vienna, VA 22182-9806





1-800-827-6364, Ext. 8156

Indiduddon III obrobill do babillon II ordii



### Tips for Buying by Mail

Compare policies, take notes, and always use a credit card

HE READERS OF MACWORLD often shop by mail, and most of them are happy with their purchases. But Richard Abanes of Irvine, California, is an exception. On August 4 of this year he mailed a check for \$4149 to Data Link Resources of Austin. Texas, for a new PowerBook 180 with 14MB of RAM, a 160MB hard drive, and a Global Village modem. According to Abanes, he decided to patronize Data Link in part because of the prices and in part because of the answers he got to his questions. Abanes said he asked company owner Sanjiv Misra if Data Link was an authorized Apple dealer and also asked if the PowerBook's serial number would be changed. According to Abanes, Misra said Data Link was an authorized dealer and promised the PowerBook would have an Apple serial number. Misra denied to Macworld that he made those statements.

After the check cleared and the products arrived, Abanes might have been happy, except the PowerBook's original serial number was replaced with another number and the machine seemed to be faulty. The Data Link invoice states there is a 30-day full-replacement policy, an offer that Misra promised to fulfill but later reneged upon, according to Abanes. Misra told Macworld that his company had tried to accommodate Abanes's ever-changing demands and said, "If he needs it fixed, we'll fix it. If it needs to be replaced, we'll replace it." Misra said the Apple reseller from which he bought Abanes's Power-Book changes serial numbers "to protect everyone." Apple and Apple dealers typically don't honor warranty service on reserialized computers, however.

Abanes would have been in a better position to negotiate a solution with Data Link if he had used a credit card instead of a check in purchasing his PowerBook. A credit card is the single most effective tool consumers have to protect themselves. Had Abanes used a credit card, he could have disputed the payment for his PowerBook while he worked to resolve the situation.

Because some companies refuse to accept credit cards, and others, like Data Link, add a surcharge for credit card use, many people simply send a personal check, money order, or cashier's check to save money when making large purchases. As a result, nearly every year I get calls from anguished readers who have paid thousands of dollars for Macintosh equipment that they never received-because the checks went to a company going out of business. Two years ago CDA Computer Sales closed its doors. Last vear MacSource went belly-up, and this year MacBest went out of business. In such situations, credit card holders aren't charged for purchases they never receive, but customers who write checks that have been cashed never see their money again.



People who write checks "have to realize it's like being in Las Vegas and rolling the dice," said a Macintosh mail-order veteran who asked not to be identified. "Under Chapter 7, small creditors don't get their money back." Many Mac mailorder companies are solidly established and provide excellent service and support. But some aren't-and it can be difficult to tell the difference between a thriving company and a marginal one. The size or quality of a company's advertisements is no guarantee of great service, support, or

finances, for example. So the number one consumer tip when buying by mail is always use a credit card.

#### **Mail-Order Hints**

Abanes started making calls about Data Link after he became dissatisfied with his purchase. The State Attorney General's Office in Austin, Texas, and the local Better Business Bureau there both reported that Data Link had failed to respond to complaints filed about the company. The number of complaints was small; three and two, respectively. A call to Apple (800/538-9696, ext. 525) showed that Data Link Resources was not an authorized dealer.

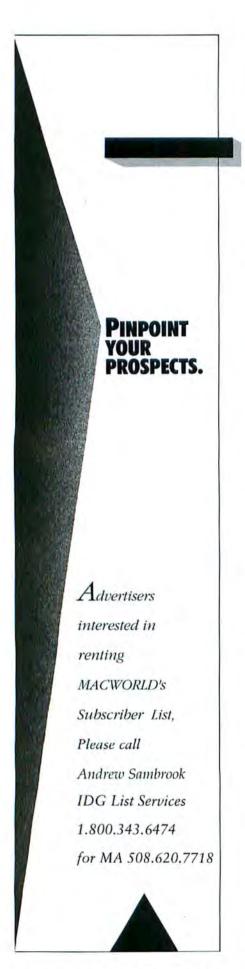
(In fact, while Apple sells its computers by mail, no other company has yet been authorized by Apple to sell Macs by

mail. And most mail-order companies are more than willing to explain that to their customers. Instead, mail-order firms buy Macs from authorized Apple dealers and then resell them, a perfectly legal and profitable enterprise. Apple dealers don't always provide warranty service on mail-order Macs, however, and that's why it's important to buy from a mailorder company that can provide good customer service.)

Abanes got his information after the fact, but you don't have to wait. Investigate a company's repu-

tation before buying by checking with local user groups, online services, and friends. The State Attorney General's Office and Better Business Bureau can sometimes be useful as well. But don't stop there. Try the tips below when buying from an unfamiliar company.

· Go elsewhere if a company will not accept credit cards. (Some people swear by C.O.D., but one reader reported that he once paid for the delivery of some bricks-instead of a CPU-via C.O.D.)



 Don't do business with a company that will charge your credit card before it ships your purchase. If a company claims it won't charge before shipping but does, cancel the order and contact your bank to dispute the entire amount. Don't forget to include any finance charges based on the order.

 Compare policies and ask several questions before you buy—when was the company founded, for instance. Age doesn't guarantee wisdom, but most mailorder companies that fail are fairly young.

Can the company track back orders? The number one mail-order complaint from readers involves delayed deliveries. Some companies track back orders and share that information with their customers.

Can you return a product without penalty? Many companies charge up to 20 percent of the purchase price as a restocking fee. A full money-back guarantee is the best policy for consumers.

What are the shipping charges? A \$3 charge for shipping overnight is common for some companies; others add an insurance fee and charge by weight. A few companies will pay return shipping on a defective purchase, but most won't.

Is a Social Security number required for credit card purchases? Several companies now ask for that information in an effort to crack down on credit card fraud. Some companies believe that's the best way to fight crime, but I'm not as convinced. If you're not comfortable sharing such information, move on.

What happens if you receive defective merchandise? Some companies refer customers to manufacturers rather than replacing or fixing the product themselves.

Do a test run. Ask technical questions before you place an order. Poor response? Better to know before you buy. If you're getting ready to place a large order from a company you've never used before, first make a small trial purchase to see how it goes. Save large orders for companies you know.

• Keep track of who said what, when. "Customers have a responsibility to keep track of the transactions they have," said reader Don H. Hockenbury of Tulsa. Hockenbury won a product rebate he was entitled to in part by documenting 22 calls made to a company. "It really doesn't take that much time to keep track of who you spoke to and what happened," he said. "And it's worth the extra buck to get a receipt showing that you mailed something back."

 Fight back tenaciously. Most Macintosh companies will work with you to resolve problems. If you do run into trouble, be polite but persistent in communicating the problem, the requested solution, and a reasonable time frame for resolution. (For more consumer advice, see *Conspicuous Consumer*, May 1991.)

A Tale of Two Perspectives

When I spoke to Sanjiv Misra, he told me his company made very little on the sale to Richard Abanes and didn't charge a shipping or configuration fee. Moreover, Misra denied he'd ever been told Abanes was having problems with his computer. Misra told me he'd done his best to help Abanes, and Misra denied that he had said Data Link was an authorized Apple dealer. "We are a mail-order company," said Misra. "We are not an authorized outlet. The reason [customers] get better deals from us is because we're a mail-order company."

In late August a Macworld staffer posing as a potential customer called Data Link Resources. A man who identified himself as Sanjiv returned the staffer's call. When she asked him if Data Link Resources was an authorized Apple dealer, he responded, "No, we're not an authorized Apple dealer, because we're a mail-order company." But when the staffer asked where Data Link got its computers, the man said, "We get them directly from Apple—we're an authorized retail outlet."

By late September, Richard Abanes was a satisfied PowerBook owner because Apple made an exception to its nowarranty rule on computers without original serial numbers. Apple located an authorized dealer willing to service his computer. Technicians at the Online Connecting Point store in Irvine diagnosed the faulty modem and quickly ordered a new one. Looking back, Abanes said the money he saved on his Power-Book doesn't justify the headache and hassle he encountered. His advice? Again, check up on companies before placing an order, and "always use a credit card, don't ever send a check."

To help ensure a good mail-order experience, follow the tips above. And carefully select the business you patronize. Recently *Macworld* surveyed more than 100 readers to find out which mail-order companies they recommend. Tune in next month for those results and more information on buying by mail. **m** 

Research assistance by JOANNA PEARLSTEIN and

GIDEON YAFFE.

Send nominees for sainthood to Service Heroes, Macworld, 501 Second St., San Francisco, CA 94107, or via AppleLink (Macworld1) or America Online (Branscum). Conversely, drop Conspicuous Consumer a line if a company is ignoring you.

### Mathematica

### OTHER SYSTEMS CAN GET YOU ONLY SO FAR ...



Engineers and scientists who start

with other technical software programs soon reach a point they can't get past. The project isn't finished, but the software is. What can they do then but buy and learn yet another program for the next leg of the project, or return to pencil and paper to finish it out.

Fortunately, many engineers and scientists start with Mathematica. And they just keep going.

Mathematica helps them past the standard calcula-

tions, and on to the more complex. Thousands of algorithms are at their fingertips to help them solve all kinds of technical problems. And nearly a hundred special-purpose packages are included free with Mathematica to take you even further. Add to that a revolutionary user interface, graphical

Only Mathematica notebooks enable users to create interactive documents combining text, live formulas, and graphics that can be modified within the document at any time and easily organized into a hierarchical outline.

abilities beyond comparison, and a symbolic programming language that makes it unprecedentedly easy to translate ideas into programs-and your possibilities are endless.

The award-winning guide that comes with the program gets you started

quickly and easily. For even more support, you can always turn to one of the over 30 Mathematica-related books, tutorials, and journals, or call on one of our user support

> staff for personal assistance. So you see, Mathematica is the complete system that never leaves you stranded.

To get the latest information call:

### 1-800-441-MATH



### Wolfram Research

Wolfram Research, Inc.

+1-217-398-0700; fax: +1-217-398-0747; email: info@wri.com

For European inquiries:

Wolfram Research Europe Ltd. +44-(0)993-883400, fax: +44-(0)993-883800

email: info-euro@vvri.com

Representatives in over 30 countries; contact main offices.

# Philips Brilliance 15" Monitors Display Multimedia Applications With Clarity And Built-In Audio.

Built-in Amplifier And Loudspeakers. Detail-Rich, True Color Image.

Only a world leader in performance and quality can offer you a professional 15" monitor with so many features for the money.

Philips Brilliance™ gives you a built-in stereo amplifier, stereo speakers, headphone jack and adjustable volume control so you can easily add sound to multimedia projects.

Image quality is excellent with resolution up to 1024 x 768. Our exclusive

FastRefresh™ redraws your screen image up to 72 Hz in 1024 x 768\* for a stable, flicker-free picture.

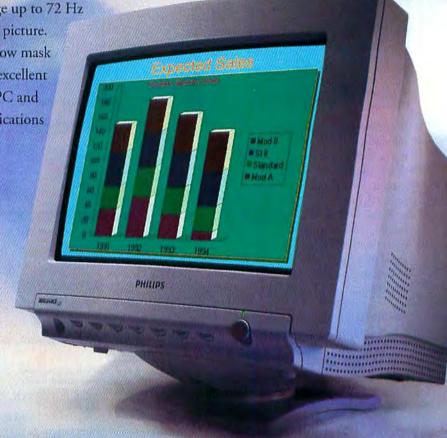
A flat square CRT with invar shadow mask and a 0,28mm dot pitch, provides for excellent image quality needed for professional PC and Macintosh<sup>®</sup> users. Low emission specifications

comply with MPR-2 standards.

For more information, please call toll-free 1-800-835-3506. In Canada, call 1-800-387-0564.

### BRILLIANCE HIGH RESOLUTION MONITORS

© 1993 Philips Comumer Electronics Company.
A Division of North American Philips Corporation.
Macintosh is a registered trademark of Apple Computer, Inc.
Actual refresh rates may vary by video controller
and/or software.



Another First From Philips



PHILIPS

Circle 19 on reader service card



# Editors' Choice

### THE BEST PRODUCTS FEATURED IN MACWORLD

### Edited by Susan Grant-Marsh

Macworld Editors' Choice is a complete listing of the hardware and software products selected as the best of their type in Macworld's comparative articles through the past year. A ❖ next to a product indicates that we chose more than one product in that category.

### **Hardware**

### MONITORS

### **BLACK-AND-WHITE MONITORS, May 93**

Portrait monitor: 15-Inch Gray Scale Portrait Display; Mirror Technologies, 612/633-4450; \$399, with video-display board \$549.

Two-page monitor: ❖ L-View MultiMode; Sigma Designs, 510/770-0100; \$1099, with video-display board \$1398. ❖ MD 202 Two Page Display; Mobius Technologies, 510/654-0556; \$699, with video-display board \$798.

### COLOR MONITORS, Oct 93

### GRAY-SCALE MONITORS, May 93

Portrait monitor: Pivot Display; Radius, 408/434-1010; \$849, with video-display board \$1148.

Two-page monitor: MultiMode 120, SilverView Pro; Sigma Designs, 510/770-0100; \$1099, with video-display board \$1299.

### NETWORK HARDWARE

### HARDWARE ROUTERS, Jul 93

Under \$1500: EtherRoute; Compatible Systems, 303/ 444-9532; base model \$1495 (no TCP/IP support).

**Between \$1500 and \$3500:** InterRoute/5; Farallon Computing, 510/814-5000; \$3299 to \$3499.

### HIGH-SPEED FAX MODEMS, Oct 93

Teleport Gold and Silver with Global Fax; Global Village Communication, 415/390-8200; Gold \$499, Silver \$429.

### POWERBOOK TOOLS

### DUO DOCKING CONNECTORS, Feb 93

PowerLink DeskNet; E-Machines, 503/646-6699; \$699.

### EXTERNAL HARD DRIVES, Feb 93

❖ Companion 120; APS Technologies, 800/874-1428;

\$599. PocketDrive 120MB; La Cie, 503/520-9000; \$699.

### INTERNAL FAX MODEMS, Feb 93

 PowerModem series; PSI, 408/559-8544; \$195 to \$495.
 PowerPort series; Global Village Communication, 415/390-8200; \$229 to \$499.

### SCSI MONOCHROME MONITORS, Feb 93

Power Portrait; Sigma Designs, 510/770-0100; \$749.

### PRINTERS

### **COLOR PRINTERS, May 93**

**Dye-sublimation:** ❖ ColorStream/DS; Mitsubishi International, 408/980-1100; \$9950. ❖ Phaser IISD Color Printer; Tektronix, 503/682-7377; \$9995.

Thermal-wax: ❖ ColorScript 210; QMS, 205/633-4300; \$4995. ❖ Personal ColorPoint PSE; Seiko Instruments, 408/ 922-5800; \$2999.

Low-end liquid-ink: HP DeskWriter 550C; Hewlett-Packard, 800/752-0900; \$1099.

Midrange liquid-ink: HP Paintlet XL300; Hewlett-Packard, 800/752-0900; \$3495.

Solid-ink: Phaser III PXi Color Printer; Tektronix, 503/ 685-3585; \$9995.

### PERSONAL PRINTERS, SEP 93

Ink-jet: StyleWriter II; Apple Computer, 408/996-1010; \$359.

PostScript laser: TI microLaser Series; Texas Instruments, 512/250-6679: \$1199 to \$1599.

QuickDraw laser: LaserWriter Select 300; Apple Computer, 408/996-1010; \$839.

### **WORKGROUP PRINTERS, Jan 93**

Basic printing: microLaser XL Turbo; Texas Instruments, 512/250-6679; \$3649.

High-speed office printing: Pagemarq 20; Compaq Computer Corp., 713/370-0670; \$5699.

Duplex printing: LaserJet IIISi; Hewlett-Packard, 800/752-0900; \$6995.

### SCANNERS

### LOW-COST COLOR SCANNERS, Nov 93

\$1300-\$1600: La Cie Silverscanner II; La Cie, 503/ 520-9000; \$1599. Hewlett-Packard ScanJet IIc; Hewlett-Packard, 800/752-0900; \$1599.

Under \$1300: Mirror 800 Plus Color Scanner; Mirror Technologies, 612/633-4550; \$1299.

### OCR, Nov 93

OmniPage Professional; Caere Corporation, 408/395-7000; \$995.

### SYSTEMS/STORAGE

### CD-ROM DRIVES, Oct 92

High-performance: InterSect CDR-74; NEC Technologies, 708/860-9500; \$712.

**Budget choice:** Mirror CD-ROM Drive; Mirror Technologies, 612/633-4450; \$599.

### DOUBLE-SPEED CD-ROM DRIVES, Jul 93

Sheer speed: Pioneer DRM-604X; Pioneer, 408/988-1702: \$1795.

Overall value: AppleCD 300; Apple Computer, 408/996-1010; \$599.

Budget choice: NEC MultiSpin 38; NEC Technologies, 708/860-9500; \$465.

### HIGH-SPEED HARD DRIVES, Aug 93

1GB drives: ◆ Edge 1000r; Saturae, 617/661-8166; \$1499. ◆ MiniPak 1000; Optima Technology, 714/476-0515; \$1995.

2.7GB drives: ♦ Nova XL 2700; Microtech International, 203/468-6223; \$6289. ♦ Vista 3.5GB; Relax Technology, 510/471-6112; \$3499.

SCSI-2 adapter: QuickSCSI; PLI, 800/288-8754; \$499.

### MIDRANGE HARD DRIVES, Mar 93

Low-capacity drive: La Cie Cirrus 240; La Cie, 503/ 520-9000; \$769.

Notable technology: DiamondDrive 510; Mass Microsystems, 408/522-1200; \$2089.

Bargain: APS Fujitsu 520; APS Technologies, 800/874-1428: \$1149.

All-around quality: hammer 525FMF; FWB, 415/474-8055; \$2799.

### MACINTOSH UPGRADES, Jun 93

Classic accelerator (40MHz): TransWarp Classic; Applied Engineering, 214/241-6060; \$798 (with FPU).

SE accelerator (50MHz): Gemini Integra; Total Systems, 503/345-7395; \$1089 (with FPU).

SE accelerator (25MHz): Quik30; Novy Systems, 904/ 427-2358; \$449 (without FPU).

SE/30 accelerator (50MHz or 33MHz): Universal PowerCache; DayStar Digital, 404/967-2077; 50MHz \$999 (with FPU), 33MHz \$449 (without FPU).

LC and LC II upgrades: Macintosh LC III Logic Board Upgrade; Apple Computer, 408/996-1010; \$599.

Mac II accelerators: ♦ Radius Rocket 25i, Radius Rocket 33; Radius, 408/434-1010; 25i \$1199, 33 \$2499. ♦ Universal PowerCache series; DayStar Digital, 404/967-2077; \$449 to \$999.

IIfx SCSI accelerator: QuickSCSI; PLI, 800/288-8754; \$499.

continues

### MACWORLD Editors' Choice

Quadra static-RAM cache card: FastCache Quadra; DayStar Digital, 404/967-2077; \$299 for Quadra 700 and 900, \$449 for Quadra 800 and 950.

### OPTICAL DRIVES, Dec 93

3½-inch: ◆ Epson OMD 5010; ClubMac, 800/258-2622; \$959. ◆ 128 MO; APS Technologies, 800/874-1428; \$899. 5¼-inch: ◆ Sharp JY-750; ClubMac, 800/258-2622; \$1829. ◆ Infinity MaxOptical 11m; PLI, 800/288-8754; \$4113.

### TAPE DRIVES, Dec 92

**Personal Backup (up to 150MB):** APS Teac 155; APS Technologies, 800/874-1428; \$499.

Midrange backup (150MB to 600MB): ♦ hammer-Tape 525; FWB, 415/474-8055; \$1469. ♦ Vista 600 Tape; Relax Technology, 510/471-6112; \$779.

High-capacity backup (1GB and beyond): APS Compression DAT; APS Technologies, 800/874-1428; \$1699

### VIDEO/DISPLAY

### 24-BIT COLOR GRAPHICS BOARD, Feb 93

Spectrum/24 PDQ Plus; SuperMacTechnology, 408/541-6100; \$1999.
 Thunder/24; SuperMac Technology, 408/541-6100; \$2999.

### COLOR LCD PROJECTION, Jan 93

Display panel: MediaPro; nView Corp., 804/873-1354; \$7995.

Low-end panel: TFT Rainbow HD Model 700; Chisolm, 408/559-1111; \$5295.

Complete LCD projector: System 6000; In Focus Systems, 503/692-4968; \$8495.

### **VIDEO-CAPTURE BOARD, Jan 93**

VideoSpigot; SuperMac Technology, 408/541-6100; 5449 to \$1399, depending on bundling options.

### Software

### ACCOUNTING/FINANCE

### **GROWING A SMALL BUSINESS, Nov 93**

Small-Business System: M.Y.O.B.; Teleware, 201/586-2200; \$199.

Home Office/Personal Finance: MacMoney; Survivor Software, 310/410-9527; \$119.95.

### NETWORK/MULTIUSER ACCOUNTING, Nov 92

 Flexware II; Flexware, 916/581-6999; \$695 to \$895 per module.
 Great Plains Accounting; Great Plains Software, 701/281-0550; \$795 per module.

### PERSONAL FINANCE, Jun 93

CheckWriter 4.0; Aatrix Software, 701/746-6801; \$79.
 Andrew Tobias' Managing Your Money 5.0; MECA Software, 203/256-5000; \$79.95.

SINGLE-USER ACCOUNTING (WITH PAYROLL), Nov 92 Checkmark MultiLedger and Payroll; CheckMark Software, 303/484-3541; \$395

### SINGLE-USER ACCOUNTING (WITHOUT PAYROLL), Nov 92

M.Y.O.B.; Teleware, 201/586-2200; \$199.

### BUSINESS TOOLS

### STATISTICS, Oct 93

Exploratory data analysis: DataDesk 4.1; Data Description, 607/257-1000; \$595.

Comprehensive package: SYSTAT 5.2.1; SYSTAT, 708/ 864-5670: \$895.

### COMMUNICATIONS/NETWORKS

HIGH-SPEED FAX MODEM SOFTWARE, Oct 93 Faxstf; Telefocus, 816/886-9800; \$79.

### **NETWARE CONNECTIVITY, Sep 93**

NetWare for Macintosh; Novell, 801/429-7000; \$495 for 5-user license to \$2295 for 200-user license.

### **NETWORK MANAGEMENT. Feb 93**

Network SuperVisor; CSG Technologies, 412/471-7170;

### **NETWORK DIAGNOSTICS, Feb 93**

Ethernet: EtherPeek; AG Group, 510/937-7900; \$795. LocalTalk: LocalPeek; AG Group, 510/937-7900; \$495.

### SOFTWARE ROUTER, Jul 93

Apple Internet Router 3.0; Apple Computer, 408/996-1010; Basic Connectivity Package \$499.

### **TERMINAL EMULATOR, Oct 93**

VersaTerm; Synergy Software, 215/779-0522; S149.

### GRAPHICS

### 2-D CAD, Jan 93

Low-end: BluePrint; Graphsoft, 410/461-9488; \$295. Midrange: PowerDraw; Engineered Software, 919/299-4843; \$795.

### 3-D DESIGN, Aug 93

Price for performance: ❖ Ray Dream Designer 2.0.4; Ray Dream, 415/960-0765; \$299. ❖ Alias Sketch 1.5; Alias Research, 416/362-9181; \$995.

All-in-one solution: ♦ Infini-D 2.5; Specular International, 413/549-7600; \$995. ♦ StrataVision 3D 2.6.1; Strata, 801/628-5218; \$995.

### DRAWING PROGRAMS (LOW-COST), Sep 93

Budget draw: Expert Draw; Expert Software, 305/567-9990; \$49.95.

Budget draw/paint: UltraPaint; Deneba Software, 305/ 596-5644; \$79.

Vendors: Please write to Macworld Editors' Choice, 501 Second St., San Francisco, CA 94107, or send a fax to 415/442-0766 to inform us of changes in your phone number or your product's list price. Beginners' program: Aldus SuperPaint; Aldus Corp., 619/558-6000; \$149.95.

Overall: Canvas; Deneba Software, 305/596-5644; \$399.

### IMAGE DATABASES, Oct 93

Aldus Fetch 1.0; Aldus Corp., 206/628-5739; \$295.
 Multi-Ad Search 2.0; Multi-Ad Services, 309/692-1530;

### PAINT AND IMAGE-EDITING, Sep 93

Budget buy: Expert Color Paint; Expert Software, 305/ 567-9990; \$49.95.

Overall program: Fractal Design Painter; Fractal Design Corp., 408/688-8800; \$399.

Image-editing program: Adobe Photoshop 2.5.1; Adobe Systems, 415/961-4400; \$895.

### ORGANIZATION/PRODUCTIVITY

### CALENDARS, Jul 93

Alarm system: First Things First; Visionary Software, 503/246-6200; \$79.95. Smart Alarms Plus; JAM Software, 203/630-0055; \$75.

All-around scheduler: Now Up-to-Date; Now Software, 503/274-2800; \$99.

Meeting scheduler: Meeting Maker; On Technology, 617/374-1400; five-pack \$495.

### INSTITUTIONAL MEMORY, Dec 93

Small system: On Location; On Technology, 617/374-1400; \$129.

Multiuser system: Personal Librarian; Personal Library Software, 301/990-1155; \$995.

### PERSONAL INFORMATION MANAGEMENT, Feb 93

TouchBase/DaleBook; After Hours Software, 818/780-2220; \$169.95.

### SALES-AUTOMATION SOFTWARE, Oct 93

Contact Ease; WestWare, 619/660-0356; one user \$395, five users \$1495. CBS; Colleague Business Software, 512/345-9964; \$495.

### PRESENTATION TOOLS

### MULTIMEDIA AUTHORING, Mar 93

Entry-level: Action; Macromedia, 415/252-2000; \$495. Passport Producer; Passport Designs, 415/726-0280; \$495.

### UTILITIES

### PRINTING, Sep 93

PC-printer cable packages: PowerPrint; GDT Softworks, 604/291-9121; \$149.

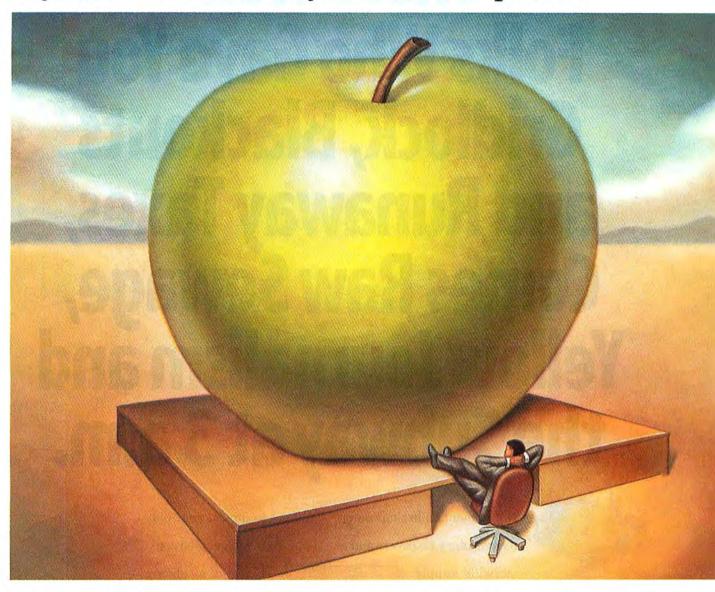
### SECURITY, Feb 93

File encryption and erasure: Citadel with Shredder; Datawatch Corp., 919/549-0711; \$99.95.

Full-featured security: ultraSecure; usrEZ Software, 714/756-5140; \$239.

Low-cost security: PassProof; Kensington Microware, 415/572-2700; \$64.95.

### Hewlett-Packard® suggests you look beyond the obvious for your next Mac printer.



Don't miss out on one of the best things going. Made-for-Mac HP LaserJet printers. The new LaserJet 4MP completes a family of LaserJets built specifically for your Macintosh.

Choose from 300- or 600-dpi print quality, and prices ranging from \$1,279 to \$2,399. Setup is easy. And with built-in PostScript™ Level 2 software from Adobe, you'll be ready to roll with the latest features in Mac printing. LocalTalk means built-in Mac compatibility.

And a RISC processor means fast printing from start to finish.

These printers have standard memory that ranges from 4 to 6 megabytes. That's plenty for your graphics. For documents with zip and zing, you'll have 35 built-in PostScript Type 1 typefaces. And, thanks to HP's automatic language and I/O switching, LaserJets work simultaneously with Macs and PCs. In fact, HP leads the industry in crossplatform compatibility.

When you choose HP Laser.Jet, you'll have a printer with a legendary reputation. For quality. And reliability. For more information call 1-800-LASER.JET, Ext. 7685.

If it isn't a LaserJet, it's only a laser printer.





## From Those Wonderful Folks Who Gave You Gridlock, Blackouts and Runaway Taxes, **Comes Raw Sewag Yellow Journalism and** the Subway at 3 a.m.



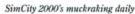
The new desalinization plant

Not to mention broken water

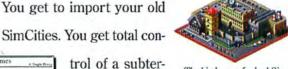
mains, angry taxpayers and a

citywide supply

of true-to-life challenges that will take you uptown, downtown, even underground. Now entering



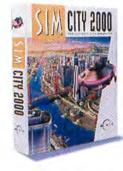
SimCity 2000 the ultimate city simulator. In it, you get to terraform your landscape. SimCities. You get total con-



The big house, for bad Sims

ranean web of water pipes and subway tunnels. And you get it all in gripping, eye-imploding 3-D. So

pack up and move to SimCity 2000. Everything that started the SimCity® revolution. In a vivid new evolution.



The Ultimate City Simulator.

Available for IBM PC & compatibles and Macintosh. © 1993 Sim-Business. All rights reserved. SimCity 2000 is a trademark of Sim-Business. Maxis and SimCity are registered trademarks of Sim-Business. For product or ordering information, contact your local retailer or call 1-800-33-MAXIS.

# Star Ratings

### OVER 350 HARDWARE AND SOFTWARE REVIEWS AT A GLANCE

### Edited by Wendy Sharp

Macworld Star Ratings lets you compare hardware and software products for the Macintosh by providing summaries of hundreds of Macworld's authoritative product reviews. The number of stars at the beginning of each capsule review indicates quality; our reviewers assign five stars to outstanding products and one star to poor ones.

If a product has been upgraded since our last review, the most recent version number supplied by the vendor appears in parentheses after the reviewed version number. To read a full review of any product in the listing, please consult the issue listed at the end of each synopsis.

Vendors: Please write to Macworld Star Ratings, 501 Second St., San Francisco, CA 94107, to inform us of changes in the version number or list price of your product, or of changes to your phone number.

\*\*\*\*
Best Worst

### Software

### **BUSINESS TOOLS**

\*\*\* 4D Server 1.0.1, ACI US, 408/252-4444, \$1495 to \$3495. Database server uses the ingenious multitasking technology built into 4D to make it appear that each client has the full resources of the server. If you use 4D on a network, you need this product. Jun 93

\*\*\* 4th Dimension 3.0.1, ACI US, 408/ 252-4444, \$895. Multitasking, which greatly improves speed, makes this upgraded relational database delightful for both developers and end users. For a relational database, it's impressively easy to use. Apr 93

★★ AccuZip6 1.5.2, Software Publishers, 714/ 846-1908, \$899. Professional-level mail-list management tool on CD-ROM is the most comprehensive system available, but its inexcusable user-interface violations make our reviewer reluctant to recommend it. May 93

\*\* Acrobat Exchange, Acrobat Distiller, Adobe Systems, 415/961-4400, \$195 to \$2495. Complete, well-planned paperless office system creates application-independent viewable files that can be readily distributed on a network. Still, it's not yet as inexpensive or as convenient as you might wish. Oct 93

★★★ @Risk 1.1, Palisade Corp., 607/277-8000, \$395. Statistical simulator for Microsoft Excel financial computations generates complex, statistically valid templates within Excel and is the first choice for analysts who work with probabilistic models every day. It assumes that the user is an Excel power user. Aug 93

\*\*\*
ClarisWorks 2.0, Claris Corp., 408/
727-8227, 5299. Integrated program sets the standard. It provides more features, is easier to use and faster, and has better integration among modules than other available programs. Aug 93

\*\*\*
Common Ground 1.0, No Hands Software, 415/321-7340, \$189.95. Simple, robust document interchange system is the clear choice for modest document-distribution jobs. In tests, it worked easily with documents from many different applications. Oct 93

★★ EasyFlow 1.1, HavenTree Software, 613/ 544-6035, \$229. The rough edges and distinctly un-Mac-like attributes of this flowcharting software reflect its DOS heritage, but on the whole it's easy to use. \$ep 93

\*\*\* FileMaker Pro 2.0, Claris Corp., 408/ 727-8227, \$399. Easier scripting, improved mailing labels and text-handling, and support for QuickTime and Apple events are the major new features of this upgraded, multiuser, flat-file database. Although it has some minor bugs, this is a strong upgrade to an excellent program, Jan 93

\*\* FlowChart Express 1.0 (1.01), Kaetron Software Corp., 713/890-3434, \$149. Inexpensive, easy-to-use flowchart software meets the needs of most flowchart creators, although those with extensive requirements will need a larger, more powerful feature set. Jan 93 \*\*\* Helix Express 1.0, Helix Technologies, 708/205-1669, \$439. This relational database has an iconic programming language that sometimes baffles programmers, but provides an easy route into basic data-handling for nonprogrammers. Helix Express is still the ultimate in multiuser simplicity for relational databases. Jul 93 \*\*\* Helix Tracker 1.0, Helix Technologies, 708/465-0242, \$439. Well-designed workgroup-document manager has strong audit and annotation features; imposes just the right amount of administrative discipline. For large documents, however, Ethernet will look mighty attractive. Nov 93

★★★ ithink 2.2.1, High Performance Systems, 603/643-9636, \$695. Although it requires a real training commitment for effective use, this product is an attractive dynamic business modeling system. It's a good bet for identifying cloudy spots in the crystal ball. May 93

★★ Lotus Notes 3.0, Lotus Development Corp., 617/577-8500, \$495 per client. Well-organized, robust, and flexible business data system demands a full-time administrator, preferably with considerable programming experience, for effective use. Sep 93

★★★ MacBarcoda 2.24, ComputaLabel, 508/ 462-0993, \$349 to \$895. Simple-to-use desk accessory creates bar codes in EPS or Adobe Illustrator 1.1 format. DA cannot automatically create serial codes. Jun 93

\*\*\* MacProject Pro, Claris Corp., 408/727-8227, \$599. If you're working on a midsize project and like using PERT charts, this may be the project-management software for you. However, the multistep scheduling process and the limited integration between charts are frustrating if you prefer Gantt charts. May 93

\*\*\* MarcoPolo 2.0, Mainstay, 805/484-9400, \$395. Inexpensive, easy-to-use product allows you or your workgroup to archive and retrieve documents, whether in electronic or paper form. Queries are easy to construct and searches are handled quickly. Sep 93

\*\*\* Market Master Manager 3.5, Breakthrough Productions, 916/265-0911, \$595. Sales-automation software is designed to keep track of contacts, generate mailings, and make sure that leads don't fall through the cracks. It includes a remote module, but it has some odd user-interface features. Oct 93

★★ Memorizer 2.0, Brains Software Engineering, 432-231-28973 (Austria), \$100. Software records dictation, and you transcribe the dictation in a word processor. You may prefer to stick with a hand-held tape recorder, considering the product's RAM and storage appetite, and its propensity to crash. Aug 93

\*\*\* Micro Planner Manager 1.1, Micro Planning International, 303/757-2216, \$695. When you require cross-project resource sharing and leveling, for a reasonable price, this project-management software has the edge. It has a generally intuitive interface, though there's a steep learning curve for its advanced features. Nov 93

\*\*\* Microsoft Excel 4.0, Microsoft Corp., 206/882-8080, \$495. Create impressive spreadsheets with this upgrade that includes all the features you wished for and more. It's slower, and needs 2MB of RAM for practical use, but almost all users will want to upgrade. Oct 92 \*\*\* Microsoft Project 3.0, Microsoft, 206/882-8080, \$695. An amazing range of functions, including new scheduling and formatting, are packed into this project-management software. The improved tool bar helps novices schedule tasks with push-button ease. Jan 93

\*\*\* Microsoft Works 3.0, Microsoft, 206/ 882-8088, \$249. Capable upgrade delivers marginally improved functionality and a welcome face-lift to this integrated program, but there are a number of incompatibilities, odd design choices, and performance flaws. Feb 93

★★★ nuBase Pro 1.5 (1.7), Tactic Software Corp., 407/832-1400, \$395. Although still slower than FoxBase and without the rich feature-set of 4th Dimension, this is the only relational database that makes it possible for users with no programming experience to design a useful database. Sep 92

★★★ Omnis 7 1.1, Blyth Software, 415/312-7100, \$1250. The plain, businesslike functionality of this database-development system produces solid applications without much fuss. Dec 92

★★★ OrgChart Express 1.0, Kaetron Software, 713/890-3434, \$279. Organization-chart continues

software links a database to standard box-drawing functions. Although the learning curve is steep, the effort may be worth it for people who regularly work with large or complex organization charts. Apr 93

★★★ Panorama 2.0 (2.1), ProVue Development Corp., 714/892-8199, \$395. Disarmingly easy-to-learn flat-file database is full of labor-saving data entry features, plus it boasts a remarkable macro function that lets you record and play back almost any series of database routines. May 92

\*\*\* Project Scheduler 5, Scitor Corp., 415/570-7700, \$695. For most midrange project-planning, this program's many hits outweigh its few misses. It goes beyond the requisite scheduling options, with inflation factors and unlimited projects in memory, and it conforms to accepted standards, so you get consistent, predictable results. Aug 93

\*\*\* SpreadBase 1.0.1, Objective Software, 415/306-7410, \$695. Business data-analysis tool is a unique combination of database and spreadsheet functions. It's worth a close look for power users, despite meager documentation and a cranky macro language. May 93

★★★ Wingz 1.1ae, Informix Software, 913/ 599-7100, \$399. If you want a low-overhead spreadsheet with advanced-math functionality, this is an attractive product. What you get is a competent calculating engine with superior charts; what you miss is outlining, real 3-D spreadsheet linking, and the host of third-party add-ons offered for Microsoft Excel. Jul 93

★★★ WordPerfect Works 1.2, WordPerfect Corp., 801/225-5000, 5249. This program offers seven well-integrated and flexible modules. It has a few shortcomings, including some memory-management problems, but buyers should generally be pleased. Jun 93

### COMMUNICATIONS/NETWORKS

★★★ CompuServe Information Manager
2.0.1, CompuServe, 614/457-8600, \$49.95. The
goal of this product is to give friendlier information-access
to CompuServe for Macintosh users. An appealing color interface and increased speed are signs of success, but there's
still goom for improvement. Dec 92

\*\*\* MicroPhone Pro, Software Ventures
Corp., 510/644-3232, \$295. Truly comprehensive
telecommunications package now includes send-and-receive
fax software. Although the new TCP/IP tools are complicated, the documentation is clear and precise. Apr 93

★★ NetVirtual 2.0, Eclectec, 408/462-2040, \$995 to \$4985. One-of-a-kind network-simulation product favors flexibility at the expense of usability. Only after hours of work will your simulation report anything meaningful about your network, and even then the results are difficult to analyze. Apr 93

★★★ Network Vital Signs 1.0 (1.1), Dayna Communications, 801/531-0600, \$449. Faultmonitoring application continually watches selected network devices, monitoring for specific errors. Unfortunately, when monitoring more than ten devices, it noticeably degrades the performance of the monitoring Mac. Mar 93

★★★ On the Air 1.0.1, Digital Eclipse Software, 510/547-6101, \$79.99 to \$639.99. Intercom system transmits System 7 SND resources, SoundEdit, and AIFF sound files across a network. It's well designed and performs decently, but its usefulness seems limited. Aug 93 ★★ SoftPC with Windows, Insignia Solutions, 415/694-7600, \$499. The emulation of a complete and accurate Windows environment on a Mac is an amazing accomplishment, but the product is so slow, even on a Quadra, that it performs in what might best be characterized as a dreamlike languor. Jun 93

★★★ TechWorks Net Utilities 1.0, Technology Works, 512/794-8533, \$129. Collection of five applications provides essential network-monitoring tools at a price that would please anyone. Dec 92

★★★ Timbuktu 5.0.1, Farallon Computing, 510/814-5000, \$199 to \$5500. By letting one computer (a Mac or a Windows-based PC) control, observe, or exchange data with another computer, this terminal-emulation product allows you to use resources almost anywhere on a network. Mar 93

### DESKTOP PUBLISHING

\*\*\* Aldus Fetch 1.0, Aldus Corp., 206/ 622-5500, \$295. The rich feature set and network support of this image-cataloging software make it a clear winner. Although cataloging is slow, users have fine control of the depth and compression of thumbnails. Aug 93

\*\*\* Aldus PageMaker 5.0, Aldus Corp., 206/622-5500, \$895. Desktop publishing software has added the features, both great and small, that it's been lacking, while still retaining the ease-of-use advantages that it's always had. This is a superb upgrade. Nov 93

\*\* Aldus Personal Press 2.0, Aldus Corp., 206/628-2320, \$199. Basic, inexpensive page-layout program gains strength, but is still missing elements that novice users need, such as automatic kerning. Its software-knows-best approach to copyfitting makes manual fine-tuning difficult and is likely to confuse beginners. Mar 93

\*\* Apple Font Pack, Apple Computer, 408/996-1010, 599. Apple's first collection of TrueType fonts includes only 12 fonts that haven't been available since the late eighties in the PostScript format. Still, it's not a bad deal, considering that Adobe PostScript fonts cost four times as much. Mar 93

★★★ Cumulus 1.1, Canto Software, 415/431-6871, \$295. Good network support, plus a feature that creates a protocol file for recording user actions, make this image-cataloging program a good choice for workgroups. It doesn't have an image preview feature, or offer 32-bit thumbnails. Aug 93

★★★ Expanded Book Toolkit 1.0.1, The Voyager Company, 310/451-1383, \$295. Using this hypermedia publishing program, average mortals can create highly functional multimedia books in a fraction of the time it would take to do the job unassisted. Be aware, though, that it's no QuarkXPress. Jun 93

\*\*\* FontMonger 1.5.7 (1.5.9), Ares Software Corp., 415/578-9090, \$149.95. Font-conversion utility provides cross-platform, cross-font conversion and makes it easy to create composite, subscript, superscript, and rotated characters. Sep 93

★★ ImageAccess 1.0, Nikon, 516/547-4355, 5495. This expensive image-cataloging program has an unusual interface and cannot be used over a network. A plug-in module provides direct support for Nikon's LS-3510AF film scanner. Aug 93

\*\*\* Kodak ColorSense 1.0, Eastman Kodak, 716/253-0740, \$499. Color-management system gives

average users access to a reasonable level of color consistency at a reasonable price. It does not make color separations. Oct 93

\*\* Kudo Image Browser 1.0, Imspace Sys-

tems Corp., 619/272-2600, \$295. This image-cataloging software cannot control thumbnail depth or compression, and doesn't have a keyword feature or allow multiple users to access the catalog simultaneously. The unique Riffle feature lets you quickly scan images. Aug 93 \*\* Lazy Dog Foundry Personal Font, Lazy Dog Foundry, 612/291-0306, \$199.99 to \$499.99. Type 1 font made from your handwriting has clean, even lines—whether or not your writing does. Apr 93 \*\* Personal Font, Signature Software, 503/386-3221, \$179.95. Turn your handwriting into a PostScript Level 3 or a TrueType font. The results are good, although not perfect. Dec 92

★★★ Publish It Easy 3.0, Timeworks, 708/ 559-1300, \$199.95. Desktop-publishing program offers writing, editing, formatting, page-layout, drawing, and painting tools with well-thought-out interface innovations, plus an excellent database manager. Unfortunately, the program is unstable and crash-prone. Mar 93

\*\*\*

QuarkXPress 3.2, Quark, 303/894-8888, 5895. This upgrade adds the EfiColor XTension to ensure the greatest possible fidelity of color images and is a must-have for professional color publishers who use Quark. For others, the enhancements are welcome but minor enough that they provide little incentive to upgrade. Nov 93

\*\*\* Renaissance 1.0, Eastman Kodak, 800/
433-2839, \$695. A strange mixture of power and oversight, this page-design and -layout software provides several
slick features, but blatantly ignores Mac conventions. Dec 92

\*\*\*

\*\* Spectacular 1.2, FontHaus, 203/8463087, \$59. Keep track of fonts efficiently and effectively
with this type-specimen generator. Printing specimen sheets
is a cinch. Jan 93

\*\*\*
SuperATM, Adobe Systems, 415/9614400, \$149. This upgrade to Adobe Type Manager lets
you view Adobe-brand PostScript fonts on screen and output them at high resolutions, even when the corresponding
printer fonts are unavailable. Although it has limitations,
this is an outstanding advance in font technology and a
tremendous value. May 93

### EDUCATION

\*\*\* Algebra, Broderbund Software, 415/ 382-4400, \$89.95 to \$99.95. Interactive, imaginative math tutorial is keyed to the standard textbook order of topics, but offers much more. It is particularly strong on word problems and graphing. May 93

★★★ The Castle of Dr. Brain 1.0, Sierra On-Line, 209/683-4468, \$49.95. Use logic and raw brain-power to navigate rooms, mazes, and hallways. Puzzles range from mundane to creatively laborious. Dec 92

★★ Comprehensive Review in Biology, Queue, 203/335-0908, \$295. There isn't a textbook publisher in North America with the nerve to publish a black-and-white biology book with nothing more than text and basic line drawings, much less charge several hundred dollars for it, but that, in effect, is what this CD-ROM is. May 93

\*\*\* Compton's Multimedia Encyclopedia 1.00M, Compton's New Media, 619/929-2626, continues





All trademarks belong to their respective companies. 7101 Supra Drive S.W. Albany, OR 97321 USA • 503-967-2410 • Fax: 503-967-2401

\$795. The down-to-earth writing style and numerous bells and whistles of this multimedia encyclopedia on CD-ROM appeal to younger readers, but the high cost and sluggish performance may be prohibitive. Apr 93

\*\*\*
Decimal & Fraction Maze 1.2, Great
Wave Software, 408/438-1990, \$69.95 to
\$89.95. Education software weaves the threads of eight
math curricula—from third grade to eighth, along with two
levels of adult education—into an interesting and visually
stimulating game. Jul 93

Dvorak on Typing 1.0, MacPlay, 714/553-3530, \$49.95. Typing tutor offers solid lessons, but the small annoyances, such as never being able to take intermediate or advanced lessons without first passing a test, add up. Jun 93

★★★ Headline Harry and the Great Paper Race 1.0, Davidson & Associates, 310/793-0600, \$59.95. Travel through time and across the country as a journalist in this history/geography game. While not an educational masterpiece, it is lots of fun. Dec 92

★★★ MacGlobe 1.3.0, Brøderbund Software, 415/382-4400, \$44.95. Besides maps and bits of fun, such as national anthems, this geography software offers an impressive quantity of demographic and economic information. Its data export could use some work. Feb 93

\*\*\* Mavis Beacon Teaches Typing 2.0,
The Software Toolworks, 415/883-3000, \$49.95.
If being entertained while learning to type interests you,
this typing tutor provides varied environments, interesting
lessons, and good games. Jun 93

\*\*\* Millie's Math House, Edmark Corp., 206/556-8400, \$49.95. Math-education software provides ways for preschoolers to experiment with numbers and counting. It's engaging, but more advanced levels would keep children challenged longer. Jul 93

\*\*\* The New Grolier Multimedia Encyclopedia, Grolier Electronic Publishing, 203/ 797-3530, \$395. The scholarly text of this encyclopedia on CD-ROM is suitable for sophisticated readers, while its speed, ease of use, and value are impressive. Apr 93

★★ NihongoWare, Vol. 1, Qualitas Trading Company, 510/848-8080, \$349. Although this Japanese language CD-ROM offers solid instruction, it's so expensive and so limited in its word selection that it's not an economical choice for individual users. Jan 93

★★ The Secret Codes of C.Y.P.H.E.R. 1.0 (1.1), Tanager Software Productions, 510/430-0900, \$59.95. Intriguing facts about mammals and a variety of alphabets provide the interest in this educational game, but the inescapable, repetitive animations are a major detraction. Apr 93

\*\*\* The Secret Island of Dr. Quandary 1.0 (1.01), MECC, 612/569-1500, \$49.95 to \$69.95. Clever package of gorgeous landscapes, catchy sounds, and tempting arcade-game puzzles uses math, logic, and reading skills. Although slow, it's fun for parents and kids. Jun 93 \*\* Stickybear's Reading Room 2.2a, Optimum Resource, 803/785-7441, \$59.95. Educational game with four activities takes a sedate but direct path to building primary-level reading skills. Jun 93 \*\* Where in America's Past Is Carmen Sandiego? 1.0 (1.3), Broderbund Software, 415/382-4400, \$44.95. Travel in time and the U.S. chasing

### ENTERTAINMENT

★★★ A-Train, Maxis, 510/254-9700, \$69.95. Charming railroad simulation offers astonishing, and often witty detail, but the learning curve is high and the interface isn't completely Mac-like. Apr 93

★★ America Alive, MediaAlive/CD Technology, 408/752-8500, \$99. QuickTime movies, photographs, maps, text, and audio mingle in this multimedia CD-ROM guide to the U.S. It's a promising concept, but it doesn't yield much useful information. Mar 93

\*\*\*\*
Arthur's Teacher Trouble, Broderbund Software, 415/382-4400, \$59.95. Every
page of this delightful animated book is dense with surprises that arouse and satisfy a child's curiosity. In the words
of six-year-old Alex, "It's like chocolate ice cream. You can
have it more than once and it's still good." Apr 93

\*\*\* Battle Enhanced Chess CD ROM, Interplay Productions, 714/553-6678, \$79.95. Elaborately detailed cartoon characters act out little dramas of strategy and capture, complete with sound effects, in this chess game that will drive nine-year-olds mad with glee but may annoy experienced chess players. Mar 93

★★★ The Battle of Britain, Deadly Games, 215/295-2284, \$39.95. It's August 10, 1940. The badly outnumbered British must defend their country against the invading Luftwaffe, and you're in charge. Although the graphics and sound are not spectacular, this is an entertaining. thinking person's game. Dec 92

★★★ BlackJack Trainer, ConJelCo, 412/492-9210, 575. Learn the strategies you need to win at blackjack with this program. There are a number of trivial bugs, but they won't get in the way. Oct 93

★★★ Cogito 1.0, Inline Design, 203/435-4995, 559.95. Rubik's Cube fans will like this challenging game where the goal is to replicate a pattern by moving rows and columns of tiles. It gets more and more complex as you progress through the 120 levels. Apr 93

★★★ Daily Sports Quiz 1.0, DreamTime, 619/ 236-1341, 549.95. If you think you know a lot about sports and love to play trivia games, then this entertaining and informative game is for you. Each time you start up your Mac, three sports trivia questions from eight different categories appear on your screen. Oct 93

★★★ Go Master 5, Toyogo, 802/464-5526, 569. Go has been called the most interesting board game ever invented. This excellent software version incorporates helpful learning aids and sample games. Dec 92

\*\*\* Hellcats Over the Pacific 1.0.3, Graphic Simulations, 214/699-7400, \$69.95. Fly a WWII-era Navy fighter, the Grumman F6F Hellcat, against enemy planes in the South Pacific with this flight simulator that offers smooth graphics, good special effects, and great documentation. Apr 93

\*\*\* Indiana Jones and the Fate of Atlantis, LucasArts Games, 415/721-3300, \$59.95. In this game, the whip-wielding archaelogist goes looking for Atlantis and finds it armed to the gills with magical technology and Nazi stooges. If you're not bothered by the story's astonishing sexism, you'll find it diverting. Oct 93

\*\*\* Insanity 1.0, UV Wave, 318/868-9944, \$39.95. Shoot your Mac with this cool control panel device that offers a choice of nine weapons, ranging from an Uzi to a pigeon. It has first-rate sound effects and detailed animation, but the novelty wears off. Feb 93 ★★★ Jewelbox 1.5, Varcon Systems, 619/ 563-6700, \$49.95. This gem of a game is strongly reminiscent of Tetris. The Jewels fall into rows that disappear when you place three jewels of a kind together. Jun 93

\*\*\* The Journeyman Project, Presto Studios, 619/689-4895, \$99.95. Interactive science-fiction epic on CD-ROM is a work of art. The scenes are rich with painstakingly detailed graphics, elaborate models, and subtle textures, but the sluggish pace may leave you impatient and bored. Sep 93

\*\*\* Maelstrom 1.03, Ambrosia, P.O. Box 23140, Rochester, NY 14692-3140, \$15 plus \$5 shipping and handling. Fast-paced arcade game is loosely modeled after Asteroids, the Atari classic. Maelstrom features superb animation, hilarious sound effects, exciting action—and best of all, it's shareware. Jun 93

\*\*\* Monkey Island 2: LeChuck's Revenge, LucasArts Games, 415/721-3394, \$59.95. This whimsical Twilight Zone of life on the high seas is the adventure-game equivalent of Mad magazine, filled with witheringly sarcastic dialogue, splendid gross-out jokes, heapings of self-parody, and enough hilarious detail to keep you amused for days. May 93

★★★ Mozart: The "Dissonant" Quartet, The Voyager Company, 310/451-1383, \$59.95. This CD-ROM includes an unusual essay on stringed instruments, discussions of general musical concepts, an analytical overview of the quartet, and a taped minifecture on Mozart's life, but the music is limited almost entirely to the title piece. Apr 93

★★ The Orchestra: The Instruments Revealed, Time Warner Interactive Group, 818/955-9999, 579.98. The many-branched, interwoven, hypertext style of this music-education CD-ROM makes it hard to navigate and digest, despite its richness. For the price, other musiceducation CD-ROMs present better values. Apr 93

\*\*\* Poetry in Motion, The Voyager Company, 310/451-1383, \$29.95. Performance videos of contemporary poets are juxtaposed with the texts of their poems and taped interviews in this intriguing CD-ROM that combines the excitement of the stage with the reflective appeal of the page. Feb 93

\*\*\* Richard Strauss: Three Tone Poems,
The Voyager Company, 310/451-1383, \$59.95.
Don Juan, Till Eulenspiegel, and Death and Transfiguration
are included in this CD-ROM. The musical analysis is satisfying, and the lush orchestral music will appeal to both novice
and experienced classical music listeners. Apr 93

\*\* Rodney's Wonder Window, The Voyager Company, 310/461-1383, \$39.95. Collection of 23 colorful, wacky graphics and animations by Rodney Alan Greenblat is charming but uneven. While some modules are elaborate and sophisticated, others are simple and not particularly interesting. Mar 93

★★★ Schubert: "The Trout" Quintet, The Voyager Company, 310/451-1383, \$59.95. Alan Rich, classical music commentator for NPR, conveys his enthusiasm for this appealing music in this CD-ROM's lively text. However, the discussion is relatively unchallenging and the musical performance is not at the top of most reviewers' lists. Apr 93

\*\*\* Seven Days in August, Time Warner Interactive Group, 818/955-9999, \$79.99. Compelling, interactive documentary on CD-ROM cuts a slice continues

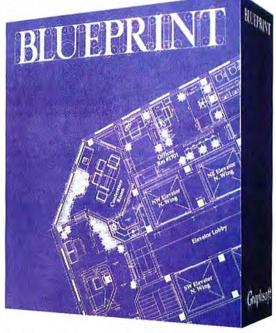
ography game that's challenging for all ages. Mar 93

those V.I.L.E. crooks in this clever educational history/ge-

### **Graphsoft Outruns Claris CAD**



Join the thousands who have already switched to Minicad + and Blueprint



### MiniCad+4 \$ 795.00 2D CAD: smart walls Smart Cursor for locating snaps editable fills advanced auto-dimensioning beziers editable line styles wall-join pan by scroll bars or hand \_ chamfers tolerancing color by object or layer DXF translator - free unlimited saved views unlimited layers ☐ hatching global symbol editing on-line prompts polylines - classes export EPSF unlimited drawing space free Claris CAD translator pick-up and put-down attributes selection by properties round wall caps auto-insert symbols in walls edit inside groups in hierarchical symbol library scale by layer add & subtract surfaces fractional feet and inches option 3D CAD: 3D reshape tool mechanical projections orthogonal or perspective views roof & slab tools 3D smart cursor work in wire-frame or solid walkthrough and flyover tool auto sectioning create 3D view from floorplan multiple view sweeps, extrusions & meshes Integrated Database/Spreadsheet: attach data to graphic objects create default records export reports to text, merge,dif, & sylk auto update reports familiar spreadsheet interface search or select by field value Programmability: Over 300 powerful routines no compilation needed generate drawings automatically read & write text files

### Claris CAD \$ 899.00 Blueprint 4 \$ 295.00 2D CAD: 2D CAD: smart walls smart walls Graphic Guide for locating snaps edit Smart Cursor for locating snaps editable fills advanced auto-dimensioning eziers advanced auto-dimensioning beziers editable line styles editable line styles Wan-join wall-join pan by scroll bars color by object only pan by scroll bars or hand mamfers chamfers color by object or layer Ttolerancing tolerancing DXF translator - extra unlimited saved views 9 saved views DXF translator - free unlimited layers ☐ hatching unlimited layers hatching on-line prompts global symbol editing polylines export EPSF 3D CAD: unlimited drawing space scale by layer file compatible with MiniCad+ classes round wall caps Integrated Da fractional feet & inches option ase/Spreadsheet: auto-insert symbols in walls edit inside groups in hierarchical symbol library add & subtract surfaces pick-up and put-down attributes

Graphsoft wins races by aggressive product improvement year after year. MiniCad+ was the first CAD program on the Macintosh. Since then, our R&D department has never stopped working on MiniCad+ and Blueprint. Graphsoft customers can rely on getting significant upgrades at a reasonable cost which support current technology, new operating systems, and evolving user needs. We've won awards worldwide, and are the top selling Macintosh CAD program in quality-conscious Japan. Our technical support is staffed by professionals who know drafting and design, not just computers. We stand behind our line of products with a 30-day money-back guarantee. Send for a video and trial diskette for MiniCad+ or a tutorial and trial diskette for Blueprint, \$19 each. MiniCad+ and Blueprint, the answers you've been looking for.



Australian-

1988 MacWorld 1989 MacWorld Award World Class Award



Eddy Award -US-



1992 MacWorld Award Blueprint



1992 MacUser Finalist



1992 & 93 MacWorld Best CAD Award -Switzerland-MiniCad+



perform engineering analysis

Also from Graphsoft Inc.

### Azimuth

The ultimate map creation tool including 9 cartographic projections. Used by U.S. News & World Report. \$395.00

automate repetitive tasks

Graphsoft

-US

MiniCad+

Also from Graphsoft Inc.

### ContoursPro

Make high-precision survey maps with accuracy and ease. Exports DXF to AutoCADTM or modeller of choice. "Recommended" says Cadalyst!



10270 Old Columbia Road, Suite 100, Columbia MD. 21046 Phone: 410-290-5114 Fax: 410-290-8050 O 1992 Diehl Graphsoft Inc. All rights reserved. MiniCad+, Blueprint, Azimuth, ContoursPro and Smart Cursor are trademarks of Diehl Graphsoft Inc. Claris CAD and Graphic Guide is a trademark of Claris Corp. All other brand and product names are trademarks of their respective holders

The Macintosh CAD People

from history and offers August 10 through August 16, 1961, (the building of the Berlin Wall) to viewers in a way that truly evokes the period. Oct 93

\*\*\* Sherlock Holmes, Consulting Detective, Volume II, Icom Simulations, 708/520-4440, \$69.95. Match wits with the legendary detective by solving three difficult mysteries in this CD-ROM game. May 93 \*\* SimLife, Maxis, 510/254-9700, \$69.95. A megalomaniac's dream come true, this amazingly intricate simulation lets players create and control ecosystems. It's not easy, but the reward is an increased understanding of the complex interrelationships of life. Feb 93

\*\*\*

So I've Heard, Volume 1: Bach and Before, The Voyager Company, 310/451-1383, \$24.95. Engaging text describes nearly two millennia of western music (up to the mid-eighteenth century) in this CD-ROM. It offers a unique opportunity to sample 50 or so performances, styles, and compositions. Feb 93

★★★ Space Quest 1: Roger Wilco in the Sarien Encounter, Sierra Online, 209/683-8989, \$19.95. As Roger Wilco, starship janitor, you must defeat the evil Sariens in this adventure game where your head is more important than your hands. For most players the game will be easy to complete. Apr 93

Super Mines 1.0, Callisto Corp., 508/655-0707, \$49.95. You use logic to search a minefield without setting off mines in this fast-paced game that's easy to learn, but offers 84 levels for long playability. Apr 93

\*\* V for Victory: Utah Beach, Three-Sixty
Pacific, 408/879-9144, ext. 23, \$69.95. The postD-Day conquest of Normandy is re-created in this game; its
strength is the way it blends easy play with complicated strategy. Some bugs exist. Oct 93

★★★ Warlords, Strategic Studies Group, 904/ 494-9373, \$49.95. A medieval fantasy world is the setting for this colorful game of strategy and conquest with beautiful graphics. Unfortunately, the computer opponents are not challenging enough for an experienced war-gamer, although human opponents may be. Dec 92

\*\*\* Who Killed Sam Rupert, Creative Multimedia Corp., 503/241-4351, \$39.99. You're a police detective trying to solve the murder of a popular restaurateur in this interactive CD-ROM that exploits the full range of multimedia options and provides a wealth of clues and surprises to hold your interest. May 93

### FINANCE/ACCOUNTING

\*\* Andrew Tobias' TaxCut for Macintosh, MECA Software, 203/256-5000, \$79.95. The occasionally awkward interface of this personal tax-preparation software doesn't follow every Mac standard, but the help system is very good. State versions are available for California and New York. May 93

\*\*\* BestBooks 1.0, Teleware, 201/586-2200, \$99. In a straightforward, unintimidating manner, this small-business accounting program integrates the standard bookkeeping functions of accounts receivable, accounts payable, and general ledger. Jul 93

★★ Business Sense 1.6, Software Developers Consortium, 801/288-2216, \$199. Competent, single-user, all-in-one bookkeeping package will adequately help you keep the books for a small company, but it's not as easy to use as its competition. Feb 93

\*\*\* MacInTax 1992, ChipSoft, 619/453-

8722, \$79.95. It's difficult to correct your errors when using this personal tax-preparation software, but it's easier than doing your taxes by hand. The display is attractive, and the program supports electronic filing. May 93

\*\*\*
Managing Your Money 5.0, MECA
Software, 203/256-5000, \$79.95. An already strong
financial-management program becomes easier to use and
slightly more powerful with this upgrade. Jan 93

★★★ Quicken 4, Intuit, 415/898-6095, \$69.95. Personal-finance software is powerful and easy to learn, even for a financial neophyte. Although slower than previous versions, 4.0 lives up to its promise of making financial chores easier, and better organized. Nov 93

★★★ WealthBuilder 2.0, Reality Technologies, 800/346-2024, \$79.99. Financial-planning software forces you to think about your money and helps you develop an investment plan. It's a good program for beginning investors, but more-sophisticated investors will want more-advanced features. May 93

### GRAPHICS

★★★ addDepth 1.0.2, Ray Dream, 415/960-0768, \$179. The purpose of this graphics program is to enhance the creation of 2-D images with 3-D effects. It's versatile, accommodating, and affordable, but working on complex images gets tedious because of the automatic application of styles. Aug 93

\*\*\* Adobe Dimensions, Adobe Systems, 415/961-4400, \$199. This three-dimensional-effects utility may seem very limited, with white-only light and no surface texturing, but it's a ground-breaking product. It performs its 3-D illusions within the object-oriented, resolution-independent world of PostScript. Apr 93

\*\*\*
Adobe Illustrator 5.0, Adobe Systems, 415/961-4400, \$595. The most dependable draw program on the Mac has added enough new features to boggle the mind. Although this upgrade still can't import TIFF images, it catches up with, and in some areas surpasses, the competition. Nov 93

\*\*\*
Adobe Photoshop 2.5, Adobe Systems, 415/961-4400, \$895. No graphics program is as universally loved as this one, but while this upgrade builds on the program's capabilities, it ignores some minor weaknesses that have begun to peek through the product's armor, It's still great but perhaps not perfect. Jun 93

\*\*\* Aldus FreeHand 3.1 (3.11), Aldus Corp., 206/628-2320, 5595. A pressure-sensitive freehand tool is the most remarkable new feature of this updated drawing program. Substitution for missing fonts is another good addition, but skimpy text-editing tools and incomplete support for EPS continue to diminish its value. Jun 92

\*\*\* Alias Sketch 1.5, Alias Research, 416/
362-9181, \$995. The enhanced modeling and revamped rendering capabilities of this 3-D illustration program contribute to a tremendous and reliable upgrade, a heartening example of a company listening to its users and delivering on its promises. Jul 93

\*\* ArtBeat Professional 1.0, Pie Practical Solutions, 201/902-9500, \$249. Despite a smattering of unique capabilities, this inexpensive draw/paint program lacks features of equivalent programs. Apr 93

\*\*\* artWorks 1.0, Deneba Software, 305/

596-5644, \$149. If you're expecting a graphics dynamo, this combination paint and draw program will leave you a

little cold. Despite its flaws, it ranks as one of the best graphics programs available under \$200. Jun 93

AutoCAD Release 11 (12), Autodesk, 415/ 332-2344, \$3500. Customizable, bare-bones drafting upgrade partially implements a graphical user interface. Few add-ons are currently available. Dec 92

\*\*\*

Blueprint 4.0, Graphsoft, 410/4619488, \$295. Entry-level 2-D drafting program is a
wonderful antidote to the complicated CAD system blues.
Don't be misled by the low price; this full-fledged drafting
package is powerful enough to serve professionals who
appreciate the value of simplicity. Jul 93

★★ BrushStrokes 1.0, Claris Clear Choice, 408/727-8227, \$139. If you have absolutely no experience with computer graphics, the simplified interface of this 24-bit paint program might warrant its price. Otherwise, you can find better programs for less. Oct 93

★★★ CA-Cricket Draw III 2.0, Computer Associates International, 516/342-5224, \$249. This draw program is not going to inspire experienced Mac artists to jump up and down, but its features are abundant, the interface is straightforward, and the price is right. Oct 93

★★★ Cachet 1.0 (1.2), Electronics for Imaging, 415/742-3400, \$595. The tools, interface, output, and documentation of this color-image editor are all quite impressive for a first version, but serious failings include slowness and disappointing sharpening. Dec 92

★★★ Color It 2.0.1, Timeworks, 708/559-1300, \$299.95. Overpriced color paint program has a full range of painting and image-retouching capabilities, including 15 levels of undo and an impressive magic-wand tool, but its naming conventions are bewildering. Apr 93 ★★ ColorUp 1.0, Pantone, 201/935-5500,

\$99.95. Professional graphic designers don't need the advice provided by this color tutorial and series of palettes. Although nonprofessionals might benefit from the information on color theory, it may not be worth the money. Nov 93

Mill, 303/220-1463, \$489 per volume. Although some neophytes may find these CD-ROM tutorials on Adobe Illustrator and Adobe Photoshop helpful, the programs' distracting interfaces, inconsistent execution, lack of polish, and high price weigh strongly against them. May 93

★★★ DeBabelizer 1.5, Equilibrium Technologies, 415/332-4343, \$299. Bitmapped-graphics-conversion software supports a huge number of file formats and can work wonders. If you spend any significant amount of time dealing with file conversion, you should have this program. Nov 93

★ Easy Color Paint 3.0, MECC, 612/569-1500, 559.95. For a program that purports simplicity, this color paint program is anything but. Possibly the weakest, least intuitive paint program for the Mac, it's unnecessarily complex and frustrating. Jul 93

\*\*\* ElectricImage Animation System
1.5.1, Electric Image, 818/577-1627, \$7495. The
most powerful animation program for the Mac improves its
documentation and rendering, and adds an intuitive project
window. Unfortunately, it still retails for the price of a European vacation for two. Feb 93

\*\* Expert Draw 1.0, Expert Software, 305/ 567-9990, \$49.95. Inexpensive draw program is not really for experts, but it offers a decent, no-frills set of basic drawing tools and commands for beginning illustrators, ofcontinues

### Put Our List On Your List

Our list can help you do the other things you have on your list. Such as buy a car. . . estimate social security. . . start the diet. . . check out investments. . .

Our list is the Consumer Information Catalog. It's free and lists more than 200 free and low-cost government booklets on employment, health, safety, nutrition, housing, Federal benefits, and lots of ways you can save money.

So to shorten your list, send for the free Consumer Information Catalog. It's the thing to do.
Just send us your name and address. Write:

Consumer Information Center Department LL Pueblo, Colorado 81009



A public service of this publication and the Consumer Information Center of the U.S. General Services Administration

fice use, or anyone who is on a budget. Aug 93

\*\*\* Folio 1 Media Kit-Print Pro, D'Pix, 614/299-7192, \$499.95. Each image in this texture collection on three CD-ROMs provides a dynamic range of colors, highlights, and shadows; is free of artifacts; and is crisply focused. The collection is well chosen, although the high-resolution images are hard to access. Aug 93

\*\*\* Fractal Design Painter 2.0, Fractal Design Corp., 408/688-8800, \$399. If you can put up with a few inconveniences and surprises, this color paint software provides the real meat-and-potatoes tools required by professional artists, and many of its functions—natural-media brush tools, the color-sensitive magic wand, 2-D lighting effects—are entirely without peer. Jul 93

★★★ Generic CADD 2.0, Autodesk, 206/487-2233, \$495. Competent, midlevel 2-D drafting program has a well-executed Mac interface, a good complement of tools, and a sprinkling of high-end features, such as floating-point precision. Aug 93

\*\* Image Assistant 1.0, Caere Corp., 408/ 395-7000, \$495. Besides unsatisfactorily addressing Adobe Photoshop's small list of liabilities, this image-editing software's problems include an unforgivable lack of antialiased text, no selective revert function, and an incorrectly implemented smudge tool. Apr 93

\*\*\* Infini-D 2.0 (2.5), Specular International, 413/549-7600, \$995. Rich combination of 3-D modeling, rendering, and animation tools works well, offers a nicely integrated approach to rendering, and is generally stable. Jan 93

\*\*\* Kai's Power Tools Volume 1 1.0, HSC
Software, 310/392-8441, \$149. Although at times
monstrously complicated, this collection of Photoshop plugins represents a virtually infinite supply of visual resources.
It's an amazing tool that no regular Photoshop user should
be without. May 93

\*\*\* MiniCAD+ 4, Graphsoft, 410/461-9488, \$795. Professionals will appreciate this competent CAD package's evolution into 3-D. It has maintained its features-champion status and is easier to use. Mar 93

★★★ Ofoto 2.0, Light Source Computer Images, 415/461-8000, \$395. Many new features—notably color support—have been added to the already impressive toolbox of this scanning software. It often produces good results, but it rarely produces the best scan possible for a given image and output method. Jul 93

\*\*\*

Paint It 1.0, Timeworks, 708/5591300, 559.95. Straightforward color paint program lacks image-editing tools but has a versatile cast of selection and painting tools—and it's priced to sell. Apr 93

\*\*\* PosterWorks 3.0, S. H. Pierce & Co., 617/338-2222, \$395. This large-format graphics production tool is for people who think big, up to 10,000 square feet big. It fills the need for user-defined, full-color, large-format output robustly and elegantly. Aug 93

★★★★ PowerDraw 4.0, Engineered Software, 919/299-4843, \$795. The best new feature of this polished 2-D drafting program is an open architecture that supports modules that let you customize the program with application-specific tools, floating palettes, and menu commands. Sep 93

\*\*\*
Ray Dream Designer 2.02 (2.06), Ray Dream, 415/960-0765, \$299. Experienced 3-D afficionados will find this 3-D-imaging software a welcome addition to their arsenal, and beginners may find it ideal for

the leap from 2-D to 3-D. Improved text-handling and viewing capabilities would make it even better. Sep 92

\*\*\* Sketcher, Fractal Design Corp., 408/ 688-8800, 5149. A variety of effects reproduce techniques of traditional drawing tools with this wonderful gray-scale paint and image processing program. Feb 93

★★ StrataType 3d 1.0 (2.0), Strata, 801/628-5218, 5199. The rulers, texture palette, custom bevels, and canned positioning schemes of this 3-D type-effects software are nice, but they can't compare with the animation skills, lighting capabilities, and superb rendering of other available programs. Mar 93

\*\*\* Transverter Pro 1.0, TechPool, 216/291-1922, \$395. Remarkable graphics-conversion software can read PostScript files and convert them to a variety of formats. As you might expect of a program attempting to fill such a tall order, its conversions are not always flawless, but it can be a lifesaver nonetheless. Nov 93

★★★ Tree, Onyx Computing, 617/876-3876, \$295. Single-purpose program generates lifelike color drawings of trees from a number of easily controlled parameters. Although visually appealing, it's an expensive way to draw a tree. May 93

★★★ Virtus WalkThrough 1.1.3, Virtus Corp., 919/467-9700, \$495. Interactive 3-D modeling tool provides instantaneous access to rendered 3-D scenes, allowing you to travel through models at will. While it has some problems (such as occasionally just quitting), it's an excellent value. Jul 93

★★★ Wraptures One, Wraptures Two, Form and Function, 619/536-9999, \$95 each. The images in these texture collections on CD-ROM are generally acceptable, although some are muddy and others are difficult to decipher at low resolutions. If you need images for repeating patterns, however, these repeat seamlessly and are a good value. Aug 93

### MATH/SCIENCE

\*\*\* Alchemy III, Tripos Associates, 314/647-1099, \$950. Molecular-modeling software can model decapeptides and DNA fragments, in addition to the expected small molecules, with refreshing alacrity on a Mac lici or better. Sep 93

\*\*\* Amazing Universe 2.1, Hopkins Technology, 612/931-9376, \$79.95. Space-image exploration package on CD-ROM offers an amazing variety of astronomical images with a very competent program (ProVision II) for modifying and inspecting those images. It assumes that users won't be fazed by such things as writing their own image-convolution matrices. Aug 93

★★★ Caduceus Physics 1.0, Scientia, 617/
776-3427, 5130. Giant HyperCard stack consists of carefully indexed cards covering small conceptual bites of physics; it's the first in a series designed to prepare students for the Medical College Admissions Test (MCAT). Jan 93

\*\*\*
CircuitMaker 3.0, MicroCode Engineering, 801/226-4470, \$200. Much of the tedium of diagramming circuits and constructing prototypes is relieved by this digital circuit simulator that provides a powerful set of basic tools for a very reasonable price. Aug 93

★★★ Data Desk 4.0 (4.1), Data Description, 607/257-1000, \$595. For finding patterns in data, this statistical-analysis program has no peer. Years of refinement have made it a uniquely valuable tool, despite

its lack of some tests found in larger programs. May 93

\*\* Expert Astronomer 1.0 (1.1), Expert
Software, 305/567-9990, \$49.95. Draw maps of the
sky from any location in the Solar System and learn about
celestial objects with this astronomy software. Dec 92

★★★ Expressionist 3.0 (3.01), Prescience Corp., 415/543-2252, \$199.95. If you work regularly on similar topics, you can customize this equation-writing software to produce equations with exactly the appearance you want, letting you work at amazing speed. Mar 93

★★★ f(z) 6, Lascaux Graphics, 602/299-0661, \$115. The main problem this math software attacks is fourdimensional visualization. It costs slightly more than a textbook, making it a great educational bargain. Sep 93

\*\* FASTAT 2.0, SYSTAT, 708/864-5670, \$495. Statistical business-analysis software makes sense as a day-to-day statistics tool for business or scientific users. It provides the right statistical tests for most requirements, and its graph types provide plenty of information, although they lack glamour. Jun 93

\*\*\* HiQ 2.0, Bimillennium Corp., 408/ 354-7511, \$995. The three great strengths of this numerical mathematics software are its fast and capable differential-equation-solving section, its excellent matrixmath capabilities, and its very natural notebook-format interface. Sep 93

★★★ InStat 2.01, GraphPad Software, 619/ 457-3909, \$95. For scientists with a limited background in statistics, the chatty clarity of this lab-oriented statistics software's help screens will be invaluable, while the limited number of variables and minimal graphics won't be much of a problem. Nov 93

\*\*\* Interactive Physics II 1.0 (1.01), Knowledge Revolution, 415/553-8153, \$399. Motion simulation software is an improvement over traditional classroom instruction in physics. This new version greatly expands the range of problems that can be solved, and adds support for QuickTime. Dec 92

★★★ LabTutor 2.0, J. K. Eaton, 415/723-1971, \$50. Tutorial on laboratory computer-interfacing provides a detailed, thorough exposition of computer interfacing in general, but it requires LabView and a National Instruments interface board for its exercises. Sep 93

\*\*\* MacBreadboard 1.1 (1.13), Yoeric

Software, 919/644-1620, \$59.95. Useful educational engineering software simulates with excruciating detail every aspect of a digital integrated-circuit breadboard trainer. It accurately replicates and even surpasses the behavior of a physical breadboard—without burning out IC chips. Dec 92 \*\*\* MacPhase 1.2, Otter Solutions, 315/768-3956, \$159. Low-cost, scientific-data-visualization software with a large assortment of mathematical tools is one of the few authentic bargains in science software. One of its principal strengths is a well-planned color lookup table editor that's delightfully easy to use. May 93

\*\*\* MathCAD 3.1, MathSoft, 617/577-1017, \$495. Numerical and symbolic computation software is easy to learn and use, and is much more powerful than earlier versions. It doesn't compete in scope with the largest math programs, but for most science and engineering tasks, it's a fast way to get problems solved. Jun 93
\*\*\* Mathematica 2.2, Wolfram Research, 217/398-0700, \$595. The one essential program in science and mathematics adds a function browser that makes continues

# There are over 75 great software products on this CD.



### And you can try them all, free.

### Immediate access to popular software.

Shopping for software has never been easier. With your Software Dispatch CD-ROM disc, you have demonstrations, trial versions, and information for a wide variety of products at your fingertips. So you can sample them anytime. Then, when you're ready to order, a simple phone call unlocks the complete program, including electronic manuals—right from the CD. And to get you started, we'll even give you a free program with your first order.

With Software Dispatch, there's no more waiting for delivery. More than 75 products are already on your free CD, and when you call to order, you'll receive the "keys" to access your selections—instantly.

### Try them when you want. Buy them when you're ready.

From powerful applications to handy utilities, innovative games, and more, the Software Dispatch CD brings an entire software store to your desk. And complete demos and information mean you can buy with confidence as you enjoy unmatched convenience. So send for your free Software Dispatch CD today. And see how easy software shopping can be.

Yes. Send me my	free	Macintosh	CD.
-----------------	------	-----------	-----

☐ I own a CD-ROM drive.

☐ I do not own a CD-ROM drive, but I plan to purchase one soon.

Name

Company Name (if applicable)

Address

Apt/Suite ≠

City

State

ZIP

Telephone ( )

Fax ( )

DISPATCH

Please allow 4-6 weeks for delivery.

Mail to: Software Dispatch PO Box 876 Brea, CA 92622-9903



the program as easy to use as it should be, as well as improvements to computational routines. Sep 93

\*\*\* MathType 3.0, Design Science, 310/433-0685, \$199. This equation-writing software makes automatic typographical decisions, which is helpful if you produce documents on a wide range of subjects. Its smooth integration with Microsoft Word is also convenient. Mar 93

\*\*\* Sequencher 2.0 (2.0.8), Gene Codes
Corp., 313/769-7249, \$2200. While not implementing everything a DNA researcher could want, this software for manipulating DNA-sequence information does provide the things a researcher really needs. The single best feature is its raw speed. Dec 92

\*\*\* Simulink 1.2, The MathWorks, 508/ 653-1415, 53995. If you hear the word Bode-plot several times a week at work, this math-simulation software is designed to make your life wonderful. Little glitches and a command-line orientation are drawbacks. Dec 92

\*\*\* Spyglass Dicer 2.0, Spyglass, 217/
355-6000, \$695. Scientific 3-D visualization tool displays a two-dimensional slice through a three-dimensional object (which is represented in the computer by a data table). While Dicer pushes the limits of the Mac hardware, for its function this product is really the only game in town. Jul 93

\*\* Spyglass Transform 3.0, Spyglass, 217/
355-6000, \$595. Scientific-visualization software can access data stored in every common format, offers some useful presentation-graphics features, and includes a programming language with a large range of built-in, high-level scientific functions. Sep 93

\*\*\* StatView 4.01, Abacus Concepts, 510/540-1949, \$595. If your work uses statistics for decision support rather than abstract analysis, and you regularly have to present your results to nonstatisticians, this is the statistics package for you. Oct 93

\*\*\* Sum Total 1.01, Concurrent Engineering Tools, 602/464-8208, \$99.95. Exceptional calculator utility is packed with advanced features, including a mode that lets you sample colors and use the numerical color values in calculations. The convenient palette approach causes a distinct time-lag in menu operations. Oct 93

\*\*\* Theorist 1.5, Prescience Corp., 415/ 543-2252, \$449.95. Symbolic-math program that you can figure out by yourself adds a useful table feature, more special functions of physics, and better graphics. It's still the only program to use real notation directly. May 93

\*\*\*\*

Voyager II, Carina Software, 510/
352-7328, \$159.95. If a brilliantly lit, star-filled sky holds more than a moment's fascination for you, you need to know about this astronomy program. In a firmament of mostly faint and forgettable astronomy software, it's a supernova, Jul 93

### ORGANIZATION/PRODUCTIVITY

\*\*\* Achieving Your Career 1.02, Up Software, 415/921-4691, \$69. HyperCard-based job-search software succeeds by compactly organizing. It provides a structure for identifying letters to write, phone calls to make, and interviews to follow up. Aug 93

★★ ACT 1.0 (1.01), Contact Software International, 214/919-9500, \$395. While this contact manager has several laudable features, such as customizable contact views and an integrated word processor, learning how to use it is a frustrating experience. Feb 93 \*\*\* CalendarMaker 4.0, CE Software, 515/224-1995, \$59.95. Polished, intuitive calendarmaking program is straightforward, with a variety of options for customizing your calendar. Some features can be cumbersome. Oct 93

★★ ClienTrac 1.7.1, Whiskey Hill Software, 415/851-8702, \$135. Easy-to-use, HyperCard-based contact-management software performs as billed, but fails to inspire much enthusiasm. Aug 93

★★★ Contact Ease 2.0.1, WestWare, 619/ 660-0356, \$395 to \$1495. Contact-management and sales-automation software helps salespeople keep in touch with contacts, makes it easy to generate letters, and maintains detailed records of activities. It has a few quirks but is overall a good program. Aug 93

★★★ DateBook 1.5.1 (1.5.li), After Hours Software, 818/780-2220, \$125. Personal time manager offers a flexible approach to event scheduling and to-do-list management. This upgrade adds new features and fixes bugs that plagued the first version. Feb 93

★★★ DayMaker 2.0 (2.03), Pastel Development Corp., 212/941-7500, S129.95. If you need to organize lots of disparate information, follow up on meetings with many people, create an archive of completed work, and print out lists of to-do items, this free-form personal information manager is a great choice. May 93

★★★ Dynodex 3.0, Portfolio Software, 408/
252-0420, \$89.95. The speed and printing options of this field-based address-book manager are its strengths, but this upgrade adds welcome improvements to the interface, including automatic formatting of phone numbers. Apr 93
★★ Hello, Atelier Systems, 619/453-4300,
\$99. Unusual combination of contact management and word processing in a compact package. This first release is hampered by several notable flaws, such as text documents that must be linked to a contact name. Jan 93

\*\*\* In Control 2.0, Attain Corp., 617/776-1110, \$129.95. The best features of an outlining program are combined with those of a database, making it easy to sort, search, organize, and print your to-do list. Aug 93

\*\*\* Inspiration 4.0, Inspiration Software, 503/245-9011, \$295. Watch your ideas evolve in a dynamic diagram mode and a text-based outline mode with this brainstorming tool. It works best as a vehicle for organizing and developing ideas. Feb 93

\*\*\* Intouch 2.0.4, Advanced Software, 408/ 733-0745, \$99.95. Free-form database is a fast and easy way to manage contact information. Although this version adds a handy reminder system, it falls short as a calendar planner. Feb 93

★★★ LapTrack For the Mac 1.0b, Timeslips Corp., 508/768-6100, \$79.95. Time- and expense-tracking program offers the right features for the on-the-go professional, but the interface is overcomplicated and the documentation is sloppy. Still, in spite of its flaws, it does an excellent job. May 93

★★★ Nolo's Personal RecordKeeper 3.0, Nolo Press, 510/549-1976, \$34.96. Hierarchically configured database organizes your personal affairs, including legal matters, financial records, insurance plans, family history, and more, but it is frustratingly inflexible. Jan 93

\*\*\*
Now Up-to-Date 2.0, Now Software, 503/274-2800, \$99 to \$799. Calendar utility combines flexibility, ease-of-use, and streamlined operations in an almost irresistible package. The Reminder control panel,

while a great new feature, has had minor conflicts. Jun 93

\*\*\* Office Manager 2.1 (2.5), White Crow
Software, 800/424-0310, \$99. Simple contact- and
project-management software is powerful for small databases, but reliance on HyperCard limits its usefulness for
low-end Mass. Dec 92

★★★ Power Team 1.0, ProVue Development Corp., 714/892-8199, \$149.95. Personal information manager consists of seven modules: Phone Book, Calendar, Correspondence, Checkbook, Calculator, Expense Report, and Mailing List. It has some bugs, but the data entry features are excellent. Oct 93

\*\*\* Spiral 1.0 (1.02), Technology Works, 512/794-8533, \$129. Designed specifically for taking and organizing notes, this product provides an excellent feature set, including bookmarks and an option for automatically expanding abbreviations, but it's marred by some errors in the editing and import/export processes. Mar 93

\*\* TimeVision 1.0, Powercore, 815/468-3737, \$99. New scheduler with notepad and card-file functions tacked on has some worthwhile features, but in general doesn't match up to the competition. May 93

### PRESENTATION TOOLS

\*\*\* Action 1.0 (1.02), Macromedia, 415/ 252-2000, \$495. Entry-level multimedia integration program offers, for its price, a rich selection of features, including a variety of transitions as well as gradlent and patterned backgrounds. It makes producing presentations with sound and motion surprisingly easy. Feb 93

\*\*\* Adobe Premiere 2.0 (2.0.1), Adobe Systems, 415/961-4400, \$695. A dream command post for video professionals, this QuickTime movie-editing software produces stunning special effects with little effort. Only the program's appetite for memory, disk space, and computer horsepower prevent it from being the non-professional's dream as well. Jan 93

\*\*\* Astound 1.0, Gold Disk, 408/982-0200, \$399. This presentation software lets you include sound, text, and graphics animation with no more effort than pasting in a chart in other products. It's easily accessible and a good value. Nov 93

★★ Comet CG 1.0.3, MSI, 317/842-5097, \$995. Program for generating antialiased text over live video is reasonably priced compared with dedicated graphics systems, but you're likely to be as astonished by its limitations as you are impressed by its capabilities. May 93 ★★★ CoSA After Effects 1.1, CoSA, 401/831-2672, \$1295. QuickTime movie editor blurs the

boundaries between animation and traditional video-editing. It yields at least as many oohs and ahs as it does irritations, and it produces results that simply can't be created in other packages. Oct 93

★★★ DiVA VideoShop 1.0, DiVA Corp., 617/ 491-4147, \$599. Instantaneous playback sets this graceful QuickTime editing software apart. Its simple beauty is slightly offset by a few rough edges, a lousy manual, and an occasionally clumsy interface. Jul 92

\*\*\* Hi Rez Audio Volume 1.0, Presto Studios, 619/689-4895, \$149.95. The enjoyable, high-quality music on this CD-ROM adds a nice touch to presentations. The software for browsing the music is quirky, and the product could use some documentation. Jul 93 continues

# SILAILIS

STATISTICA/Mac<sup>TM</sup> A complete statistical data analysis system with hundreds of presentation-quality graphs integrated with all procedures In-depth, comprehensive implementations of: Exploratory techniques; Descriptive statistics; Frequency tables; Large selection of nonparametric tests; Stepwise multiple regression methods with extended diagnostics; General nonlinear estimation (with predefined or user-specified models); Logit/Probit analysis; General implementation of ANOVA/ANCOVA/MANOVA/MANCOVA (designs of practically unlimited complexity, repeated, nested, incomplete, random, changing covariates, contrast analyses, post-hoc tests, custom designs); Discriminant function analysis statistics; Canonical analysis statistics; Time series modeling techniques with forecasting; Factor analysis with rotations; Chuster analysis (incl. bierarchical, k-means, and 2-way joining); General survival/failure time analysis (incl. life tables, group comparisons, and regression models); Distribution fitting (a large selection of continuous and discrete distributions); Curve and surface fitting and smoothing (incl. spline, DWLS, NEXP, and others); and much more Manual with comprehensive introductions to each method and step-by-step examples (Quick Start booklet explains all major conventions); balloon help Extensive data management facilities: a super-fast spreadsheet of unlimited capacity with formulas (and Publish and Subscribe); merge/split files; "double identity" of values (numeric/text); BASIC-like data transformations programming anguage; Import/Export data and graphs from/to Excel, MacSS, CSS and other ormats Graphs integrated with all procedures (e.g., click on a correlation coefficient to produce the corresponding scatterplot and other graphs; click on a ariable in the descriptive statistics table to produce a histogram and other graphs; click on an interaction effect in the ANOVA table to see a plot of interaction) . Large selection of 2-dimensional graphs: Histograms (incl. multiple, clustered breaktowns, overlaid functions), Scatterplots (incl. multiple, weighted frequency, smoothed, function fitting), Multiple line and Range plots, Trend plots, Standard leviation plots, Data sequence diagrams, Contour plots, Box-and-wbisker plots, Column plots, Bar graphs, Double pie charts, Scrollable dendrograms, Two-way oining plots, Curve fitting plots, Distribution comparison plots, Range plots, robability plots, Amalgamation plots, Factor space plots, Casewise outlier and esidual diagrams, ANOVA interaction plots, Multivariate (multiple) matrix plots, exploratory Draftsman plots with histograms, and many other specialized olots Large selection of 3-dimensional graphs: 3D surface plots (with data moothing procedures, color or gray-scale shading, and projected contours), 3D catterplots, 3D block scatterplots, 3D axis (space) plots, 3D spectral plots with idjustable planes, 3D line/ribbon plots, 3D sequence block plots, 3D histograms, AD surface-smoothed frequency plots, and 3D range plots ("flying boxes") All 3D plots displayed in true perspective, feature interactive real-time rotation facilities incl. continuous rotation) Extensive graph customization options: all structural spects of graphs (axes, scaling, patterns, colors, sizes, styles, regions, perspective, otation, fitted functions, etc.); MacDraw-style tools with specialized "objects"; il-res graph and artwork embedding; page layout/preview; dynamic rulers; Publish nd Subscribe graph links ■ All output displayed in Scrollsheets<sup>TM</sup> (dynamic, nternally scrollable tables: all numbers can be instantly converted into a variety of in-screen customizable, presentation-quality graphs) . All Scrollsheets can be saved nto data files and used for input, or exported Flexible facilities to perform analyses in specific subsets of data Extremely large analysis designs Unlimited size of iles Extended precision Unmatched speed (e.g., on a Mac IIfx, arbitrary rotation f a surface with 1,000 points takes 1 second; correlation matrix 50x50 with 100 ases-less than 3 seconds; transposing a 5,000 data points file-less than 2 econds) Full support for System 7 ("sawy") incl. "Publish and Subscribe," Apple vents, balloon help, "drag and drop," 32-bit, Quadra cache, etc. Price: \$695.

acic statistical modules of STATISTICA/Mac Male asic statistical modules of STATISTICA/Mac (Basic and Descriptive Statistics, requency tables, Exploratory data analysis, Nonparametrics, Distribution Fiting, Stepwise multiple regression; ANOVA/ANCOVA) ■ Manual with comprehenive introductions to each method and step-by-step examples (Quick Start booklet xplains all major conventions) ■ All data management facilities of STATISTICA/Mac (including interactive rotation of all 3D raphs, extensive on-screen graph customization facilities) ■ Price: \$395.

>>> versions also available (can exchange data with Macintosh verions): STATISTIC√Dos™ \$795; Quick STATISTIC√Dos™ \$295.

lomestic sh/h \$7 per product; please specify type of computer with order; 14-day noney-back guarantee.

### **StatSoft**

2325 E. 13th St. • Tulsa, OK 74104 • (918) 583-4149 ax: (918) 583-4376

五国 图图

Verseas Offices: Statsoft of Europe (Hamburg, FRG), ph: 040/4200347, fax: 040/4911310, StatSoft UK (London, UK), ph: 0462/482822, fax: 0462/482825; StatSoft Pacific (Melbourne, Australia), ph: 33 653 6580, fax: (03) 663 6117; StatSoft Canada-CCO (Ontario), ph: 416-849-0737, fax: 416-849-0918; Available From: CORPORATE SOFTWARE and other Authorized Representatives Worldwide: folland: MAB Julsing, 071-230410; France: Version US (1) 40590913; Sweden: AkademiData 018-240035; Hungary: P&D Soft KFT 185-6868; Belgium: TEXMA 10 61 16 28; South Africa: Osiris 12 663-4500; apan: Three's Company, Inc. 03 -3770 -7600

SS, StatSoft, STATISTICA/Mac, STATISTICA/DOS, and Scrotsheet are trademarks of StatSoft, Inc., Macintosti, Mac Ix, Extent and MacDraw are trademarks of their respective companies.

### 2ircle 99 on reader service card

\*\*\* Interactive Training for Director 1.1,
Media In Motion, 415/621-0707, \$199. This somewhat expensive program teaches basic Macromedia Director
skills and provides a foundation for exploring Director's other
features. It has a clear, often lighthearted approach, but
navigating the lessons can be frustrating. Jun 93

★★★ Macromedia Director 3.1 (3.1.1), Macromedia, 415/252-2000, \$1195. This update to a powerful and versatile multimedia authoring tool adds 23 scripting commands, QuickTime, and a utility that compiles movies into a faster playback format—but the whopping \$149 addition to the price makes it an upgrade most users can afford to miss. Feb 93

\*\*\* Media-Pedia Video Clips, Media-Pedia, 617/235-5617, \$195 to \$495. Fifty-seven minutes of stock footage for use in QuickTime movies includes over 150 different segments, ranging from unremarkable to dramatic to genuinely funny. Apr 93

\*\*\* Microsoft PowerPoint 3.0, Microsoft, 206/882-8080, \$495. This presentation program is ahead of the pack in terms of convenience and ease of use. Although the ready-made template collection is pretty paltry, the extensive system of master layers, reliable cross-platform compatibility, and strong on-screen presentation capabilities more than compensate. Feb 93

★★ MovieWorks 1.1, Interactive Solutions, 415/377-0136, \$395. Over 100 bugs were fixed in version 1.1 of this multimedia authoring software that takes an all-in-one approach to creating presentations, but problems remain. It's a good idea, poorly executed. Jun 93

★★★ Passport Producer 1.0, Passport Designs, 415/726-0280, \$495. Strong timing controls and good sound capabilities mix with middling text and image-handling and a lack of basic animation options in this partially successful entry-level multimedia program. Apr 93

\*\*\* Special Delivery 1.0 (1.1), Interactive Media Corp., 415/948-0745, \$399. While this entry-level multimedia package has all the tools you need to assemble interactive screen presentations that burst with motion and sound, it has a disorienting interface and lacks the polish and power of other programs. Mar 93

\*\* VideoFusion 1.0.1, VideoFusion, 419/ 891-1090, \$649. Collection of special effects for QuickTime movies may not be for the casual user, but if you have the equipment and you can't live without spinning logos and superimposed shots, then go ahead and indulge. Jul 93

★★★★ Working Model 1.0, Knowledge Revolution, 415/553-8153, \$995. Animators and engineers will love this terrific motion simulator that mimics real motion by applying physical laws to objects. It's easy to learn and use, but you'll need some understanding of math and physics. Oct 93

### PROGRAMMING

★★★ CLImate 1.0, Orchard Software, 617/ 876-4608, \$59.95. With a little more documentation and a few more sample programs, this utility that provides a subset of Unix-like commands for the Mac environment could be an irresistable package. Oct 93

\*\*\* EISToolKit 2.0, MicroStrategy, 302/ 427-8800, \$1995. Reliable, field-tested developer's environment for creating executive information systems provides automatic access to information in spreadsheets and databases across a distributed system, and serves up the information on screens that provide automatic graphing, analysis, and report generation. May 93

\*\*\*
FutureBASIC 1.0, Zedcor, 602/881-8101, \$299.95. Complete, easy-to-learn, real-world programming tool has full Toolbox, System 7, and assembler support. It's a wonderful tool that's rapidly becoming a favorite among commercial developers. Jul 93

\*\* Macintosh Common Lisp 2.0, APDA, 716/871-6555, \$495. Anyone who likes programming in LISP will be pleased with the environment provided by this version of the standard dialect and its extensive debugging and interface-building facilities. Oct 93

★★★ MetaDesign for the Macintosh 3.0, Meta Software Corp., 617/576-6920, \$250. This diagramming tool for structured systems analysis offers easy ways to group and ungroup symbols in diagrams and to show relationships between symbols. It excels at austere, classic flowcharts but could use some flashier features, such as shaded backgrounds, for presentations. Mar 93

★★★ Object Logo Student Edition, Paradigm Software, 617/576-7675, \$49.95. This book-plusdisk package offers a wide-ranging introduction to programming concepts. It's aimed roughly at the high-school educational level and lets you see something happen for every few lines of code you type. Jul 93

★★★ Object Master 1.0.2, ACI US, 408/ 252-4444, \$395. Successful combination of the superior object-management facilities typically found in Smalltalk, and a first-rate programmer's editor. Plus it works with the most popular languages: C, C++, and Pascal, Jan 93

\*\*\* PG:Pro 1.5, Staz Software, 601/225-7085, \$169. For part-time or novice programmers, the combination of these BASIC programming tools and FutureBASIC is a fast path to a working program. Jul 93

★★★ PowerPacks 2.0, NDG Phoenix, 301/ 718-8880, \$225. Programmers' tool kit for 4th Dimension provides 280 external procedures to improve custom applications and exploit System 7 features. Don't expect any quick fixes for 4D's less-than-blistering performance in most areas, though. Oct 93

\*\*\* Serius Programmer 3.0, Serius Corp., 801/261-7900, \$395. The graphical interface of this application-design environment provides nonprogrammers with tools for creating custom software, but the documentation lacks critical explanations. Jan 93

★★★ SoftPolish 1.1, Language Systems Corp., 703/478-0181, \$295. Program-quality-assurance utility systematically checks the resources in a program's interface against a huge laundry list of errors. It's a programming tool for anyone who hopes to produce a commercial Mac application. Sep 93

\*\*\* SourceSafe 2.1, One Tree Software, 919/821-2300, \$295 to \$1195. Solid, relatively easy-to-use product handles program-development administrative tasks, including version control, for multiplatform programs being created by groups. Sep 93

\*\*\* Symantec C++ for Macintosh 6.0, Symantec Corp., 408/253-9600, \$499. If you like Think C, you'll like this software-development system, too. For the Mac, it's an excellent opportunity to catch a new wave in programming. Developers have generally been pleased, especially in compiler speed and code quality. Nov 93

\*\*\* Think C 5.0, Symantec Corp., 408/

253-9600, \$299. While not a radical improvement, this is a significant upgrade to an outstanding development tool. Beginners won't find the documentation helpful. Jul 92

\*\*\*\* Think Pascal 4.0, Symantec Corp., 408/252-3570, 5249. A remarkable achievement—a programming language and environment full-bodied enough for professional programmers while still inviting for neophytes. No weak points and dozens of strengths. Aug 92

### UTILITIES

\*\*\* 7th Heaven 2.5, Logical Solutions, 612/ 659-2495, \$99.95. Our reviewer found the seven enhancements to System 7 fun and elegantly done, but not all of them were useful. Jul 93

\*\* Alki Seek 2.1, Alki Software Corp., 206/ 286-2600, \$39.95. Competent file-finding utility scans by file name or content and lets you combine multiple search criteria. It cannot search in the background or find text in compressed files. Jul 93

\*\*\* At Ease 1.0 (1.1), Apple Computer, 408/996-1010, \$59. Sweet, simple, secure substitute for the Finder displays a clean, attractive page full of oversize icons where a single click launches a program or document. To delete, rename, or move files, you have to return to the Finder. Mar 93

\*\* Billy Steinberg's PBTools 1.0.1, Inline Design, 203/435-4995, \$99.95. If you want basic PowerBook management without added frills or complex menu bar displays, this collection of four utilities may be just your cup of tea. Jul 93

★★★ Chameleon 2.0.3, Logical Solutions, 612/659-2495, \$59.95. Sleek desktop-pattern editor comes with an ample supply of rich, textured color images and a set of limited but functional editing tools. Sep 93

\*\*\* ClickChange 2.0, Dubl-Click Software, 818/888-2068, \$89.95. Interface-customizing package has nothing you need but is filled with everything you want, including tools that let you alter major elements of the Mac's look-and-feel. Aug 93

\*\*\* Conflict Catcher and Other Innovative Utilities 1.0 (1.3.8), Casady & Greene, 408/484-9228, \$79.95. Enable or disable INITs and start-up items when you boot, with this INIT manager that comes with four other system-related utilities. It's a worthwhile investment even if you own another INIT manager. Mar 93

\*\* Connectix Desktop Utilities 1.0, Connectix Corp., 415/571-5100, \$99. Although some of the 16 utilities offered in this package are more at home on a PowerBook, this collection offers one-stop shopping at a low price. It's worth it for the file-synchronization, Keyboard Power, and Hot Keys features alone. Nov 93

\*\*\* CopyDoubler 2.0 (2.0.1), Fifth Generation Systems, 504/291-7221, \$59. This utility speeds up copying, lets you queue jobs for background copying, and offers a variety of other useful, copying-oriented features—all at a very reasonable price. Nov 93

★★★ Copyright Pro 1.0.3, CSG Technologies, 412/471-7170, \$79. Utility takes over the Finder's copying function, copies in the background, and allows you to regularly schedule copying. It doesn't speed up copying, however. Nov 93

\*\*\* CPU 2.0, Connectix Corp., 415/571-5100, \$99. Reasonably priced collection of utilities for continues



More computer users prefer to keep their important data safe and sound on 3M diskettes than any other brand. That's because inside and out, each diskette is built for reliability and tested for 100% error-free performance. Just what you

expect from the world's leading manufacturer of diskettes.

Whether you use 2 megabyte diskettes or 21 megabyte Floptical® diskettes, you can depend on 3M. That's why more businesses protect important information on 3M data storage products than any other brand in the world. For more information call 1-800-888-1889, ext. 56.

### The most preferred safe deposit box.



the PowerBook adds new features, including file synchronization, that easily justify the upgrade price. Sep 93

★★★ DiskFit Direct 1.0, Dantz Development Corp., 510/849-0293, \$49.95. Basic but efficient backup system is simple and painless enough to foster better backup habits in anyone who uses it. It doesn't back up to hard drives or tape drives. May 93

\*\*\* Drive 7 2.3 (2.34), Casa Blanca Works, 415/461-2227, \$79.95. Universal hard drive updater and formatter has an attractive, uncluttered interface that's so easy to use it makes hard drive maintenance almost relaxing. Jan 93

★★★ DriveShare 1.03, Casa Blanca Works, 415/461-2227, \$149.95. This utility allows users to share a removable drive over a network. It's most useful if your network consists of both System 6 and System 7 users, as its advantages over System 7 file sharing are slight. Nov 93 ★★ DynoPage 2.0, Portfolio Software, 408/252-0420, \$89.95. While this utility simplifies the printing of booklets and double-sided pages, it doesn't support PostScript graphics, is incompatible with some popular applications, and has a buggy drag-and-drop feature. Jul 93 ★ eDisk 1.0, Alysis Software Corp., 415/566-2263, \$149.95. Driver-level compression software has little to recommend it over file-level, idle-time compression programs. The biggest drawback is the strong potential for

disk or file corruption. Oct 93

\*\*\* Hard Disk ToolKit Personal Edition
1.1.2, FWB Software, 415/474-8055, \$79. The
more arcane features of the heavy-duty Hard Disk ToolKit
have been stripped out of this entry-level, non-power-user
version, but everything you really need to format, update,
partition, and manage your hard drive is included. Jan 93

\*\* I Like Icon, Baseline Publishing, 901/ 682-9676, \$59.95. Glitzy utility has tools for icon edlting, has a nice library of icons, and can create animated icons. Some basic features, such as a text tool, are missing, and the animated icons are fun but impractical. Sep 93

\*\*\* Icon 7, Inline Design, 203/435-4995, \$79.95. Simple, straightforward utility has a streamlined and Intuitive library feature for storing and retrieving icons, plus tools for icon editing. Its icon collection, however, is pretty paltry. Sep 93

\*\*\* INITPicker 3.0 (3.02), Inline Design, 203/435-4995, \$79.95. This INIT manager's ability to load aliased INITs over a network will interest network managers. While it disables problem INITs at start-up, it doesn't help you identify the cause of INIT conflicts that don't cause the Mac to crash at start-up. Mar 93

\*\*\* Inline Sync 1.0 (1.01), Inline Design, 203/435-4995, \$129.95. Keep the latest version of your work on your portable machine and your desktop Mac with this file-sync software. It's easy to install, easy to use, easy on the wallet, and does the job well. Mar 93

\*\*\* KidDesk 1.0, Edmark Corp., 206/556-8484, \$39.95. If you have young children who love to experiment with your Mac, this desktop environment provides easily navigable play while protecting your files from the havoc that little fingers can wreak. Jun 93

\*\*\* Kiwi Power Menus 1.0, Kiwi Software, 805/685-4031, \$39.95. This simple little utility adds flexibility to the Apple menu by adding an unlimited number of submenus and enabling you to change the font and size in the menus. Dec 92

\*\* Magic Typist 2.0, Olduvai Corp., 305/670-

1112, \$129. If you want to speed up typing of repetitive phrases or if you don't have full use of your hands, this utility, which automates typing of repetitive phrases, may be useful, but some functions work erratically or not at all in Microsoft Word. Sep 93

★★★ Magnet 1.0 (1.01), No Hands Software, 415/321-7340, \$129.95. Automation aids file management with this software. It creates "magnets" that trigger in response to user-specified events and automatically look for files to copy, move, or alias. Feb 93

★★★ Norton Essentials for PowerBook 1.0, Symantec Corp., 310/453-4600, \$129. Uneven collection of PowerBook utilities ranges from the useful Instant Access module, which automatically turns AppleTalk on and off, to the relatively inaccurate Battery Gauge feature, which tries to tell you your battery's status. Apr 93

\*\*\* Now Utilities 4.0.1, Now Software, 503/274-2800, \$129. Many thoughtful improvements have been added to this collection of utilities, which is now better integrated, more logically designed, and still an excellent deal for your dollar. The new scrapbook feature, however, is awkward and inconvenient. Aug 93

★★★ Peace of Mind 1.2.2, Polybus Systems
Corp., 716/871-6533, \$149. Hardware diagnostic
tool performs exhaustive tests on major Mac hardware components; does an excellent job of diagnosing simple simulated
hardware errors. The program has minor bugs and lacks a
comparative test-history feature. Jun 93

\*\*\* PicturePress 2.5, Storm Technology, 415/691-6600, \$199. This image-compression software supports every useful storage mode, has new calculation features for improved image fidelity, and is twice as fast as version 2.0. If you work with images professionally, it's the clear choice. Mar 93

★★★ PowerMerge 1.0.2, Leader Technologies, 714/757-1787, \$129. File-synchronization utility has a potentially confusing interface, but is a handy means of updating selected files so that different Macs end up with identical versions of the selected documents. Apr 93

★★★ Public Utilities for the Macintosh 1.0, Fifth Generation Systems, 504/291-7221, \$149. Utility program sticks to the basics of disk diagnosis, disk repair, and file optimization. It does a good, and in some cases unique, job, although disk optimization is slow. Fifth Generation's technical support is excellent. Jun 93

\*\*\* RapidTrak 1.0.1, Insignia Solutions, 415/694-7600, \$99.95. If you've got RAM to spare, this hard drive formatter offers driver-level RAM caching to store frequently used data and improve performance, especially on slower-speed drives. May 93

\*\*\* Retrospect 2.0, Dantz Development Corp., 510/849-0293, \$249. Powerful backup and archiving software has an improved interface and scripting capabilities, and works well for all levels of users. Sep 93

\*\*\* Retrospect Remote 2.0, Dantz Development Corp., 510/849-0293, \$449. Utility allows fast, automatic backup of networked Macs to a central Mac with a backup device. It worked flawlessly in our reviewer's tests. Sep 93

\*\*\* Safe and Sound, Central Point Software, 503/690-8090, 549.95. Limited but useful disk-protection and -salvage utility has a clean, simple interface and is an efficient emergency recovery tool. Jun 93 \*\* Safe or Sorry 1.0, Olduval Corp., 305/670-1112, \$59. Unobtrusive control panel periodically

saves all of your keystrokes, but requires System 7.1 and offers no clear-cut advantages when compared with other text-recovery programs. Oct 93

★★ SafeDeposit 1.2, Dayna Communications, 801/269-7200, \$189. Automated backup program is easy to set up but slow. Also, unattended backups must be restarted from scratch if disk space runs short and a new disk isn't inserted. Sep 93

\*\*\* Screenscapes 1.0.1, Kiwi Software, 805/685-4031, \$44.95. With more than 600 desktop patterns—and a suite of well-designed modules to transform those patterns—this fun and frivolous utility lifts desktop-pattern design to new heights of elegance. Nov 93 \*\* Silverlining 5.4, La Cie, 800/999-3919, \$149. Extensive and detailed testing is only one of many advanced functions offered by this hard drive—management utility. The interface is apt to confuse beginners. Jan 93

\*\*\*

SnapBack 1.0, Golden Triangle Computers, 619/279-2100, \$129. For regular day-to-day backups, this network backup software is a great choice. Its strength lies in its simplicity and its easy-to-use, one-window interface, but it requires a dedicated hard drive. Dec 92

★★★ Square One 1.5.2, Binary Software, 310/582-8293, \$74. Flexible, attractive icon-based file launcher provides infinitely customizable palettes, including one that displays active applications. The application will consume 400K of your system memory. Aug 93

★★ Stacker for the Macintosh 1.0.1, Stac Electronics, 619/431-7474, \$149. As long as you pay attention to the capacity of your hard drive, this driver-level compression product performs reasonably well, except for its slow hard drive read quotient. Oct 93

\*\*\* Star Trek: The Screen Saver, Berkeley Systems, 510/540-5535, \$59.95. Go where no Mac has gone before with this screen saver based on the original "Star Trek." Modules vary from simple messages in "Trek"-inspired fonts to an endless parade of aliens, spacecraft, and artifacts from different episodes. May 93

★★★ Star Wars Visual Clips, Sound Source Unlimited, 805/494-9996, \$89.95. Control panel lets you play QuickTime movie clips from Star Wars at system events. If you have the money, the hard drive space, and the RAM, this is the kind of totally cool toy that will make you remember why you love your Mac. Sep 93

★★★ Stuffit Deluxe with SpaceSaver 3.0, Aladdin Systems, 408/761-6200, \$120. Its many conversion tools, automatic compression capabilities, reliability checks, and acceptable performance make this product the jack-of-all-trades of compression utilities. Aug 93

\*\* Super 7 Utilities, Atticus Software, 203/324-1142, \$99.95. Collection of seven control panels/extensions adds some ease of use to System 7, although none of its functions are essential. Modules perform tricks such as turning any menu into a tear-off palette, and randomizing the sounds that play in response to errors. Apr 93

\* TimesTwo 1.0.1, Golden Triangle Computers, 619/279-2100, \$149. Automatic disk-compression utility operates at the disk-driver level. A number of quirks, such as its ungraceful handling of full disks, are problems. May 93

\*\*\*
UpDiff 1.0, KyZen Corp., 609/3543863, \$169. Innovative program compares two versions of a file, extracts the differences, and creates a difference file that is typically smaller than the original and can be continues

Until now, if you wanted serious QuickDraw acceleration, 24-bit color. 21-inch monitor support, and Photoshop acceleration, you had to bring your money in a wheelbarrow. Not any more. Announcing Tornado, the color graphics system that blows the competition away. Tornado combines all the most requested features for the demanding graphics user and delivers them at absolutely the lowest brice in the world!

### **Awesome Graphics Power**

For just \$799 you get lighteningfast 24-bit color graphics, along with state-of-the-art features like onthe-fly resolution switching, hardware pan and zoom, and an 610/660 advanced design that even fits in a Centris 610/660. The Tornado supports monitors from 13 to 21 inches at resolutions up to 1152 x 870. Our Virtual Desktop feature can extend your workspace to 2304 x 1740 (in 8-bit color). An inexpensive NTSC adapter# lets you connect Tornado directly to a television or video recorder.

### Single Slot Photoshop Acceleration

When you add the \$599 Mirror ChargeCard, you also get the world's best



ingle-slot Photoshop

acceleration

accelerator, still in a single slot! The ChargeCard uses two 60 Mbz DSPs to

Photoshop

accelerate time-consuming Photoshop functions by up to 2000%."

PowerPreview™ software saves even more

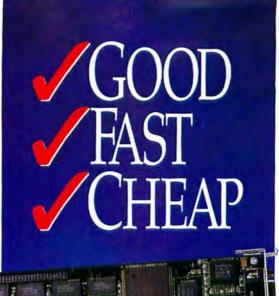


time by allowing you to test filter settings before you process the entire image. Because it's AdobeCharged,™

### PowerPreview saves time and guesswork.

you can be sure the results will meet Adobe's bigh standards of quality (and yours).

And because it's from Mirror, you get a price that no one else can match.





LLTHREE



**Order Direct Anytime** 





Media: 1059



### Picture The Performance

Designed as a perfect match for the Tornado Graphics Card, the new Mirror ProView 21-inch Color Display will satisfy the most discriminating user. Its

razor sharp 21-inch screen, digital controls and full multisyncing features give you an expansive,



brilliant view of your work. Priced bundreds less than

The new ProView 21-inch Color

\$1099

\$ 399

comparable displays, the ProView 21 can also be used with the built-in video of the Centris and Ouadra series.

ProView 16-inch Trinitron Display

ProView 14-inch Display

### Mirror Color Systems \$ 799 Tornado Graphics Card ChargeCard Photoshop Accelerator \$ 599 \$1299 Tornado/ChargeCard Bundle NTSC adapter for Tornadott 99 ProView 21-inch Display \$2099 \$1399 ProView 20-inch Standard Display ProView 20-inch Trinitron Display \$1999 ProView Portrait Display \$ 799

### Don't Blow It!

SuperMac, Radius and RasterOps are all bundreds (even thousands) of dollars higher. Buy direct from Mirror and keep the savings for other fun stuff. All Mirror products include lifetime technical support and the confidence that comes from dealing with a company that's been in the Macintosh business since 1985. Every Mirror product is backed by our 30-day "love it or return it" satisfaction quarantee.

305 Second St. NW, St. Paul, MN 55112 USA phone 612-633-4450 fax: 612-633-3136 tech support. 612-633-2105

\*\*Varies, depending on CPU speed, file star, hard drive transfer eates and available RAM. †Requires Temada board. ††NTSC adapter available December 1993. All tradboards are property of their respective bodders.

Circle 124 on reader service card

### \*\*\*\* Star Ratings

used to update the older file. Dec 92

★★★ Virtual 3.0.1, Connectix Corp., 415/571-5100, \$99. If you need to eke out as much virtual memory speed as possible, this utility may be a useful tool. For System 6 users who want virtual memory, it's the only game in town. Sep 93

★★★ Voice Navigator SW 2.3, Articulate Systems, 617/935-5656, \$399. Talk back to your Mac (if it has built-in sound input) with this speech-recognition software. Defining macros that respond to voice commands can be frustrating, but the product is a real boon for disabled users. Jan 93

★★★ WonderPrint 1.0, Delta Tao Software, 408/730-9336, \$59. StyleWriters and DeskWriters produce halftones good enough for newsletters with this printing extension. Jan 93

### VERTICAL MARKETS

★★★ Compare-A-Loan 4.0.2 (4.1), Softflair, 612/894-3357, \$79.95. Although geared to professionals, this product for home-loan evaluation provides thorough documentation and is structured so that anyone can use it. Apr 93

★★★★ Diet Balancer 1.0 (1.05), Nutridata Software Corp., 914/298-130B, \$69.95. Easy-touse personalized weight-planning tool includes a database of nutritional values and standard serving sizes, and is useful for home diet-planning. Dec 92

\*\*\* Expert Home Design 1.0 (1.0.3), Expert Software, 305/567-9990, \$49.95. Quickly and easily create home- or office-interior layouts that are precise, but not as detailed as blueprints, with this interior design software. It doesn't do automatic side views, but it's a good value nonetheless. May 93

★★ Expert Landscape Design 1.0 (1.0.2), Expert Software, 305/567-9990, \$49.95. Bare-bones drawing environment for experimenting with landscape design is inexpensive, but its usefulness is severely limited because of awkward color and pattern tools. Feb 93

★★★ Grade Machine 5.0, Misty City Software, 800/795-0049, \$79. Teachers' lives get easier with this software that quickly sets up a useful electronic grade book. Program includes networking capabilities plus dozens of options for printing reports. Dec 92

★★★ JobTracker 2.02 (2.5), InfoSolutions, 814/355-2983, S395 to S844. Designed specifically for publication management, this scheduling and projectmanagement software isn't completely polished, but it manages the job competently. Dec 92

\*\*\* LoanLease Library 3.0.3 (3.05), Softflair, 612/894-3357, \$99.95. If you are generating a loan or a lease and need to keep track of payments, this well-documented program for loan evaluation is a worthwhile investment, despite its minor eccentricities. Apr 93

\*\* Making the Grade 2.0 (2.2), Jay Klein Productions, 719/591-9815, \$99.95. This grade-book software is easy to learn; but if you're already spreadsheet-literate, the friendly dialog boxes and reminders may get in the way. Dec 92

\*\*\* Musicshop 1.0, Opcode Systems, 415/856-3333, \$149.95. MIDI sequencer is an excellent choice as a first sequencer. It's powerful enough to satisfy the needs of most MIDI users. Oct 93

\*\*\* Nutri-Calc Plus 1.2, Camde Corp., 602/ 926-2632, \$159. Designed for knowledgeable and serious users, this powerful, flexible program manages nutrition information and analyzes diets. Dec 92

\*\*\* Roll Call 2.0, By the Numbers, 603/ 927-4508, \$495. 4th Dimension database application for church management helps track donations, attendance, church-group membership, and visitation. While not a complete church-management system, it's an acceptable complement to a general accounting program. Aug 93

\*\* Sailing Master 1.1, Starboard Software, 313/662-4393, \$64.99. Though the slow speed and jerky motion point to less-than-polished programming, this sailboat-racing simulation offers good tactical play and is fun—well worth the price for sailing competitors. Nov 93

\*\* Stat-Ref 3.2a (3.2b), Teton Data Systems, 307/733-5494, \$95. Medical database on

## MAC-TO-PC NETWORKING . . . THE WAY IT'S SUPPOSED TO BE.

1993, Coactive Computing Corporation. Coactive, Coactive Connector, and The Doll-Yausself Network are trademarks of Coactive Computing Corporation, Belmont, CA. All rights reserved.

Apple, Macintosh, AppleShare, and AppleTalk are trademarks of Apple Computer, Inc., registered in the U.S. Windows is a trademark of Microsoft Corporation. All other trademarks are the property of their respective owners. \*Exclusive of cabling time, which depends upon your affice size and layout.

CD-ROM lets you search by keyword. Because it provides access to limited sets of journal citations, it's not suitable for research, but it could effectively replace a small reference library in an office. Jan 93

### WRITING TOOLS

\*\*\*
Final Draft 2.0 (2.0.3), MacToolkit, 310/395-4242, \$349. Script-writing gets simpler with this well-conceived software that automates formatting of different elements in a script. Customization is easy, and macros automate typing of common phrases. Apr 93

\*\*\* IdeaFisher 2.0, Fisher Idea Systems, 714/474-8111, \$595. Inspiration never comes easily, but this creativity tool with a question bank of 6000 questions and an idea bank of 61,000 words and 700,000 links might help get the juices flowing. Jan 93

★★★ Just Joking 1.0, WordStar International, 415/382-8000, \$49. HyperCard stack of around 2800 humorous quotations offers a serviceable selection of sayings from a diverse group of humorists, comedians, philosophers, and writers, among others. Apr 93

\*\*\* LetterPerfect for Macintosh 2.1, Word-Perfect Corp., 801/225-5000, \$149. Stripped-down version of WordPerfect measures up as a serviceable lowend word processor, with clean, accurate documentation and an uncluttered interface. Jan 93 \*\*\* MacWrite Pro, Claris Corp., 408/987-7000, \$249. Many of the new features of this upgrade are very well executed, including the easy-to-use table fea-

ture, simple but elegant palettes, and an almost pain-free mail merge feature. Jul 93

\*\* MasterWord 5.1, Alki Software Corp.,

206/286-2600, \$99.95. The centerpiece of this package of add-on Microsoft Word commands is a set of customizable tool bars. Unfortunately, rough edges remain, including inaccuracies in the documentation and some features that don't work as advertised. Aug 93

\*\*\* Microsoft Word 5.1, Microsoft, 206/ 882-8080, \$495. Small, solid upgrade fine-tunes some plug-in modules and adds new modules including an icon tool bar and text annotation. It is worth the upgrade price, but it won't give Word 5.0 users goosebumps. Mar 93

\*\*\* RightWriter for the Mac 5.0, Que Software, 317/573-2500, \$99.95. Grammar checker looks at writing style, word usage, punctuation, and capitalization, as well as grammar. Customizable filters and multiple approaches to analysis are nice, but—as with all grammar checkers—not all the advice is great. May 93

\*\*\* ShowScape 4.1, Lake Compuframes, 914/941-1998, \$429 to \$679. This script-writing software formats scripts in either screenplay format or dual-column format (for audio and video) and allows you to choose the number of shots displayed per page, but it requires you

to own and work in WordPerfect. Apr 93

★★★ Spelling Coach Professional 4.0.1, Deneba Software, 305/596-5644, \$195. If you're considering investing in reference software, this spelling checker, dictionary, and thesaurus is a relatively capable, if expensive, alternative, Oct 93

★★★ Thunder 7 1.5.3, Baseline Publishing, 901/682-9676, \$99.95. Stand-alone spelling checker and thesaurus interactively monitors your keystrokes and alerts you to potential errors as they are entered. It quickly and transparently prevents you from making embarrassing typos. Nov 93

★★★ TypeReader 1.0, ExperVision, 408/428-9988, \$695. Speed and accuracy combine with a straightforward operating style in this high-end OCR software that doesn't do everything its competition does, but is a major contender nonetheless. Feb 93

★★★ VersionMaster 1.5, AStar Technologies, 508/486-8532, \$199.95 to \$1199.95. Document-management utility helps you archive and track versions of a file by maintaining a database of altered documents. It's recommended only for workgroups that routinely follow check-out procedures. Apr 93

\*\*\* WordPerfect for Macintosh 2.1 (2.1.3), WordPerfect Corp., 801/225-5000, \$495. Play QuickTime movies in your text files or publish and subscribe continues

### Introducing the Coactive™. Do-It-Yourself Network™.

It's the quickest, easiest way to share files and printers among Macs and PCs.

Without having to change the way you work with your Mac, just because you're networking with PCs.

So easy, you can connect each computer to your network in 5 minutes. By yourself. Guaranteed.



With the Coactive Connector, installing a Macto-PC network is as easy as snapping in a phone cord. Simply purchase the appropriate Coactive Connector for each computer in your network.

Using your Macintosh's
AppleShare™ client software, you'll
see the shared directory on your PC as
a disk drive on your Mac's desktop.
And, if you have System 7, a shared
Macintosh folder is seen as a standard
directory on your PC.

Coactive's Connector for Macintosh also makes it a snap to share AppleTalk™ PostScript™ printers with your PCs.

### In Just 5 Minutes. Guaranteed.

All it takes is the new Coactive Connector™.

Just plug the Coactive Connector for Macintosh™ into your Mac's printer port and the PC Connector into your PC's parallel port. Join the connectors with standard phone cords, then install the software (DOS or Windows™) on the PC. That's it!

There's nothing new to learn. You can transfer files between your Macintosh and PC simply by pointing and clicking the way you always do. Everything you need is in the box—hardware, software, cabling—at about half the cost of other Mac-to-PC network solutions.

So, visit your favorite dealer today. Or call 1-800-825-2NET (800-825-2638) and ask for extension 104 to order direct from Coactive.

We'll give you Mac-to-PC networking the way it's supposed to be. In 5 minutes or less. Guaranteed, or your money back\*.



The Do-It-Yourself Network™

with this upgrade. It continues to provide the best desktop publishing and graphics capabilities of any word processor, but it lacks glossary- and table-creation features. Jun 92

\*\*\* WriteNow 3.0, WordStar International, 415/382-8000, S119. The streamlined approach of this low-end word processor will appeal to many Macintosh users, especially the storage-conscious. A nice mix of features includes impressive style sheets. Sep 92

\*\*\* A Zillion Kajillion Rhymes 1.0, Eccentric Software, 206/628-2687, \$49.95. Rhyming dictionary is quick, small, simple, and self-contained; but it only rhymes with the roots of search words (and ignores -ed, -s, and -ing endings). Nov 93

### Hardware

### INPUT DEVICES

★★ Apple Adjustable Keyboard, Apple Computer, 408/996-1010, \$219. Keyboard is only a slight improvement on the flat slab keyboard. Theoretically, it corrects ulnar deviation, but sufferers of repetitive stress injuries want a keyboard that adjusts vertically. Jul 93

\*\*\* ArtZ ADB Tablet, Wacom Technol-

ogy Corp., 206/750-8882, \$449. Combining pressure-sensitive operation, manageable size, and a new pencil-thin stylus, this affordable digitizing tablet is perfect for artists looking for traditional-style control of their graphics programs. Aug 93

Computer Crayon, Appoint, 510/463-3003, \$49. The kid contingent's verdict was a definite thumbs-up on this brightly colored input device that's shaped like a thick pencil. The buttons can be hard for smaller children to press, and serious computer artists should still opt for a drawing tablet. Oct 93

★★ Gulliver, Appoint, 510/463-3003, 5119. This diminutive mouse is hard to hold comfortably for an extended period, but it works well on almost any surface, including fabric, wood, plastic, and paper, making it an acceptable alternative for PowerBook users. Oct 93

\*\*\* The UnMouse, MicroTouch Systems, 508/659-9000, \$199. Input device is a cursor-control device, programmable keypad, and small graphics tablet in one, and can be programmed with 60 macros (although only 16 can be selected by sight). It's ergonomically better than a mouse, but not as good as a trackball. May 93

★★★ Z-Nix Cordless SuperMouse, DynaPoint, 818/854-6440, \$99. Sleek and attractive cordless mouse works reliably and is attractively priced, but suffers from the same line-of-sight limitations as other infrared devices (such as TV remote controls). Dec 92

### MISCELLANEOUS HARDWARE

\*\* Address Express, CoStar Corp., 203/661-9700, \$795. Flaky performance and system crashes plagued this envelope-and-label printer in our tests, but the print quality was good. Oct 93

\*\*\* Apple Color OneScanner, Apple Computer, 408/996-1010, \$1349. Tests of this color scanner demonstrate unpolluted colors and sharp image details, perhaps due to color filters and lenses that Apple claims were specially designed and tuned for the scanner. Jul 93

\*\*\* AppleCD 300, Apple Computer, 408/ 996-1010, \$599. Double-speed CD-ROM drive spins its discs at twice the speed of earlier drives, providing faster access to large files. Jun 93

\*\* EMBARC, Embarc Communications
Services, 407/364-2000, \$395 plus fees. If you're
a PowerBook user who is frequently in places with no telephone and you need timely delivery of electronic news and
E-mail, this portable wireless message service may prove
useful, but the cost may be prohibitive to others. Sep 93

\*\*\* Epson ES-800C, Epson America, 310/ 782-0770, \$1499; Macintosh interface kit \$399. Flexible 400-dpi scanner offers a range of options, including one- or three-pass scanning, plus a full-featured, easy-to-use software package, Aug 93

COMPANY CITY ADDI TEL. HOURS Cittor Genter, Wolf Rd. Albany M.T.W 10-6, Th.Fr 10-9 Macy's 555-3865 Aud o Lab 298 Congress St Tray 555 2860 M.T.W 10-6; Th Fr 10-9 Radio Shinck 110 Waterviet Ave Waterylist 555 1125 M.T.W 10-6; Tn Fr 10-9 89 Federal Way Albany 555 7927 M.T.W 10 6: Th Fr 10 9 310 State Street Albany 555-4500 M.T.W 10 6; Th Fr 10 9 Daiton's Audio K Mart 80 Washington St Rensselaer 555 5091 M.T.W 10 6: Th Fr 10 9 Albany Hippo's 1500 Gentral Ave 555 5538 M.T.W 16 6 Th Fr 10-9 8 J 's Wholesale 97 Third St East Greenbush 555 1519 M.T.W 10-6; Th.Fr 10-9 Village Plaza Rt. 146 Schenectady 555 9047 M.T.W 10-6; Th Fr 10-9 Emest's Statue 76 O Brien Way Loudonvilla 555 4230 M.T.W 10-6; Th Fr 10-9 Caldor's 1423 Heath St. Albany 555 1987 M.T.W 10-6; Th Fr 10-9 Northern Plaza, St. 152 Goco's Albany M.T.W 10 6: Th Fr 10 9 555 2921 Belton Stereos Troy 150 State Street 555-1473 M.T.W 10 6: Th Fr 10 9 14 Concord Audio Albuny 1999 Railford Ave. 555 0200 M.T.W 10 6 Th Fr 10 9 Radio Shark 872 Johnson St Waterviet 555 0711 M.T.W. 10.6, Th. Fr 10.9 K-Mart 89 Albany Street 16 Albany 555 2205 M.T.W 10-6: Th Fr 10-9 Menands Hippo's 45 Wadsworth Gircle 555-6099 M.T.W 10 6; Th Fr 10-9 18 Sam's Club 870 Central Ave Albany 555-3155 M.T.W 10 6; Th Fr 10 9 Audio Lab II 1145 Lawler Ave Albany 555 8049 M.T.W 10 6: Th Fr 10 9 Albany Wilton Stered 189 Gentral Ave 555 4995 M.T.W 10 6; Th Fr 10 9 Caldor s 45 Branch St Colonia 555 8606 M.T.W 10 6; Th Fr 10-9 2764 Consort Rd Schenectady Rettin s Steren 555 5424 M.T.W 10-6: Th Fr 10-9 M.T.W.10 6 Th Ft 10-9

Think

Making sense of the amount of data flowing into your company is like trying to drinl from a fire hose. If the pressure doesn't over whelm you, the volume will.

Businesses need a better way to make sensi of all this data. A better way to correlate it. Io think about it. To interpret it. To visualize it. To form a comprehensive picture of what it really means.

MapInfo desktop mapping is that better way. And it's easy to see why. All data has one thing in common, Location. It all occurs somewhere. And when you use MapInfo solutions to link data together by location, dynamic pictures of what your organization really looks like begin to appear.

Clear pictures of opportunities you've been missing. Pictures for sales, marketing, customer services. Pictures for operations. For planning. Finally, every corner of your organization can see exactly what all that data has been trying to tell them.

New insights for better, faster decisions. New ways to use data as a competitive ★★★ Media Control Station 1.0 (1.01), JLCooper Electronics, 310/306-4131, \$269.95. This versatile tool connects to the Mac through an ADB port and offers an easy and intuitive way to cue and edit QuickTime movies, MIDI files, multimedia playlists, and other dynamic data. Feb 93

★★★ mira 35, Santos Technology, 310/320-8888, \$2695. This 35mm slide scanner puts many sophisticated color-correction tools into a low-cost package. It does have trouble resolving extremely fine details, and its color correction is RGB only. Oct 93

\*\*\* The Mouse Yoke, Colorado Spectrum, 303/225-6929, \$34.95. Gadget turns an ordinary mechanical mouse into an aircraft-style steering wheel, or yoke, for use with flight simulators. Simple, elegantly executed concept uses quality materials. Dec 92

★★★ Organizer Link II (Model OZ-893), Sharp Corp., 800/321-8877, \$129.99. If you own a 5000-, 7000-, or 8000- series Sharp Wizard, this program and cable let you connect it to a Mac serial port to exchange data. It's functional, but has some minor weaknesses. Jan 93 ★★★ PhonePro 1.0.3 (1.1.5), Cypress Research Corp., 408/752-2700, \$950. Application makes it relatively easy to develop a multiple-choice voice-mail system using your Mac, especially for those with

programming backgrounds. The product includes a 9600-

bps modem and a headset/microphone. Feb 93

\*\*\* PowerKey 2.0 (2.01), Sophisticated Circuits, 206/485-7979, S119. Ingenious, automated power strip has four surge-protected outlets controlled by the keyboard's on/off switch. The clever software can turn on a Mac, unattended, run a QuicKeys macro (QuicKeys Lite included), and shut down again, Dec 92

\*\*\* PowerLink Presentor, E-Machines, 503/ 646-6699, \$499. Simple, compact Duo dock wobbles a bit when plugged in but provides fine support for a variety of displays, plus ports for ADB, floppy drive, and sound output. Nov 93

★★★ ScanPlus Color 6000 for Mac, PlusTek USA, 408/980-1234, \$749 to \$899. Small, inexpensive sheetfed color scanner is not appropriate if exact color matching is critical, but it is otherwise a good, economical option. Sep 93

★★★ Yamaha TG100, Yamaha Corp. of America, 714/522-9011, \$449. Compact, keyboardless, multitimbral MIDI synthesizer adheres to the General MIDI standard patch arrangement. Although it won't convince you that you're hearing a live orchestra, the sound is about as realistic as low-cost MIDI gets. Apr 93

### MODEMS/NETWORK HARDWARE

\*\* DataLink PB; Axcell Cellular Interface, Applied Engineering, 214/241-6060, S824. If you need a full-blown office on the beach, this PowerBook cellular-modem package with automatic answering machine is a well-executed solution. Each recorded second requires 25K of disk space. Nov 93

★★ EtherPrint 1.0 (2.0), Dayna Communications, 801/531-0600, \$499. It's possible to connect a single LocalTalk printer to an Ethernet network using this device, but it's an expensive option. Dec 92

\*\*\* EtherPrint Plus, Dayna Communications, 801/531-0600, \$599. Support four LocalTalk products on an Ethernet network using this device that can also serve as an inexpensive AppleTalk router. Dec 92

\*\*\*
EtherWrite, Compatible Systems
Corp., 303/444-9532, \$695. Elegant and costeffective device with excellent network-management
software allows up to six LocalTalk products to connect to
an Ethernet network. Dec 92

\*\*\* PathFinder, Dayna Communications, 801/531-0600, \$899. For simple networks, this Local-Talk-to-Ethernet router is a great value, as well as a great time-saver for beginning network managers. It uses Apple-Talk only. Jan 93

\*\*\* PerFit Port-A-Com, PerFit, 303/530-7333, \$349. Compact, ADB-powered, high-speed fax/ data modem is difficult to configure, due to its Spartan and poorly organized documentation, but is still a solid product continues

veapon. To slash waste. To directly impact he bottom line.

And, MapInfo is completely open. Use data wherever it is stored (Oracle, DB2, Sybase, ngres, dBase, Lotus 1-2-3, Excel and many thers). With our MapBasic Development invironment, you can easily integrate maping into your client/server applications, too. In any desktop you want (Macintosh,

indows, Sun, HP, DOS).

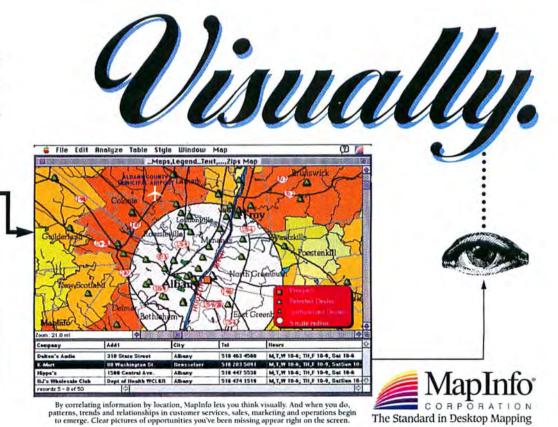
All of which will make it easy to confirm omething you've always known. But have ever been able to see. Inside every fat datasse are a thousand beautiful \$\$\$\$\frac{1}{2}\$

eas just trying to get out. apInfo is the key.

See for yourself, Send for a free copy of "How to See Opportunities By Thinking Visually" Call 1-800-327-8627. Federal Saler, 1-800-619-2333

How To See Opportunities By Trinking Q'issaelly.

All trademarks are the property of their respective owners. Maplifo is a registered trademark of Maplifo Corporation. UK, 1441-332-624-782 Benefus; [31] (5495) 31300 Germany; [49] 2104-13093



Circle 11 on reader service card



at a reasonable price. Nov 93

\*\*\* PowerPort/Gold, Global Village Communication, 415/329-0700, \$499. If you need 14,400-bps throughput, this data/fax modem is a champ. Its improved software and packaging raise the standards for PowerBook modems. Dec 92

\*\*\* Sportster 14,400 Fax/Data Modem, U.S. Robotics, 708/982-5001, 5329. Several nice features, including an easily accessible power button and a front-mounted volume-control dial, make this 14,400-bps fax/data modem better than average. Feb 93

★★★ SupraFaxModem 144PB, Supra Corp., 503/967-2400, \$349.95. If you're looking for a high-speed internal modem for your PowerBook, and want to save a few bucks, this modem is worth your consideration. Disabling its fax software helped solve occasional transfer problems. Nov 93

★★ Viva 14.4/Fax, Computer Peripherals, 805/499-5751, \$299. In data mode, this 14,400-bps fax/data modem performed well, but the software bundled with it is barely adequate. Jan 93

★★ WorldPort 9600 MNP5, U.S. Robotics, 708/982-5001, \$499. Only slighter larger than a deck of cards, this 9600-bps modem is geared toward PC users, with a user guide that never mentions Macs and software that is only for PC compatibles. Jan 93

### PRINTERS

★★★ Apple Color Printer, Apple Computer, 408/996-1010, \$2349. If you need large-format color output, but not precision color-matching, this well-built printer is a reasonable choice, although it doesn't support PostScript. Aug 93

★★★ DEClaser 1152, Digital Equipment Corp., 508/493-5111, \$999. Four-pages-per-minute, 300-dpi, PostScript Level 2 printer offers simultaneous support for Macs and PCs, plus excellent image quality, for a ground-breaking price. May 93

★★★ HP LaserJet 4M, Hewlett-Packard, 800/752-0900, \$2399. An Intel i8960 RISC processor makes printing complex images faster than ever with this 600-dpi printer, while the Canon LBP-EX print engine and microfine toner guarantee smooth curves and crisp characters. Feb 93

★★★ LaserWriter Pro 600 and 630, Apple Computer, 408/996-1010, \$2099 to \$2529. From their paper handling to their print quality, these laser printers are Apple's best. Unfortunately, they don't support emulation-sensing, and thus may be less desirable for mixed-platform offices than other possibilities. Jun 93

★★★ LaserWriter Select 300, Apple Computer, 408/996-1010, 5839. Inexpensive, lowcapacity printer is networkable, and an excellent buy, despite a few weaknesses. Add a 4MB SIMM to take advantage of the amazing PhotoGrade capabilities, which allow the printer to generate 91 shades of gray. Aug 93

★★ LaserWriter Select 310, Apple Computer, 408/996-1010, \$1099. This big, slow printer is a true Adobe PostScript printer with both Mac and DOS ports, but it's not networkable or compatible with the Communications Toolbox, it can't automatically switch ports, and it doesn't have adjustable paper guides. Aug 93

\*\*\* Phaser 200i Color Printer, Tektronix, 503/682-7377, S5995. This thermal-wax color printer

is fast and compact, with versatile paper-handling features. TekColor image-enhancement technologies provide excellent output quality that is, however, poor on letterhead and inexpensive photocopier bond. Aug 93

★★ PrintPartner 10W, Fujitsu Computer Products, 408/432-6333, 52450. While this multiplatform printer is fast and prints clearly, many Mac users will find it frustrating. It can't print some TrueType fonts. Jul 93

\*\*\* StyleWriter II, Apple Computer, 408/ 996-1010, \$359. Apple's ink-jet printer retains the best features of its predecessor, but costs less. New features, such as gray-scale printing and the ability to share the printer over a network, make it even more versatile. Jun 93

\*\*\* WideWriter, GCC Technologies, 617/
275-5800, \$1699. Large-format output is reasonably priced with this ink-jet printer that can automatically feed sheets as large as 14 by 91 inches or manually feed sheets 17 inches wide with an unlimited length. Feb 93

★★★ WriteMove II, GCC Technologies, 617/ 275-5800, \$599. Portable printer for the PowerBook measures 11½ by 2 by 3½ inches and weighs 2½ pounds. It's no speed demon, but it's fine for short jobs. May 93

### SYSTEMS/STORAGE

★★★ DataPak 105, Mass Microsystems, 408/522-1200, \$949 to \$1049. Well-built 105MB SyQuest drive comes with a decent, no-frills cartridge-formatting package and a copy of 7th Heaven. The preformatted cartridges have a lifetime warranty. Sep 93

\*\*\* FastCache Quadra, Daystar Digital, 404/967-2077, \$299 to \$449. PDS board provides 128K of secondary cache for a Quadra. The average real-world speed improvement is 15 percent, but some operations benefit more from the cache card than others. May 93

★★★ Infinity 105 Turbo, Peripheral Land, 510/657-2211, \$795 to \$894. Small, light, quiet, inexpensive 105MB SyQuest drive is ingeniously packaged and ideal for both desktop and PowerBook use. \$ep 93

\*\* Infinity Optical 3.5, Peripheral Land, 510/657-2211, \$1999. If you need the extra measure of permanence that magneto-optical storage provides—or a compact alternative to bulky cartridges this drive, based on a Sony mechanism and using 3½-inch disks that store 120MB of data, deserves a look. Jun 93

★★★ Macintosh Centris 610, Apple Computer, 408/996-1010, 4/80 \$1859. Slim-design Macuses a 20MHz 68LC040 processor at a price-to-performance ratio that comes close to competing with Windows PCs; however, its expandability is severely limited. Jun 93

\*\*\* Macintosh Centris 650, Apple Computer, 408/996-1010, 4/80 68LC040 \$2699. Moderately priced but fast 040 system offers three expansion slots and one drive bay, and (except for the base model) has built-in Ethernet, video circuitry, and a math coprocessor. This desktop Macintosh is as powerful as a Quadra 700. Jun 93

★★★ Macintosh Duo Dock, Apple Computer, 408/996-1010, \$1079. Clever housing for Duos provides back-panel connectors, a SuperDrive, support for external monitors, and two expansion slots. Some details, such as the difficulty of installing NuBus boards, belie Apple's usual attention to detail. Mar 93

\*\*\*
Macintosh LC III, Apple Computer,

When Macworld's experts tested a field of 14 color scanners, they concluded that you

don't have to pay a lot to get a good scanner, you just have to call Mirror.

### The Best Hardware

Mirror's award-winning scanners start with a precision three-pass scanner engine for superb color registration and sharpness.

Then we add hardware pre-scan gamma correction for top quality results in much less time. The Mirror Color Scanner is available in 600, 800 and now 1200 dpi models to fit every budget.

The Mirror Color Scanners can also scan slides and transparencies. Simply replace the standard cover with the optional

Transparency Adapter and you are ready to scan transparencies up to 8.5"x 11.7".

### The Best Software

Having great hardware doesn't get you much unless you've got great software. Our exclusive MirrorScan software delivers. No other scanning software can match

make scanning a snap our features. From full-color previews and interactive gamma controls, to built-in JPEG

Mirror Color Scanner

0

MirrorScan's powerful features

and Fast-Eddie compression, user-definable custom selections and support for EPS, TIFF and PICT file formats, MirrorScan makes it easy to get great scans.

Every Mirror 600, 800 and 1200 scanner includes the Plug-in, application and desk accessory versions of MirrorScan, along with a full version of Adobe Photoshop 2.5 and Read-It! Pro 3.0 OCR.



### MACWORLD CALLS ITA BARGAIN. WE CALL IT THE MIRROR COLOR SCANNER.



### The Coolest Scanner Of All!

If you need to scan 35mm slides, you'll want to check out the new Mirror Coolscan™ ZFP System. Based on the amazing Coolscan technology from Nikon, this scanner is the first to bring professional quality color scans to your desktop for under \$2000! Its remarkable color sensitivity, patented solid-state light source and 2700 dpi resolution will bring your work to life with stunning scans from slides or negatives.

The Mirror Coolscan is the same size as a standard hard drive and includes everything you need to start scanning right away.

The Coolscan application and Photoshop Plug-in module incorporate sophisticated image controls for top notch results every time.

### The Best Deals

Don't pay dealer markup! Buy direct from Mirror and keep the savings for other cool stuff. Every Mirror product is backed by our 30-day "love it or return it" satisfaction guarantee.

Circle 125 on reader service card

### Mirror Color Scanners

\$1099 600 dpi w/Photoshop and Read-It! \$1299 800 dpi w/Photoshop and Read-It1 1200 dpi w/Photoshop and Read-It \$1799 Tranparency Adapter for 600/800 models \$ 599 \$ 699 Tranparency Adapter for 1200 model Mirror CoolScan Slide Scanner \$1999

**Order Direct Anytime** Media: 1058

The best thing next to your Mac

to Second Street N.W. S. Paul, MN 55112 USA phone 612-613-4480







\*Necoche 1891 All price subjects change Price am for US order only, call for interactional pricing © 1891 Mirror Tichnologies Cooleans is a trademark of Nikon, Inc All trademarks are property of their imperior bolders.

### STATEMENT OF OWNERSHIP MANAGEMENT AND CROULATION REQUIRED BY 39 U.S.C. 3685

- 1. Macworld Pub. No. 07418647
- 2 Date of fling: October 1, 1993
- 3. Published monthly
- 3A. No. of issues published annually: 12
- 33. Annual subscription price: \$30.00
- 4. Known office of publication: 501 Second St.,
- San Francisco, CA 94107
- Complete mailing address of the headquarters of general business offices of the publisher:
- Macword, 501 Second St., San Francisco, CA
- 94107
- 6. The names and address of the publisher, editor, and managing editor are Publisher: James E. Martin, Macworld, 501 Second St., San Francisco CA 94107, Editor: Adrian Welo, Macworld, 501 Second St. San Francisco, CA 94107 Managing Editor: Charles Bartett, Macworld, 501 Second St., San Francisco, CA 94107
- 7 The owner is: DG COMMUNICATIONS INC., Patrick McGovern. 5 Spean St., Framingham, MA 01701. The names and addresses of stockholders owning or holding 1% or more of the total amount of stock are listed below.

### None

- 8. There are no known bondholders, mortgagess, or other security holders owning or holding 1% or more of the total amount of bonds, mortgages, or other securities.
- Extent and nature of circulation: Average no. copies each issue during preceding 12 months:
   A. Total no. copies (net press run), 670,048; B. Paid and/or requested circulation 1. Sales through dealers and carriers, street vendors and counter sales, 88,673.
   Mail subscription; (paid and/or requested), 429,787.
   C. Total paid and/or requested circulation (sum of 1081 and 1082), 518,460; D. Free distribution by mail carrier or other means, samples, complimentary, and
- E. Total distribution (sum of C and D), 559,845; F. Copies not distributed: 1. Office use, left over, unaccounted for, spoiled after printing 2,500; 2. Return from news agents, 107,708; G. Total (sum of E, F1 and F2 -should equal net press run shown n.A) 670,048

other free copies, 41,385;

Actual no. copies of single issue published nearest to fing date: A. Total no. copies (net press run), 715,000; B. Paid and/or requested circulation.

- 1. Sales through dealers and carriers, street vendors and counter sales, 82,711; 2. Mail subscription (paid and/or requested), 454,832; C. Total paid and/or requested discussion (sum of 1081 and 1082) 537,543, D. Free distribution by mail carrier or other means, samples, complimentary, and other free copies, 65,423. E. Total distribution (sum of C and D), 602,986; F. Copies not distributed. 1. Office use, left over unaccounted for, spoiled after printing 2,500; 2. Feturn from news agents, 109,534; G. Total (sum of E. F1 and F1 should equal net press run snown in A) 715,000,
- 11 Foerfilly that the statements made by me acove are correct and complete. Adrian Meto, Editor

### \*\*\*\* Star Ratings

408/996-1010, 4/80 \$1349. Base system comes equipped with a 25MHz 68030 processor and 512K of VRAM. This is a machine that fits the bill and the pocket-book of most home or small-business owners. Jul 93

\*\*\* Macintosh PowerBook 145, Apple Computer, 408/996-1010, 4/40 \$2149. Adequate but essentially outdated notebook computer is an upgraded version of the discontinued PowerBook 140 with a faster 25MHz 68030 CPU. Feb 93

\*\*\* Macintosh PowerBook 160, Apple Computer, 408/996-1010, 4/40 \$2429. A built-in video port and gray-scale capability are the new features Apple offers with this notebook computer. While it offers good processing speed and power, the passive matrix display doesn't cut it for all-day use. Feb 93

Macintosh PowerBook 165c, Apple Computer, 408/996-1010, 4/80 \$3399. The passive matrix screen of this color notebook computer is dull and has noticeable afterimages, but if your expectations are reasonable, the speedy processor provides a pleasant environment in which to work, Jul 93

★★★ Macintosh PowerBook 180, Apple Computer, 408/996-1010, 4/80 \$4109. An active matrix screen and a math coprocessor are the only differences between this notebook computer and the PowerBook 160, but the beautiful display is worth the extra \$1000. Feb 93

★★ Macintosh PowerBook 180c, Apple Computer, 408/996-1010, 4/80 \$4169. The active matrix screen of this color notebook computer is beautiful but so small that its usefulness is very limited. Sep 93

★★★ Macintosh PowerBook Duo 210 and 230, Apple Computer, 408/996-1010, 210 (4/80) 51839, 230 (4/80) 52299. Apple's smallest computers have the pleasing heft of hardbound books but pack the horsepower of 030 chips. Although the screen, keyboard, and trackball feel small, these computers virtually cry out to be picked up and used. Mar 93

\*\*\* Macintosh Quadra 800, Apple Computer, 408/996-1010, 8/230 \$4679. Squat, yet curvy and attractive, this minitower system has fewer expansion opportunities than the Quadra 950, but just as much power. It's fast, slick, and moderately priced. Aug 93

MicroMac Plus Upgrade System,

MicroMac, 714/362-1000, \$998. This 68030 accelerator for the Mac Plus requires disassembling a Plus and using the Plus system board to assemble the MicroMac system. It speeds up the Plus dramatically, and supports an included external full-page monochrome monitor. Jun 93

\*\*\* MultiDisk 150, Iomega, 801/778-1000, \$1225. Durable cartridges are one of the strongest reasons to choose this Bernoulli removable drive. Although it's slightly more expensive than a SyQuest drive, it's fast and reliable, and the disks are competitively price. Jun 93

\*\*\* OrangePC, Orange Micro, 714/779-2772, \$1799. NuBus board has a DOS processor, letting you have your Mac and a PC, too. It's fairly well executed, though there are some minor problems. Oct 93

★★★ PLI MiniArray 850MB, PLI MiniArray 2GB, Peripheral Land, 510/657-2211, \$4999, \$6999. These RAID storage systems contain multiple drives that work as a single unit; they're an excellent option for image processing or tasks that involve importing and exporting large files, but the price per megabyte is high. Jan 93 ★★★ SmartStack, Envisio, 612/628-6288,

SmartSource \$119; SmartModules \$289 to \$1379. The SmartStack line of modular storage peripherals may be neatly stacked on top of a common power supply to reduce desktop clutter and cabling problems. Sep 93

### VIDEO/DISPLAY

\*\*\* BookView Imperial, Computer Care, 612/371-0061, \$1399 (includes 6MB of RAM). This notebook-display adapter supports all common sizes of monitors, including 16-inch and 19-inch, plus both Mac and VGA. It is expensive, however, and uses 2MB of system memory for video processing. Feb 93

★★★ Dycam Model 3, Dycam, 818/998-8008, \$895. Low-end, digital still camera is easy to use, and is a solid product if Instamatic grade gray-scale meets your image quality requirements. Sep 93

\*\*\* Editing Aces Suite, RasterOps, 801/785-5750, \$3899. Video professionals and serious (or rich) QuickTime enthusiasts can record and play back full-screen movies in 24-bit color with 16-bit CD-quality sound with this collection of products. Despite flaws, such as a limit of 320-by-240-pixel resolution, this package represents a praiseworthy step forward in QuickTime technology. Nov 93

L-TV, Lapis Technologies, 510/748-1600, \$349. Interface board allows a Mac LC, LC II, or Performa to use a standard television monitor as a display device. Unfortunately, a standard TV is a poor substitute for a color monitor, so while the L-TV does its job adequately, the setup is unsuitable for many applications. May 93

★★★ Lightning Effects II, Spectral Innovations, 408/955-0366, \$1295. Digital-signal-processor chips dramatically speed up some Photoshop operations with this expensive Photoshop-acceleration board. It had problems acquiring some JPEG files. May 93

★★★ PaintBoard Turbo, RasterOps, 408/562-4200, \$1499. Midrange video board supports 24-bit color on monitors up to 17 inches and resolutions as high as 1024 by 768 pixels. If you can live without changing resolutions on the fly, it's a reasonably good deal. Oct 93

Power Portrait, Sigma Designs, 510/770-0100, \$899 or \$949. Hook your Classic or PowerBook to this 15-inch portrait-style monochrome display. Built-in QuickDraw acceleration speeds up the slow SCSI connection on the one hand and results in a few software incompatibilities on the other. Feb 93

★★★ PowerVision, Mirror Technologies, 612/633-4450, \$499 to \$999. Separate VRAM means you don't lose system memory with this nicely priced notebook display adapter. It only supports 12-inch and 14-inch monitors, and 15-inch portrait gray-scale and black-andwhite monitors. Feb 93

\*\*\*
ThunderStorm, SuperMac Technology, 408/245-2202, \$699. Photoshop-acceleration board uses digital-signal-processor chips to speed up some Photoshop operations. It's fast, with good JPEG compatibility and a great manual. May 93

★★★ VideoSpigot, SuperMac Technology, 408/245-2202, \$449 to \$1299. Grab video from a camcorder, video deck, TV, or monitor with this easy-to-install board and save it as a 24-bit QuickTime movie. May 92 ★★ VideoToolkit 2.0.1, Abbate Video, 508/376-3712, \$279. Despite a few rough edges, this is an attractive, inexpensive solution for those who need to catalog and edit videotapes on a budget. Sep 93 m

### GET Organized!

### THE MACINTOSH WAY

### ALL NEW!

HE AWARD WINNERS JUST GOT
BETTER. TOUCHBASE™ AND
DATEBOOK™ HAVE TURNED PRO.
FINALLY, WHAT YOU HAVE BEEN WAITING
FOR—A CONTACT MANAGER THAT
PROVIDES POWER AND EASE-OF-USE
AND A TIME MANAGEMENT PROGRAM
THAT HAS THE FLEXIBILITY TO TRACK ALL
YOUR DAILY ACTIVITIES. BEST OF ALL.

TOUCHBASE PRO AND DATEBOOK PRO
ARE TIGHTLY INTEGRATED TO PROVIDE YOU WITH
THE BEST IN PERSONAL INFORMATION
MANAGEMENT, AVAILABLE FOR STAND ALONE
OR NETWORK USE!

### **AVAILABLE NOW!**

FOR YOUR COPY OR UPGRADE
JUST CALL

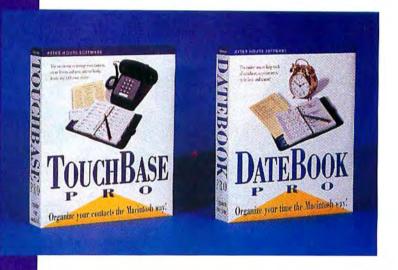
☎ 1-800-888-6293, ext. 2

OR VISIT YOUR FAVORITE SOFTWARE DEALER









### A FEW THINGS YOU CAN DO WITH TOUCHBASE PRO

- MANAGE YOUR CONTACTS EASILY
- CREATE LETTERS WITH A BUILT-IN LETTER WRITER
- DIAL YOUR TELEPHONE AUTOMATICALLY
- PRINT ADDRESS BOOKS, LABELS, & ENVELOPES
- KEEP FILES CURRENT WITH FILE RECONCILIATION

### A FEW THINGS YOU CAN DO WITH DATEBOOK PRO

- KEEP TRACK OF YOUR APPOINTMENTS & TO-DOs
- POST MEMOS TO YOUR CALENDAR
- PRINT CALENDARS: POPULAR FORMATS & WALL CHARTS
- SET ALARMS AND REMINDERS TO JOG YOUR MEMORY
- FUN ICONS & BANNERS PERSONALIZE YOUR CALENDAR

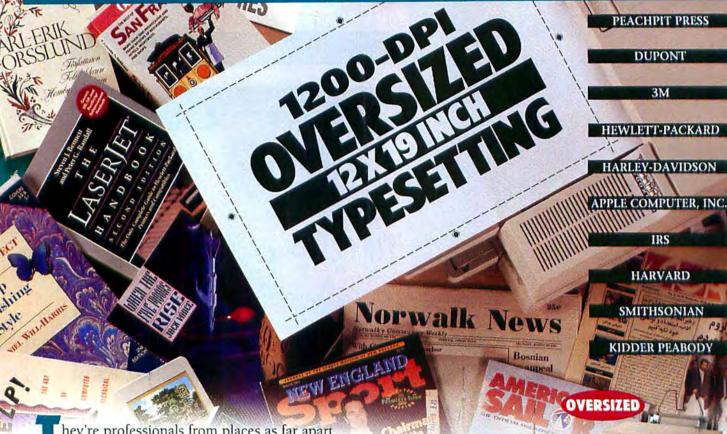


Aldus Corporation Consumer Division 5120 Shoreham Place San Diego, CA 92122-5926

Aldus and the Aldus logo are registered trademarks and DATEBOOK and TOUCHBASE are trademarks of the Aldus Corporation.

Circle 145 on reader service card

## Why Professionals Choose LaserMaster®



hey're professionals from places as far apart as New York and San Francisco. They're from organizations as diverse as R.R. Donnelley & Sons, Peachpit Press, the Los Angeles Times, and Xerox. What do they all have in common? They all trust LaserMaster.

Their reasons are simple. LaserMaster, the company that originated the high-resolution plain-paper typesetting industry, provides the quality they demand.

Why not trust the company that started it all? Call us at LaserMaster. You'll see how convenient and cost effective plain-paper typesetting can be.



The Professional's Choice™

CALL 800-950-6868 DEPT. 47L 612-944-9330 Fax: 612-944-0522

### Unity 1200x1-0 Plain-Paper Typesetter

Features:	Benefits:
Oversized Printing	12x19-inch pages allow for full bleeds with crop and registration marks— eliminates paste-up, saves time and money.
1200-dpi Resolution	For camera-ready text, halftones, line art, reverses, screens.
Internal Hard Drive	Stores thousands of fonts, eliminates font downloading.
Multi-Platform/Networking	Mac, PC, and Unix users can all attach to the same printer
235 Premium Type 1 Typefaces	Provides high-quality typographic flexibility.
ClearCopy™ Copier Enhancement	Ensures halftones look crisp and clear after photocopying.
33-MHz Processor	Processes print jobs fast.
Gamma Correction	Adjusts images to compensate for dot gain on press.
Software Upgradable	Prevents obsolescence.
Direct-to-Plate	Provides a cost-effective solution for short print runs.

### ALSO AVAILABLE:

Unity 1200xL-T

Plain-Paper Typesetter
•1200-dpi •11x17-Inch Output •Multiple Users

•135 Typefaces

### LaserMaster 1200xL Personal Typesetter

•1200-dpi •11x17-Inch Output •Single Users •135 Typefaces





© 1993 LaserMaster Corporation, 6900 Shady Oak Road, Eden Prairie, MN 55344, LaserMaster Europe Ltd., (31) 2503 22000 LaserMaster, the LM logo, and TurboRes are registered trademarks; and "The Professional's Choice," Unity and ClearCopy are trademarks at LaserMaster. These products incorporate TrueImage v.1 software with LaserMaster enhancement for performance and resolution. Specifications subject to change, Prices in U.S. dollars and subject to change. This ad was produced using a Unity 1200s, o.

# Streetwise Shopper

### SPECIAL HARDWARE AND SOFTWARE BUYING OPPORTUNITIES

### Selected and edited by Charles Barrett

These special product promotions are being sponsored by Macintosh vendors and resellers for a limited time only. When ordering a product, please be sure to tell the vendor or reseller that you saw the promotional offer in Macworld. Should any problems arise, please inform the Streetwise Shopper editor by fax (415/442-0766), phone (415/978-3241), or mail (Macworld, 501 Second St., San Francisco, CA 94107).

Listings indicate the star rating awarded in Macworid's Reviews (products rated \*\* or lower are not eligible to be listed), if the product has been chosen as an Editors' Choice, and if it has won a World-Class award. In some cases, the editorial evaluation quoted is for an earlier product version.

### BUNDLES

APS PowerBook Drive + APS PowerBalls APS Technologies is offering four precision PowerBook trackball replacements (Dec 93 Desktop Critic—"stunningly useful stocking-stuffers")—in neon green, orange, yellow, and hot pink—for S9.99 (regularly \$19.99) when you buy any APS PowerBook drive (Nov 93 "Jumbo PowerBook Storage"—"you really can't go wrong with any of these drives"). Available direct (800/723-2080). Offer expires 11/30/93.

ClubMac Epson 3½-inch Optical Drive +
Cartridge ClubMac is including a free cartridge (regularly \$35) with its 128MB Epson OMD 5010 optical drive (Dec
93 "Optical Options" Editors' Choice—good tech support,
has good manual, and exhibits high performance"). Available
direct (800/258-2622) for \$849. Offer expires 12/31/93.

ClubMac Sharp 5'/4-inch Optical Drive + Cartridge ClubMac is including a free cartridge (regularly \$89) with its 650MB Sharp JY-750 optical drive (Dec 93 "Optical Options" Editors' Choice—"without question the best bargain among 5'/4-inch drives"). Available direct (800/258-2622) for \$1799. Offer expires 12/31/93.

FileGuard 2.7 + TrashGuard 1.0 + FileDuo 1.0
ASD Software is offering its \$249 FileGuard password-protection product (Feb 93 "Data Guardians"—"a strong product"), \$79 TrashGuard shredder utility, and \$149 FileDuo automatic backup program. Available through MacWarehouse (800/225-6227) for \$149.95 (regularly \$278 when products sold separately). Offer expires 1/31/94.

Lind PowerBook Battery + PBTools 1.1 Lind Electronic Design is including Inline Software's \$99.95 PBTools utility (Jul 93 \*\*\* for version 1.01—"basic PowerBook management without added frills or complex menu-bar displays") free with its replacement battery for all PowerBooks with NiCad batteries, including the latest color units. Available direct (800/659-5956) for \$69.95. Offer expires 12/31/93.

Random House CD-ROM + Hardcover Dictionaries The Mac Zone is including a \$100 hardcover copy of the Random House Unabridged Dictionary free with the purchase of the \$100 CD-ROM version of this dictionary,

which now includes more than 320,000 entries and 1000 new words, Available through The Mac Zone (800/248-0800) for \$62.98, Offer expires 12/31/93.

### COMPETITIVE UPGRADES

Drive 7 2.3 Casa Blanca Works is offering this \$79,95 universal drive-formatting utility (Jan 93 ★★★—"easy enough to use to make hard drive maintenance almost relaxing") to users of any other drive formatter for \$39,97 (\$29,95 in the case of OEM product Drive 7 Lite users who wish to upgrade to the full version). To qualify, fax manual cover (415/461-2249) or send master flopples (148 Bon Air Center, Greenbrae, CA 94904). Offer expires 1/31/94.

Lotus 1-2-3 1.1 The Mac Zone is offering Lotus's \$495 spreadsheet program (Apr 92 \*\*\*\* for the initial release—"comparable to Excel in many respects and better in some key areas") to users of any other spreadsheet package. Available direct (800/248-0800) for \$98.98. For \$119, Fifth Generation Systems' \$189 Disklock 2.12 encryption plus access-protection program (see Feb 93 "Data Guardians") and the Lite edition (does not work on PowerBooks or Duos) of Snooper 2.0, the \$249 hardware-diagnosis utility, are also included. Offer expires 1/31/94.

### DISCOUNTS/REBATES/FREE OFFERS

AAIS Full Control Prolog 3.1 Advanced A.I. Systems is offering this \$495 interactive, object-oriented development system of the Prolog programming language, which includes 680 pages of documentation and almost 15,000 lines of code, direct (415/948-8658; fax 415/948-2486) for \$199. Offer expires 12/31/93.

Caduceus Physics, Chemistry, Biology Scientia is offering these fully animated \$130 HyperCard stacks to prepare students for the Medical College Admission Test (Jan 93 ★★★ for Caduceus Physics 1.0—"I'd recommend [it] in a minute") direct (617/776-3427) for \$70 each. The complete \$250 Caduceus Project four-stack set (which also includes Organic Chemistry) is \$125. Offer expires 2/30/94.

Finale 3.0; Finale Allegro 1.0 Coda Music Technology is offering a \$100 rebate on its \$749 Finale (academic edition not eligible) music-notation program (Dec 93 \*\*\*\*—"the new standard against which all other music-notation products must be judged"; 1992 World Class), and a \$50 rebate on its brand-new \$349 Finale Allegro midrange version, when purchased in the U.S. or Canada after 10/15/93. Call 800/843-2066 for nearest authorized reseller and proof-of-purchase requirements. Offer expires 12/15/93.

Interactive Training for Macromedia Director Media in Motion is offering this \$199, self-paced, Director-authored courseware (Jun 93 for \*\*\*—"approaches its topic in a clear, lighthearted manner") direct (415/621-0707; fax 415/621-1724) for \$99. Offer expires 12/31/93.

Kai's Power Tools 2.0 HSC Software is offering a special introductory price on the latest version of this \$199 collection of plug-in extensions for Adobe Photoshop, Fractal Design Painter, and other programs (May 93 \*\*\*\* for version 1.0—"no one who uses Photoshop regularly should be without this amazing tool"). Available for less than \$100 through CompUSA (800/451-7638), Computer City (800/826-3928), Egghead Software (800/344-4323), and other national resellers. Offer expires 12/31/93.

Microsoft Office 3.0 Tutorial Personal Training Systems is offering a \$50 rebate on this \$399 interactive, self-paced tutorial (includes a 90-minute audiocassette and practice disk with lesson files for System 7 and Microsoft Excel, Word, and PowerPoint) when purchased after 10/25/93. Available for \$100 (including rebate) through Apple Catalog (800/795-1000), MacConnection (800/800-2222), MacWarchouse (800/255-6227), and The Mac Zone (800/248-0800). Send dated sales receipt to PTS at 828 S. Bascom Ave., #100, \$an Jose, CA 95128. Offer expires 12/31/93.

Mr. File 2.0 Softways is offering this \$99 Finder-alternative utility (Dec 93 \*\*\*\*—"well-designed background capabilities make it a handy desk accessory for a good [list] price") direct (408/978-9167; fax 408/448-0620) for \$29.95 (plus \$4.95 S&H). Offer expires 12/15/93.

Multiple Master Typefaces Adobe Systems is offering any of its nine \$95 to \$275 Multiple Master typeface packages (Jul 92 \*\*\*\*\* for Myriad typeface—"exceeds all previous ideas of electronic font perfection") direct (800/445-8787) for \$89 each. Also, ITC Avant Garde Gothic, Tekton, and Minion typeface customers can upgrade to Multiple Master versions for \$49 each. Offer expires 12/31/93.

Planet Color 1.0 LizardTech is offering this \$199 multimedia image-compression and 24-bit-to-8-bit conversion program (including a free \$49.99 upgrade to the next version) direct (505/989-7117; fax 505/989-9292) for \$75. In addition to the capabilities of LizardTech's Fast Eddie product, Planet Color adds palette manipulation and batch processing. Offer expires 12/31/93.

Roadrunner DataXpress External Case Kit Microtech International is offering users who upgrade their PowerBook internal drives this new home for their original 2½-inch drive. The case runs on standard AC power or the included rechargeable battery, permitting five hours of mobile operation. Available direct (800/626-4276 or 203/468-6223) for \$139 (regularly \$159). Offer expires 11/30/93.

ultraShield 1.255 usrEZ Software is offering a \$20 rebate (on receipt of registration card and dated sales invoice) on this \$149 password- and access-control program (Dec 93 \*\*\*—"combines practically every security feature you might need in one integrated package") when purchased after 10/15/93. Available through resellers including Mac-Warehouse (800/255-6227), The Mac Zone (800/248-0800), Mac's Place (800/367-4222), and Dr. Mac (800/825-6227). Offer expires 12/31/93. m

### TAKE CARE OF

If you find any of products listed here or in our catalog advertised for less in this magazine, we'll meet or beat that price!

- The Lowest Prices
- The Widest Selection
- Over 2,500 Items in Stock
- **Expert Mac Advisors**
- Money Back Guarantees
- Overnight Delivery Only \$3
- Easy Methods of Payment
- Corporate, Governmental and Educational Accounts
- International Accounts
- International Dealers and Distributors Welcome

### **CALL NOW FOR YOUR** FREE CATALOG!



Ask for your **FREE** Field Assistant with purchase of any modem featured in this ad or our catalog.





### HAYES...THE RIGHT CONNECTION

ACCURA 144 + FAX 144 Item # Hay34 Accura 96 + Fax 96 (New lower price) \$228

Item # HAY33 Accura 2400 Item # HAY32 \$88 Optima 144 + Fax 144 Item # HAY36 \$488

(pocket edition ext.) Smartcom II 3.4 for Mac Item # HAY10 \$82

HayesConnect 3.0 Item # HAY23 \$75



### **UMAX UC1260** COLOR SCANNER

The UMAX UC1260 scanner is built to provide users with 2400 dpi high resolution color images. It has a built-in hardware gamma correction to match the original colors. In addition, the UC1260 offers 8-bit gray-scale, 1-bit halftone and 1-bit line art modes to speed up Item # UMAX18 scanning time.

UC840 Item # UMAX14 UC630 (New lower price) Item # UMAX10 \$898



### MACACADEMY

America's Most Popular Mac Workshops Now on Video!

MacAcademy has a unique Video Training Library that eliminates wading through huge instruction manuals. Each video features a top trainer to teach the program from start to finish. Cut your learning curve by 70%! Most top programs featured on video. See the technique on the screen; replay; fast-forward. Excellent learning libraries for companies, schools, individuals and clubs.

Winner 1992 MACWORLD World Class Award.



### CAPITALIST PIG

Animated business simulation game challenges you to build and run your own business under authentic economic conditions. Experience the challenge of business, scandals, fires, and terrorists, as you battle for billions or bankruptcy. Enjoy the results or suffer the consequences. Packed with fun and rave reviews from entrepreneurs of all ages.



### ultraSHIELD'

Using ultraSECURE- technologies, MacWorld Editors' Choice for best value, ultraSHIELD's password and access control system provides: Most features, easiest to use, genuine security. Three levels of protection to control who accesses, reads, copies, changes or deletes files, folders, and applications. Features include: erasing/shredding to U.S. Government standards; anti virus capability. Prevents tampering with Macs or Powerbooks. Item # USR10-80

ultraSECURE Item # USR11-80



SuperPIM!" MacUser. Rae Assist is an integrated personal information assistant that organizes all your personal and business information in an easy-to-use software binder. Using sections for People, Companies, Planner, To Do, Projects and Items, you can link your information together to get more done! Print labels, envelopes, list and schedules. Item # RAE10

Assist/Connectix CPU Bundle Item RAE11 \$178 Assist/Connectix CDU

**Bundle Item RAE12** 

Software Only!



Now for the first time, enjoy cartoon classics in QuickTime<sup>144</sup> on your Mac. These are public domain cartoons featuring Porky Pig, Daffy Duck, Betty Boop and Bimbo. Clips from any of these cartoons will work great for your multimedia presentations or, just sit back and enjoy them for pure entertainment. Item # WZ34-89



### **VOL II**

Where Pictures Are Worth a 1000 Words...and royalty free!!

A high-res professional photographic library CD-Roms with over 90 (2 gigabytes) beautiful photo-graphs of mountains, parks, ocean scapes, panoramic views, exotic flowers and more. All photos are of the highest quality and ready for publishing. License agreements permit purchaser rights to customize images. Photos are in 24- and 8-bit PICT files. Item # ERG11-89

### **MULTI-AD SEARCH 2.0**

An innovative graphics database that allows users to catalog and retrieve Mac-based graphics; provides the ability to open Ver. 1.0 files and Aldus Fetch" 1.0 files. Search 2.0 offers unlimited potential with 160,000+ records per catalog and faster search times. Item # MUL11 Multi-Ad Creator 3.5.2 Item # MUL10-80 \$538

PHONEPRO

PhonePro, the award-winning telephone applications builder, works with your SupraFAX-Modem V.32bis modem to give your Mac powerful voice & data handling capabilities. Phone-Pro's easy-to-use scripting language makes creating & running virtually any type of telephone appli-cation on the Mac easy. Item # CYP21

FaxPro 2.2 (Software only) Item # CYP18 \$398 FaxPro 14-4 V.2.2 Item # CYP17 \$748 PhonePro Item # CYP13 \$669

### HARDWARE

ArtZ Painter Bundle\$488	
DayStar 33 Turbo 040\$1269	
DGR 128 Optical Drive\$988	
MicroWriter PS23S698	
PowerPort & TelePort Gold\$368	
Quantum LPS 240 Internal\$298	
ScanMaker HXE & Transparency\$1865	
SyQuest 88C 88/44\$468	
Toshiba 3401 Multispeed Multisession \$548	

### SOFTWARE

Adobe Illustrator 5.0 (disk)	\$363
Cause 3.0	\$178
Common Ground	5118
Deneba UltraPaint	\$29
ileMaker Pro 2.03	\$265
MicroSoft Word 5.1	\$294
OmniScan 256	398
PageMaker 5.0	\$588
QuarkXPress 3.2	\$588

**POLICIES:** Credit card is not charged until order is shipped. Shipping: \$3 in Continental U.S.A.. UPS overnight guaranteed (subject to credit approval). 'Hardware over 10 lbs actual or dimensional weight will be shipped ground. Money Back Guarantees & Returns: call for RA# before return. Retain original packaging. Restocking fee may apply. Low price guarantee good at time of purchase only.



Fax: (818) 504-9380 or (618) 504-2159 11050 Randall Street, Sun Valley, CA 91352 • (818) 504-1800

Product Index
A quick and easy product index from MacWorld. Simply use this index to find the page or advertiser of the products which interest you. Then, use the reader service number for our EastEasts Product Information Cord Inserted as the service number for our FastFacts Product Information Card located on the next page.

Page Na	Advertiser	Reader Svc No	Page Na	Advertiser	Reader Sec. No.	Page No.	Advertiser	Reader Svc. Na.	Page As.	Advertiser	Reader Svc. No.
SOFT	WARE		164	ASD Software	170		MacProducts USA	175	FURNITUE	RF	
			28	Berkeley Systems	84		MicroNet Technology	139	0.313772.73	Agio Designs	
USINESS		***	152	Connectix	189	177 284	MicroNet Technology	113 116		Anthro	_
	Aldus Consumer Division Alsoft	145 98	161 212	Dantz Development DataWatch	26 37	174	Microtech Int'l Mirror Technologies	100		Ergodyne	39
61 46	Avery Dennison	197	7	Fifth Generation Systems	134	27	Pinnacle Micro	55	176	MacTable/Scanco	-
	Checkmark Software	34	12	GDT Softworks	42	29	Pinnacle Micro	115	Various in		
9	Computer Associates	10	99	Insignia Solutions	68	283	Super Micro	126	MISCELLA		407
-	Kaetron Software	185	218	MSA Inc.	130		77.77.77.7			Avery Dennison	197
IFC-1	Microsoft	3-0	108-109	Now Software	133		ONS/UPGRADES			Ergodyne MacTable/Scanco	39
	PrairieSoft, Inc.	269	179	Now Software	49		Applied Engineering	167	170	Wide rubic, bearings	
	Statsoft	99	40	Symantec -Num	_	32	Daystar Digital	7			
	TBSP	25	196	Symantec -Sam	_	INPUT DE	WICEC		1111		
	Teleware, Inc.	194	VERTICAL			11121 201	Kensington Microware Ltd		MAII	ORDER	
32-133	Wordperfect	-		TBSP	25		Relisys/Express Direct	262			
AD/CAM			10	1001	2.5	2.10	Hanaya, Express prises	202		Alliance Peripheral Syste	
	Engineered Software	12	WORD PR	OCESSING		MISCELI	ANEOUS			BottomLine Distribution	63
	Graphsoft	46		Wordperfect	_	254	E-Machines	136		Club Mac DGR Technologies	76 65
	Wolfram Research	_		-X 5 L C		BC	Kensington Microware Ltd		286	Direct Connections	121
			HAR	DWARE		80	RasterOps .	67		Dr. Mac	177
D ROM										Educational Resources	28
	Apple	_	BOARDS	CONTRACTOR OF THE		MODEMS		***		Express Direct	81
	Corel Corporation	78		Applied Engineering	167		Supra Constitue Computing Core	132	297	International	
	Educorp	157	195	Harris International	160		Coactive Computing Corp.  Dayna Communications	142		Mac Specialists	103
	Interactive Box Office	92	58	Radius	14 88		Syex Express	176		LLB Company, The	35
326	Quantum Leap Technologie	S 101	145	Supermac	00	320-323	Dydy Lyhicos	170		Mac Zone, The	70
COMMUN	UCATION		CD ROM			POWERB	OOKS			Mac's Place	250
	DataViz	79	203-210	Apple	_	150	E-Machines	136		MacCenter	105
,,,	Datavic	, ,	330-331		157	202	Lind Electronic Design	82		MacConnection MacDirect	58
DUCATIO	DNAL			NEC Technologies	-	199	Technöggin, Inc.	94		MacMall	131
	Educational Resources	28	27	Pinnacle Micro	55	1				MacNews	172
			29	Pinnacle Micro	115	PRINTERS				MacProducts USA	175
ENTERTA	INMENT		283	Super Micro	126		Canon USA	110		MacWarehouse	150
	Berkeley Systems	84	T Del sessione	2000000		100-101		02	284	Microtech Int'l	116
	Casady & Greene	32		R SYSTEMS		22-23	America Corporation Hewlett Packard	83	249	Mirror Technologies	125
	Maxis	40	47-49	Apple BottomLine Distribution	63	227	Hewlett Packard	=		Mirror Technologies	100
108-109	Now Software	133	2-3		03	252	LaserMaster	43	201	Mirror Technologies	122
GRAPHICS	OTO.		327	Printer Connection	91	213	OMS	_		Printer Connection	91
30-31		_	32.1	Thite boll seller	-	173	Tektronix	143		Syex Express	176
	Color Systems Support (CS	SI 9	DIGITIZER	IS/SCANNERS		85	Texas Instruments	265	263	Tiger Software	114
39	Corel Corporation	78	54	Caere Corp.	69	86-87	Texas Instruments	266			
11	Deneba Software	57	90-91	Epson	-	89	Texas Instruments	267			
44	Fractal Design	190	4.55	Hewlett Packard	_	254	Texas Instruments	80			
	Image Club	50	249	Mirror Technologies	125	286	Xante Corp.	1			
181-A	Specular International	180	216	Relisys/Express Direct	262	VIDEO					
1100 6540	1,000.0		DIDDI AV				Mirror Technologies	124			
MISCELLA		42	DISPLAY	Express Direct	81	58	Radius	14			
	GDT Softworks Mapinfo Corporation	11		MacNews	172		RasterOps	67			
	Wolfram Research	-		Mirror Technologies	124		Supermac	88			
223	YVONIAIT TESCUTEIT		201	Mirror Technologies	122						
NETWORK	CING		IBC	NEC Technologies	16	SER	/ICES				
326	PrairieSoft, Inc.	269	214	nView Corporation	117	13000					
			224	Philips Consumer Electron	ICS 19	ON LINE	America Online				
CR				12.101.02.02			America Online	66			
54	Caere Corp.	69		SKS/STORAGE	100	215	Compuserve	00			
				3M Data Storage 3M Data Storage	109	TRADESH	IOWS/CONFERENCES				
PERSONA				Alliance Peripheral System		140000000000000000000000000000000000000	Macworld Expo SF	-			
56	Intuit	_		Club Mac	96	1,000 100	2277				
OWERBO	оок			Contemporary		TRAININ					
	Symantec -Num	_		Cybernetics Group	188		Color Systems Support (C				
	Symantec -Sam	_	277	DGR Technologies	65	76	MacAcademy	106			
	And the Lond		286	Direct Connections	121						
SECURITY			18	Fujitsu Computer		ACC	ESSORIES				
326	Secure-It	4	220	Products of America	268	El ADRY :	DISKS/HOLDERS				
	20		297	International	103		3M Data Storage	109			
		0.0	88	Mac Specialists Iomega	111		3M Data Storage	38			
STATISTI				ionega	1.11	4.41	and mine equally				
	Statsoft	99		La Cie	52						
		99	13-17 270	La Cie LLB Company, The	52 35						

Advertiser Index
Say you saw it in Macworld. To purchase products advertised in this issue, call the phone numbers below or use the reader service number for our FastFacts Product Information Card located on the next page.

Page	Advertiser	Reader Svc. No.	Phone	Page	Advertiser	Reader Sec. No.	Phone	Page	Advertiser	Beader Syc. No	Phone
161	Agio Designs	_	800/688-2446	195	Harris International	160	800/783-3726	58	Radius	14	800/227-2795
30-31 251	Aldus Aldus Consumer Division		800/685-3517 800/367-8911	118-119 22-23	Hewlett Packard Hewlett Packard	Ξ	800/SCANJET	80 216	RasterOps Relisys/Express Direct	67 262	800/SAYCOLOR 800/944-8855
61 219-220 6	Alsoft America Online Anthro	98	800/378-0432 — 800/325-3841	227	Hewlett Packard	-	800/LASERJET				
203-210	Apple	=	-	400 400	IDC Wald Free			326 181-A	Secure-It Specular International	41	800-451-7592 800/433-7732
237	Apple	_	_	162-163	IDG World Expo Image Club	50	800/661-9410	239	Statsoft	99	918/583-4149
47-49 128-129	Applied Engineering	167	800/554-MACS	99	Insignia Solutions	68	800/848-7677	145	Supermac	88	800/334-3005
164	ASD Software	170	909/624-2594	2-3	Intel Corporation Interactive Box Office	92	800/395-7009	231 328-329	Supra Syex Express	132	800/967-8772 800/289-7939
46	Avery Dennison	197	800/462-8379	146-147 56	Interactive Box Unice	92	=	40	Symantec ·Num	-	-
				88	lomega	111	800/967-0326	196	Symantec -Sam	-	·
28	Berkeley Systems	84	800/248-0800								
	72.5.07			26	Kaetron Software	185	800/938-8900	10	TBSP	25	714/721-8603
54	Caere Corp.	69	800/535-SCAN	BC	Kensington Microware L		800/535-4242	199	Technöggin, Inc.	94	800/305-7936
66	Canon USA	110	800/OKCANON	1.7				173	Tektronix	143	
235-W	Casady & Greene	32	Committee of the Commit	13-17	La Cie	52	800/999-1182	45 83	Teleware, Inc. Texas Instruments	194	800/851-1315 800/527-3500
64 20	Central Point Software Charles River Analytics In	- 10	800/277-3873 800/913-3535	252	LaserMaster	43	800/950-6868	85	Texas Instruments	265	
198	Checkmark Software		800/444-9922	202	Lind Electronic Design	82	800/659-5956	86-87	Texas Instruments	266	800/527-3500
100-101	Citizen America							89 241	Texas Instruments 3M Data Storage	267 38	800/527-3500 800/888-1889
244 245	Corporation Coactive Computing	83	800/4PRINTERS	165-167	Mac Zone, The	70	40	62	3M Data Storage	109	
244-243	Corp.	142	800/825-2NET	76	MacAcademy	106	800/257-1914				
180	Calor Systems			68-73 176	MacConnection MacTable/Scanco		800/800-3333 800/722-6263	223	Wolfram Research	_	800/441-MATH
215	Support (CSS)	66	800/448-8432 800/848-8199	194	Macworld	_	-	132-133	Wordperfect	_	800/526-7820
9	Compuserve Computer Associates	10	800/225-5224	182-187	Macworld Expo SF	_	77	1.00.77			
152	Connectix	189	800/950-5880	246-247 228	MapInfo Corporation Maxis	11 40	800/551-6277 510/254-9700				
21	Contemporary Cybernetics Group	188	804/873-9000	326	MicroFrontier, Inc.	_	800/949-5555				
39	Corel Corporation	78	800/836-3729	24	MicroNet Technology	139	714/453-6000	7	URN TO THE !	MACU	WORL D
				177 IFC-1	MicroNet Technology Microsoft	113	714/453-6000 800/426-9400	1			
161	Dantz Development	26	510/253-3000	174	Mirror Technologies	100	800/643-3367		SHOPPER ON		
78	DataViz	79	800/733-0030	201	Mirror Technologies	122	800/643-0631		TO FIND ADD		
212	DataWatch	37		243 249	Mirror Technologies Mirror Technologies	124 125	800/643-3384 800/643-4142		ADVERTIS	SERS	
190	Dayna Communications Daystar Digital	7		218	MSA Inc.	130	800/366-4622				
11	Deneba Software	57									
				153-160	NEC Technologies	_	800/NEC-INFO				
150	E-Machines	136	800/344-7274	IBC	NEC Technologies	16	800/NEC-INFO				
330-331			800/843-9497	74	Newgen Systems	74/75					
	Engineered Software		919/299-4843	108-109	Now Software Now Software	133	800/237-3611 800/237-3611				
90-91	Ergodyne	-	800/BUYEPSON 800/323-0052	214	nView Corporation	117			_		
42-40	Ligouyne	33	000/323-0032	-					nfo <i>l</i>	-7	
	Elith Consenting Postsons		000/447 0040	224	Philips Consumer						1/
7 44	Fifth Generation Systems Fractal Design	134	800/447-8212 800/647-7443	200	Electronics	19	800/835-3506				The Control of the
18	Fujitsu Computer			27 29	Pinnacle Micro Pinnacle Micro	55 115	800/553-7070 800/553-7070	For ins	tant faxed back in following adve		
	Products of America	268	408/748-2944	326	PrairieSoft, Inc.		515/225-3720				
				327	Printer Connection	91	714/758-8832		call 1-800-2		
	GDT Softworks		800/663-6222					an	d enter the approp	oriate	extension.
233	Graphsoft	46	410/290-5114	213	QMS	-	800/392-7559	For in	formation from:		
				326	Quantum Leap				I Point Software -	enter	extension 501
				1	Technologies		305/885-9985	QMS			entension 502

### JUST FOR YOU. FREE PRODUCT INFORMATION FROM MACWORLD.

There's no cost or obligation. We even pay the postage! Simply fill in the questionnaire, then circle the numbers on the card below for the products that interest you. Numbers for advertised products can be found in the ad and in both the Product Index and Ad Index. Fold card and mail. No staples please.



Please answer these o	questions so tha	t we may be	etter serve you.

		Please	answer the	ese q	uestions	so that	we may better serve you.			
mar entir offic	ading yourself, approximately how ny people are employed at your te work-site (i.e., employees in your e, building, or cluster of buildings)? sek one.) 1000+ 999 - 100 99 - 25 Under 25	inst (Ch D. For with pur or s	+ 0	re work intosh c ork-site ent for p one.)	omputers do you have products and/ D ===================================	wil Ma	er the next 12 months, how much this entire work-site spend on cintosh products and/or services? seck one.) \$1 million or more \$999,999 – \$500,000 \$499,999 – \$100,000 \$99,999 – \$50,000 \$49,999 – \$10,000		at is your primary job function? teck one.)  Computer Reseller/VAR/VAD  MIS/DP/IS/Network Management Engineering R&D/Scientific Corporate/General Management Accounting/Finance Marketing/Sales/PR/	
insta	ch of the following computers are alled at this entire work-site?	99 - 49 -	50 I	] (0 ] (1 ] (2 ] (3	0 16 0 17 0 18	of t	Under \$10,000 usidering the entire work-site, which the following Macintosh hardware	50	Communications Art/Design/Greative Services Thank You!	
05 🗖	sck all that apply.) Apple Workgroup Servers/	Not	ie C	1 19	☐ 30		l software products are currently talled? (Check all that apply.)		mank rou:	
06 Di	Mac Quadra-series  o6 □ Mac Centris-series/II-series/LC III/ Performa 600/450/SE 30		In which ways are you ever involves in purchase decisions for Macintosl products at this entire work-site? (Check all that apply.)  Initiate/Determine need for		acintosh -site?	Cir. Cir. Cir.	Business software (Word processing, spreadsheet, database, etc.) Graphics/publishing software Monitors/displays	PI	ease print or type all information.	
08	512K/128K/Portable Mac PowerBook-series/Duo-series		product/capab	ilities/f	eatures	44 🗖	Printers/scanners			
D 20	Mac Powerhook-series Duo-series	25 I	brands/models			55 <b>)</b> 36 <b>)</b>	Networking/communications hardware and/or software Multimedia/AV hardware and/or software	Title		
		24 🗖	Authorize pure			57 🖸	Mobile computing products (PowerBooks, peripherals, software, etc.)	Phone		

Free Macworld Shopper Information



### 152 153 154 155 164 165 204 205 224 225 244 245 10+ 105 259 260 114 115 124 125 281 282 134 135 139 140 294 295 144, 145

			_	_					
401	402	403	104	405	501	502	503	504	505
406	407	408	409	410	506	507	508	500	510
411	112	413	2114	415	511	512	513	514	515
416	417	418	419	420	516	517	518	519	520
421	422	423	424	425	521	522	523	524	525
426	427	428	429	430	520	527	528	529	550
451	452	433	454	435	531	532	535	534	535
436	457	438	439	440	536	537	558	539	590
441	442	443	444	445	541	542	545	544	545
446	997	118	449	450	546	547	548	549	550
451	452	453	454	455	551	552	55.5	554	555
456	457	458	450	460	556	557	558	559	5(11)
461	462	963	161	465	561	562	565	564	565
466	467	468	469	470	566	567	568	569	570
471	472	473	479	475	571	572	573	574	575
476	477	478	479	480	576	577	578	574	580
481	482	483	484	485	581	582	585	584	585
486	487	488	489	490	586	587	588	589	590
491	192	495	494	495	591	592	593	594	595
496	497	498	490	500	596	597	598	599	(4)()

Check box and fill in the appropriate information to subscribe to Macworld. You will be billed \$24.95 for a 1-year (12 issue) subscription (U.S. only).

Expires Feb. 21,1994 S1 Dec. 1993



MICHAEL T DIXON TEXAS WESLEYAN UNIVERSIT 1201 WESLEYAN FT WORTH 76105-1536

### FREE PRODUCT INFORMATION.

Get valuable information about the products that interest you. There's no cost; no obligation. Just fill out both sides of this FASTFACTS Information form. Circle the numbers for the desired products. Then mail the card. We pay the postage! For even faster results fill out and send the card via our FASTFAX.

Now fast... get the facts, the competition's gaining on you.

### Macworld

FOLD HERE AND CLOSE WITH TAPE. DO NOT STAPLE!

### **BUSINESS REPLY MAIL**

FIRST CLASS MAIL

PERMIT NO. 215

PITTSFIELD, MA

POSTAGE WILL BE PAID BY ADDRESSEE



Reader Service Department P.O. Box 5299 Pittsfield, MA 01203-9906 NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES





- According	Order Section	n		Billboard Section		Catalog Section	
Page	Advertiser	Reader Svc. No.	Phone	Page Advertiser	Phone	Advertiser	Page N
272,273	Alliance Peripheral	62	800/874-1428	HARDWARE		HARDWARE	
	Systems					Bar Code	30
80,281	Bottomline Distribution	on <b>63</b>	512/472-4956	ACCELERATORS		Computer Leasing	30
90,291	Club Mac	96	800/CLUB-MAC	301 Digital Eclipse	800/289-3374	Computer Systems	3
				BATTERIES	000,000,0004	Disk Drives	3
277	DGR Technologies	65	800/235-9748	301 Battery Technology	800/982-8284	Memory Upgrade	3
	D:		000 570 4705	MONITORS	900/736 3500	Memory Direct Peripheral Outlet	3
286	Direct Connections	121	800/572-4305	301 Panelight MULTIMEDIA	800/726-3599	Mac Xtra	3
254	Dr. Mac	177	800/825-6227	303 VideoLabs	612/897-1995	Monitors	3
201	UI, IVIGO	***	000,020 0227	PRINTERS	0.2007 1000	Peripherals	3
287	Educational Resource	s 28	800/624-2926	301 The Print Works	800/225-6116	PowerBook	31
				SYSTEM UPGRADE			
288,289	Express Direct	81	800/765-0040	303 MicroMax	714/362-1000	SOFTWARE	
007	Laborator (1944)					Astrology	31
297	International Mac		******	SOFTWARE		Bar Code	31
	Specialists	103	800/243-4IMS			BBS	31
270,271	LLB Company, The	35	800/848-8967	BAR CODE		Business	31
.70,271	LLB Company, The	33	000/040-0307	302 Bear Rock	800/232-7625	CAD/CAM	31
282	Mac Center	105	800/950-0950	BUSINESS 202 Clabeliah	800/767-0035	Career Development	31
				302 Globalink CD/ROM	800/767-0033	Career Opportunity	31
300	MacDirect	58	800/621-8467	302 Metatec Discovery Systems	800/448-2323	Clip Art	31
			000/000 4045	EDUCATIONAL	000,110 2020	Custom Development Data Bases	32
60-269	MacMall	131	800/682-1045	302 Discovery Entertainment	800/217-4066	Educational	32
298,299	Mac News	172	800/243-9383	MUSIC		Entertainment	32
.50,255	NIAC INCHA	.,,	000/210-0000	303 ARS Nova	800/445-4866	Fonts	32
293-296	Mac's Place	250	800/367-4222	UTILITIES/ELECTRONIC BOOKS		Genealogy	32
				303 TeleTypesetting	617/734-9700	Graphics	32
278,279	Mac Products USA	175	800/MAC-USA1			Graphics Translators	32
	Management	400	000/255 0227			Languages	32
274-276	Macwarehouse	150	800/255-8227	SERVICES		Lottery	32
284	Microtech Internation	al116	800/626-4276	ON-LINE SERVICES		Manufacturing	32
	This of Contract in the Contra		2444284 1217	The state of the s	800/695-4005	Music/Midi Programming Tools	32
283	Super Micro	126	800/352-3415	303 Delphi	000/093-4005	Property Management	32
						Religion	32
292	Texas Instraments	80	800/527-3500			Scientific	32
285	Tiger Software	114	800/666-2562			Shareware	32
200	riger software	114	000/000-2302			Stationery	32
236	Xante	1	800/926-8839			SERVICES	
				Say you		CAD/CAM	32
				out it in		Computer Insurance	32
				Say you saw it in MACWORLD		Computer Repair	32
				MAGNO		Data Recovery	32
						Education	32
						Printer Supplies	32
						Slides	32
						ACCESSORIES	
				:		Cases	3
	A. D. W. Co.	Name of the		Pillian III	. Chall	Covers	33
	Mail Order Sa	les Sta	att	Billboard / Catalog Sale	s Stall	Computer Jewelry	32
						Diskettes	33
	_						
	Bowers Acct M	u .	415/974-7413	<ul> <li>** ** ** ** ** ** ** ** ** ** ** ** **</li></ul>	388-8622 EXT. 3	PowerBook	3.
	Bowers Acct M A. Smith Acct M	u .	415/974-7413 415/978-3117	Shannon Smith Acct Mgr 800/	888-8622 EXT. 2 888-8622 EXT. 1	RECRUITMENT	3.

POWERBOOK PALACE .

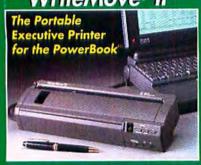
MULTIMEDIA THEATER .

ENTREPRENEUR'S CORNER

CONNECTIONS . THE IMAGE EMPORIUM .

## **Putting more** power into your PowerBook!





The WriteMove II features ATM™, support for TrueType", and 360x360 dpi resolution, which combine to produce laser-quality, professional output. Weighing a mere 2.5 pounds (with battery) and measuring only 11.7" x 3.5" x 2", the WriteMove II fits easily in the PowerBook's carrying case or in your briefcase. Includes everything you need to get started including ribbons and AC adapter/recharger.

GCC WriteMove I





INTEGRATED CONTACT MANAGEMENT



is ideal for mobile professionals who need to manage their relationships and activites. It is the only program on the Mac that lets you see, manipulate and link contacts, activities and cor-respondence simultaneously. Field Assistant lets you easily see your most important information at a glance. Now get even more power with the award-winning Connectix PowerBook Utilities (CPU). CPU 2.0 is the most comprehensive solution for enhancing PowerBook productivity and convenience. SAVE \$ 170!

Field Assistant and Connectix CPU 2.0
BUNDLE



#### AFTER HOURS

Touchbase/DateBook Pro\$85

#### **ADESSO**

Powerbook Keypad .... \$49

#### LIND

Auto Power Adapter ... \$79 Auxillary Power Pack \$139 Battery charger .....\$99

#### GLOBAL VILLAGE

PowerPort Bronze .... \$179 PowerPort Silver ..... \$325 PowerPort Gold ...... \$375

#### QUANTUM

160 MB Go Drive ..... \$299

#### VARIOUS PRODUCTS

VARIOUS FROD	0013
PowerMerge	\$79
Norton Essentials	\$89
In Touch!	\$59
PB Wrist Saver	\$10

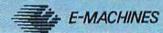




Charger- Conditioner is specifically designed for NiCd batteries used in Macintosh PowerBooks<sup>TM</sup> It gives the user the option of discharging the battery prior to charging, thus preventing or correcting loss of capacity due to "Memory Effect."

Lind Charger Conditioner







#### Don't Leave The Office Without It.

E-Machines Presentor™ is the only portable dock that turns the PowerBook Duo into a presentation machine. It connects the Duo to Mac and SVGA displays, LCD panels, video projectors and NTSC or PAL televisions! On the road or in the office, you can create

and deliver flicker free color presentations anytime!





CONNECTIONS • THE IMAGE EMPORIUM

POWERBOOK PALACE . MULTIMEDIA THEATER . ENTREPRENEUR'S

E-MACHINES **ETHERDOCK** 



Targus Leather Notebook Case (shown) Full-grain leather case is designed to carry a Notebook computer and related acessories.

Padded computer section is 15x11x2.5" plus an external 13x9x2" accessory pocket. Model CLN1. Targus Leather Notebook Case.

Targus Universal Notebook Case Designed to carry your Notebook and Personal Printer in two separate compartments, 11x13x2.5", plus an expanding file section for your work papers. The ideal case for the mobile office! Model CUN1.

Targus Universal Notebook Case

#### Targus Notepac

Padded computer section is 14x11x2.5" with external 13x9x2" accessory pocket. Detachable shoulder strap and interior portfolio section. Targus quality at an economical price. Model CN01. Targus Notepac .....

POWERBOOK PALACE . MULTIMEDIA THEATER . ENTRE

TR'S CORNER . CONNECTIONS . THE IMAGE EMPORIUM



VISIT THESE SHOWROOMS INSIDE MACMALL

#### POWERBOOK PALACE

MULTIMEDIA THEATER

#### ENTREPRENEUR'S CORNER

CONNECTIONS

THE IMAGE EMPORIUM

THE HOME STORE

MAC DEPOT

MAIL ORDER DESIGNED FOR THE WAY YOU SHOP

# 12 REASONS WHY YOU SHOULD ONLY ORDER FROM MACMALL:

- 1 MacMall is the only mail order company able to cater to your needs with individual showrooms offering broad selection, great prices and knowledgable, category specific sales advice.
- 2 Largest mail-order catalog in MacWorld magazine.
- 3 Up to 60-day full satisfaction money back guarantee (MBG).
- 4 \$3.00 Overnight Shipping (see policies on last page).
- 5 If a partial order is shipped, we pay freight on the remaining portion of your order.
- 6 All major credit cards accepted with no surcharges, and your credit card will not be charged until order is shipped.
- 7 C.O.D. orders also accepted.
- 8 Educational, government and corporate purchase orders accepted.
- 9 International toll free phone numbers (see last page).
- 10 We have the most sophisticated order entry and processing system to minimize your wait on the phone and deliver your order in the quickest fashion.
- 11 Established 1985 with thousands of satisfied customers.
- 12 In the unlikely event that you find a lower price anywhere else, give us a call and we will make every effort to beat that price and offer you greatly superior service.

Call MacMall Toll Free at 1-800-222-2808 or call individual showrooms for more category specific service

You can order across multiple showrooms by using any MacMall toll-free 800 number



Look for these exciting specials inside MacMall

Radius Intellicolor \$2395

Sharp JX9600PS \$799

Radius Color Pivot/LE \$679

Umax 600 DPI Scanner \$799

PSI Power Modem IV \$289

> MassMicro QuickImage 24 \$99





## Desktop video and visual media solutions!

Avid VideoShop

Avid VideoShop® 2.0 The QuickTime Movie Editor

With VideoShop\*, it's easy to create high quality digital movies and videotapes from your desktop. Record video, layout movies, and let your imagination run wild with VideoShop's dazzling special effects. VideoShop 2.0 includes an unlimited number of video, audio, and text layers, audio mixing, over 200 special effects, and scrolling titles. Requires: Color Mac, 4MB, 40MB hard drive minimum.

60 Day Money Back Guarantee!

**VideoShop** 2.0 Upgrade

\*OWERBOOK PALACE • MULTIMEDIA THEATER • ENTREPRENEUR'S CORNER • CONNECTIONS • THE IMAGE EMPORIUM • THE HOME STORE •

AVID VideoShop 2.0.

#### MACROMEDIA

Director 3.1.3	.\$799
MediaMaker	.\$485
Sound System Pro .	.\$239
MacroModel	\$1099

#### MEDIA VISION

Pro Audio Spectrum 16 \$349

#### APPLE

QuickTime Starter Kit \$109

#### SUPERMAC

VideoSpigot Nubus .. \$365 VideoSpigot LC ...... \$239 Spigot & Sound Nubus \$479

#### ALTEC LANSING

ACS 50 speakers ...... \$79 ACS 100 speakers ... \$125 ACS-200 spekaers ... \$219 ACS-300 w/ Subwoofer \$285

#### RADIUS

VideoVision w/ Premiere \$1899

#### VIDEOLAKE

VideoFusion 1.0 ......\$319 Quick Flix .....\$89

SEE OUR POLICIES ON LAST PAGE

## PERSONA



#### MacSpeaker

**Never Compromise on Sound** Free you Mac from its limiting internal eaker and explore a new world of high fiedlity digital sound. MacSpeaker, a powered, zero footprint shielded speaker system meets all of your Mac sound reproduction needs. See what high performance audio can do for your Mac! Buy MacSpeaker and NEVER

Persona





## **VideoVision**

HARDWARE PARTNER FOR QUICKTIMETM CAPTURE AND PRINT-TO-VIDEO



**VIDEO** VISION

**VIDEO** VISION STUDIO

OWERBOOK PALACE • MULTIMEDIA THEATER • ENTREPRENEUR'S CORNER • CONNECTIONS • THE IMAGE EMPORIUM • THE HOME STORE • MAC DEPO

" Combining the Video Vision Studio with a Macinstor SpeedArray creates an incredibly powerful digital video editing system." Aaron W. Feigin, Radius Product Marketing Manage



## MacinStor®

High-capacity Hard Disk Subsystems

MacinStor drives feature seek times as fast as 9.5ms and data transfer rates up to 5MB/sec 'sustained' and 10MB/sec "burst." Disk management software utilities include disk mirroring for system fault-tolerance, volume spanning for expandability, automatic reallocation of bad blocks and extensive partitioning for data security and

TWO YEAR WARRANTY!

<sup>\$</sup>3849 SPEED ARRAY 2GB \$4729

\$6599 SPEED ARRAY 4GB

\$7959 SPEED ARRAY 5GB



The affordability of 300dpi with the quality of 600dpi, plus PostScript!

- RISC processor with 8-ppm speed
- Emulates HP PCL5 and Epson FX80
- Two 250-sheet paper trays
- . High Resolution Technology for the sharpest 600dpi printing
- 35 built-in PostScript fonts
- 2MB RAM, upgradeable to 9MB
- Automatic interface switching

SHARP JX9600PS Laser Printer

POWERBOOK PALACE
 MULTIMEDIA THEATER
 ENTREN

R'S CORNER . CONNECTIONS . THE IMAGE EMPORIUM .

SPEED ARRAY 3GB



Desktop video and visual media solutions!



POWERBOOK PALACE

MULTIMEDIA THEATER

ENTREPRENEUR'S CORNER

CONNECTIONS . THE IMAGE EMPORIUM

#### FlexCam\*

is the first desktop motion video camera and stereo microphone for multimedia applications. It's the ultimate solution for color desktop video production, videoconferencing. document scanning, video animation and

much more. FlexCam is designed for use with all popular video digitizing boards for the Mac. It features a 1/3-inch, high resolution color CCD camera and two directional stereo microphones. Its razor sharp lens focuses from 1/4-inch to infinity. And the auto-white balance, electronic exposure give you great color under virtually all conditions. FlexCam is installed in seconds with a single cable. Its flexible "wand" is an 18inch gooseneck, fully adjustable for precise camera positioning. Use for video and audio input to VCR's, videoconferencing systems and all other NTSC or PAL compatible products.

VideoLabs **FlexCam** 



### World's Fastest **Double-Speed CD-ROM**

Let ProCom's MacCD Station-2 transform your Macintosh into an interactive reference, entertainment and learning system. It provides everything you need to get started, including 7 of the best multimedia CD-ROM software packages with amplified speakers and headphones, 100% Kodak single-session and multisession PhotoCD compatible. 200ms access time - world's fastest!

MacCD Station-2



#### RASTEROPS

MediaTime\$1479	
MoviePak\$739	
NEW! MoviePak 2\$1799	
VideoTime\$739	
NEW!Paintboard XL\$1489	
24STV\$719	
24MXTV\$1599	
24XLTV\$2599	

#### ADOBE

Premiere 3.0 ..... \$419

#### SIGMA

Movie Movie ..... \$299

#### PIXAR

Renderman/Showplace \$429

#### **VARIOUS TITLES**

MS Musical Instruments, \$55 Gryphon Morph 2.0 .. \$159 Vividus Cinemation .. \$365 Microsoft Powerpoint 3.0 .. \$325 Aldus Persuasion 2.12.\$323

#### **BLOWOUT!**

(Limited to quantity on hand) Generation Systems TV Board NTSC ......\$179



## MASS

Video Hardware Deal of the Century!

### QuickImage 24

Video Frame Grabber Card

EXCLUSIVE - This great closeout Frame Grabber captures fast moving, full motion video images in 24-bit color or 8bit grayscale. With special image filters, you have the ability to enhance all or portions of an image with blur, sharpen and solarize. QuickTime™ com-patible! Hurry on this bargain!







## SONY

**High Performance** Color Monitors

#### 14" MONITOR

- · Vertically flat screen reduces distortion
- .25mm super fine dot
- Up to 1024x768 resolution non-interlaced
- Low magnetic emission: meets Swedish VLF and ELF standards



SONY CPD13045

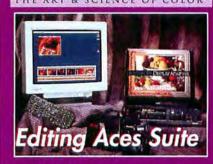


#### 17" MONITOR

- · Vertically flat screen reduces distortion
- 25mm super fine dot
- Up to 1024x768 resolution non-interlaced
- Low magnetic emission: meets Swedish VLF and ELF standards

SONY CPD 1604S

POWERBOOK PALACE • MULTIMEDIA THEATER • ENTREPRENEUR'S CORNER • CONNECTIONS • THE IMAGE EMPORIUM • THE HOME STORE • MAC DEPOI



THE EDITING ACES SUITE featuring MoviePak, is the solution for full-motion video playback, 16-bit CD quality sound and print-to-tape capability. The Suite includes MediaTime, MoviePak and the Video Expander II. Includes Adobe Premiere.

Now available: the new MoviePak 2 daughterboard with full motion, full screen video digitizing, and JPEG compression for QuickTime playback at 60 fields/sec.

Editing Aces Suite

• POWERBOOK PALACE • MULTIMEDIA THEATER • ENTRE

R'S CORNER . CONNECTIONS . THE IMAGE EMPORIUM .

Your best source for imaging solutions!

#### M



#### **RAY DREAM DESIGNER 3.0**

Try the leading 3D illustration package. It handles the details-lighting, shadows, transparency, reflections and perspective are automatic. Actually paint the most complex object in 3D! Ray Dream Designer 3.0

#### addDepth

POWERBOOK PALACE . MULTIMEDIA THEATER . ENTREPRENEUR'S CORNER

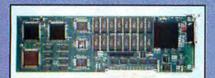
CONNECTIONS • THE IMAGE EMPORIUM

PostScript goes 3D! Attention grabbing 3D depth and perspective for type and line art. Type or draw in addDepth, or import art from other drawing software for automatic 3D. addDepth .....

#### JAG II (Jaggies Are Gone)

This award winning graphics utility is packed with new features! Resolution boosting eliminates the jaggies in your images or animations. Supports PICT, TIFF, EPS, PhotoCD, Photoshop, more!

## PaintBoard Turbo



The RasterOps PaintBoard Turbo is a 24bit display adapter built with custom ASICs to accelerate your standard QuickDraw routines by as much as 1400%! In addition, features like a 9-bit/channel DAC offer the high-end color publishing professional a greater resolution of displayable colors for color critical work. 3MB VRAM. Supports four resolutions from 640x480 to 1024x768. Hardware pan and zoom up to 16 times. Also available in 7" size for Centris.

**RasterOps** PaintBoard Turbo

#### TAMARACK

1200 dpi Color Scanner . \$1579 800 dpi Color Scanner . \$999

#### APPLIED ENGINEERING

Transwarp 1340 SE . \$299 Transwarp 1340f (FPU) \$419 Transwarp 2340 ...... \$249 Transwarp 2340f (FPU) \$379 Transwarp 6425f ..... \$799 Transwarp 6433f ..... \$979 Transwarp 6440f .... \$1259

#### SUPERMAC

Thunderstorm ...... \$585 Thunderstorm Deluxe\$799 Thunder/24 .....\$1995 Spectrum/24 Series IV . \$799 Supermatch 20T•XL\$2399

#### VIVIDQUEST

88/RW44 Syquest .... \$449 105MB Syquest ...... \$499

#### PLI

Multises, CDROM Ext., \$599

#### OTHER TITLES

Pixar Typestry 1.1 .... \$169 Quark X Press 3.2 .... \$599

#### KENSINGTON.

**Turbo Mouse 4.0** 



#### World's Best Trackball!!

Two large control buttons with intelligent software to program custom commands and functions.

Turbo Mouse



#### 20/20 Multimode **Color Display**



The RasterOps 20/20 is a full color 2page solution at an affordable price.

- .31mm super fine dot
- Supports 640x480 to 1158x870 (8 presets)
- · Anti-static/glare coating
- · Digital user controls
- 3 Year Limited Warranty

RasterOps 8 8 1 20/20



CONNECTIONS . THE IMAGE EMPORIUM . THE HOME STORE . MAC DEPOI

FERBOOK PALACE . MULTIMEDIA THEATER . ENTREPRENEUR'S CORNER

## Accelerate Your Mac!



## With TOKAMAC!

The Highest Rated Macintosh Accelerator on the market comes from the company that pioneered 68040 acceleration. TOKAMAC products from Fusion Data It's fun to go fast! Systems!

040 40MHz w/128k Cache (lici) . . .

<sup>\$</sup>1595

040 33MHz w/128k Cache (IIci) . . .

\$1395

040 33MHz w/128k Cache (Ilfx) . .

POWERBOOK PALACE . MULTIMEDIA THEATER . ENTRE

S CORNER . CONNECTIONS . THE IMAGE EMPORIUM

Your best source for imaging solutions!

# radus



## Intellicolor™ Display 20

20" Trintron® with processor control of focus, convergence, etc. Intelligent technology available only from Radius! LOWEST PRICE!

Radius Intellicolor

POWERBOOK PALACE • MULTIMEDIA THEATER • ENTREPRENEUR'S CORNER

CONNECTIONS • THE IMAGE EMPORIUM • THE HOME STORE





#### Wacom 12x 12 Tablet

The new UD-1212R is engineered from the ground-up to address professional needs in the high-powered computer graphics environment and will take the industry to a new level of graphics capabilities. New features include: a full menu strip, a transparent overlay surface, a fully customizable pen, and a more powerful interface. All this at a lower price!

UD-1212R	5	<b>5</b> 5	9
ArtZ 6x8 TABLET	. \$	28	9
August 100			

BUNDLE

#### CLARIS

MacDraw Pro 1.5 .... \$259

#### ADOBE

1 110 00 10 10	
Photoshop 2.5.1	\$545
Illustrator 5.0	\$359
Dimensions	\$99
Audition 1.0	\$165
Super ATM	\$89

#### **ALDUS**

Pagemaker 5.0	\$569
Freehand 3.1.1	\$369
Personal Press	2.0 \$99

#### **RADIUS**

PrecisionColor 24XP \$399 PrecisionColor Pro 24XP . \$499 PrecisionColor 24XK \$769 PrecisionColor 8XJ ... \$499 PrecisionColor Pivot . \$899 Rocket 33Mhz ......\$1379

#### FRACTAL

Painter 2.0	 \$269
Painter X2	 \$79
Sketcher	 \$95



Shipping Available

# **PhotoBooster**



Plug in card to accelerate Adobe® Photoshop specific functions such as filters and effects plug-ins!





## 

Maximize your image."



#### UC630 Color Scanner

This 24-bit, flathed scanner gives you 600dpi resolution and the ability to scan millions of colors.

Supports materials up to 8.5" x 14"

Rated "four mice" by MacUser

Shown with optional transparency adapter
Includes Adobe Photoshop LE

UC630 600dpi

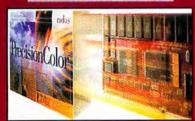


UC840 800dpi

THE IMAGE EMPORIUM

OOK PALACE . MULTIMEDIA THEATER

UC1260 1200dpi



#### Precision Color 24XPro

The world's fastest 24-bit color card has been named! As much as 67% faster than Thunder/24" and up to 3000% faster than your unaccelerated Mac! It supports displays to 21" with "on-the-fly" resolution switching. Fully backed by Radius' Worry-free Warranty with overnight replacement.

Radius 24XPro

• POWERBOOK PALACE • MULTIMEDIA THEATER • ENTRE \*\* S CORNER • CONNECTIONS • THE IMAGE EMPORIUM

# ORDER TOLL FREE GONNECTIONS 1-800-682-1046

Heeping you connected to the right solution!

MASANTÉ

Only Asanté Puts The Power Of Ethernet In The

Palm Of Your Hand

The AsantéLite cards let you connect NuBus

and LC PDS compatible Macs Ethernet networks. AsantéLite NuBus cards are

available with auto-sensing thick/thin and thick/ 10BaseT Ethernet media connections on the

same card. All Asanté-Lite cards offer 64K

RAM. The AsantéLite LC cards feature a socket

for optional FPU coprocessor. Free diagnostic

3-YEAR WARRANTY

software and technical support.

## :: Farallon®

## **EtherWave**



EtherWave lets you daisy chain ethernet using 10 Base-T wiring It's 100% compatible with Apple and other standards. Connect 8 devices without a hub, or 7 per hub

port. Every card and transceiver has 2 10-T ports.

Etherwaye Mac/PB...

Etherwave for Printer. .

Etherwaye for Newton

**Etherwave Card NuBus** 

Etherwaye Card LC

POWERBOOK PALACE • MULTIMEDIA THEATER • ENTREPRENEUR'S CORNER • CONNECTIONS • THE IMAGE EMPORIUM • THE HOME ST

LIFETIME WARRANTY

**\$299** 

\$340

\$299

<sup>\$</sup>199

<sup>5</sup>199

#### **ASANTE**

FriendlyNet Adapter ... \$65 10BT/12 Port HUB ... \$475 10BT/8 Port HUB ..... \$235 Asante Print ......\$325

#### **FARALLON**

Ether 10-T Transceiver\$64 Ethermac II-10T 64k . \$149 Ethermac LC-10T 64k., \$149 Ethermac 30i-10T 64k .\$179 Ether 10-T Starlet ..... \$285 Phonenet 8pin minidin \$25 Phonenet 8pin 1 port .. \$19 Timbuktu .....\$119

#### SOFTWARE VENTURE

Microphone II ......\$139 Microphone Pro ......\$199

#### INSIGNIA

SoftPC 3.0 .....\$89 SoftPC Pro 3.1 ...... \$195 SoftPC Windows 3.1 \$289

SEE OUR POLICIES ON LAST PAGE









### 

AsantéLite NuBus-10T.....

CONNECTIONS . THE IMAGE EMPORIUM . THE HOME STORE . MAC DEPOT

ENTREP

MULTIMEDIA THEATER

AsantéLite LC-10T....

GLOBAL VILLAGE COMMUNICATION

#### MASANTÉ



#### Mini EN/SC 10T

Presenting the world's smallest and lightest SCSI-to-Ethernet adapter. Specially designed for the PowerBook line, the Mini EN/SC is a mere 6 ounces. It's also the perfect space saving solution for desktop Macs without available slots for networking! The Mini EN/SC comes with SCSI-to-Ethemet connecting cables for both PowerBooks and desktop Mac

Asanté Mini EN/SC 10T

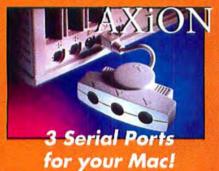


#### Award-winning TelePorf\* Fax/Modems for Macintosh® Desktop Computers

Fax and data communication is easy an convenient with the TelePort series of fax/modems from Global Village Communication™. Simply connect the Teleport fax/modem to your Mac and install the widely-acclaimed GlobalFax™ software included with every TelePort product. Now you are reay to send and receive faxes, access on-line information services, and exchange information with other Macintosh

computers - all without leaving your desk.					
Gold*	Silver	Bronze			
14.4k bps	9600	2400			
14.4k bps	9600	9600			
14.4k bps	9600	4800			
Yes	Yes	Yes			
	Gold* 14.4k bps 14.4k bps 14.4k bps	Gold* Silver 14.4k bps 9600 14.4k bps 9600 14.4k bps 9600			

\*TelePort Gold Includes GlobalFax OCR software.



Now connect 3 devices to each serial port with the AXiON Electronic Serial Switch. Easily switch with a pull-down menu (System 7), or a CDEV Supports LocalTalk on the Printer Port and solves the single port limitation on Duos. Use optional ADB Power Cable with serial-powered devices like GDT PowerPrint", MacRecorder and most MIDI translators.

AXiON Switch .

Power Cable

PALACE . MULTIMEDIA THEATER . ENTRE

. CONNECTIONS . THE IMAGE EMPORIUM

PRICES

# Entrepreneur's

Home office and small business productivity!

radus

**Authorized** Reseller



High quality 15" color display with unique feature — it tilts to allow you to work in either portrait or landscape mode! Includes 8-bit video card for Mac IIsi, SE/30, LC or NuBus™.

**VERY LIMITED SUPPLY!** 

Radius Color Pivot/LE

MULTIMEDIA THEATER .

ENTREPRENEUR'S CORNER

CONNECTIONS . THE IMAGE EMPORIUM







### TransWarp Accelerators

Get the speed of new Mac for a fraction of the cost with Applied Engineering's new line of TransWarp 030&040 accelerators. TransWarp's feature-packed design offers award winning performance, bulletproof compatibility, upgradeability, and is backed by our 3-year warranty.

TransWarp 6440f (40-MHz 040, faster than 950)

TransWarp 4340 (40-MHz, 030, 128k for LC/LCII/Color Classic)

TransWarp 1325 (25-MHz, 030, for SE).

TransWarp 2325 (25-MHz, 030, for Classic)

#### MICROSOFT

Word 5.1 .....\$285 Word Upgrade ......\$119 Excel 4.0 .....\$285 Excel Upgrade .....\$119 Office 3.0 CD-ROM .. \$455 Works 3.0 .....\$149

#### ASD SOFTWARE

FileGuard 2.7	\$129
TrashGuard	\$45
Wiz Tools	\$69

#### INTUIT

Quicken 4 .....\$45

#### CLARIS

Filemaker Pro 2.0 ..... \$259 MacWrite Pro ......\$179

#### SYMANTEC

SAM 3.5 .....\$63 Norton Utilities 2.0 ..... \$94 ACT for Mac 1.1 ...... \$169

#### DI OMOLITI

BLOWOOT:	
MAXA Alert! \$92	2
Times Two 1.0 \$89	9
SuperOffice Lite 2.5 \$59	9
SuperOffice 1 user 2.5.\$199	9

### Microsoft



Microsoft Office 3.0

The Microsoft Office family of programs are designed to work together - allowing you to focus on your work instead of your computer. Microsoft Macintosh Office 3.0 features our most popular word processing, spreadsheet, presentation graphics software, and a workstation license for electronic mail. These programs are: Microsoft Word, Microsoft Excal, Microsoft PowerPoint and Microsoft Mail. All the programs were designed to work together to make it easier for you to combine text, data, and graphics into a single document. Put Microsoft Office on the job and discover





## P





### LZR960 Laser Printer

- · Fast RISC processor
- · Built-in SCSI port
- · 9 pages per minute speed!
- 2MB RAM expandable to 10
- · 35 built-in fonts
- Adobe PostScript™ Level 2

Dataproducts LZR 960



**Dataproducts** LZR 1560 11x17 2 Tray

## SUPERMAC.



#### 17" Color Display

The SuperMatch 17. Trinitron Color Display is an ideal choice for business professionals who want multiple viewing modes, a large screen, yet an affordable price. Like all SuperMac™ displays, it features a 6500\* Kelvin white point that eliminates the bluish tint common to many displays.

SuperMac SuperMatch 17.T

OK PALACE

POWERBOOK PALACE . MULTIMEDIA THEATER . ENTRE . THE IMAGE EMPORIUM

# THE HUME STORE

Products that are right at home with your needs

Extreme 3-Y-5-T-E-II-8

#### IMPACT ACCELERATORS

Extreme's Impact 030, 32-MHz Accelerator increases LC/LCII and Performa 400 performance by as much as 300%. It offers easy snap-in installation and is one of the few LC/LCII accelerators that meets Apple's strict power consumption guidelines. The Impact card comes with a 3 year warranty and a 100% software compatibility guarantee!

IMPACT 030 / No FPU LC/LCII ACCELERATOR

OWERBOOK PALACE • MULTIMEDIA THEATER • ENTREPRENEUR'S CORNER • CONNECTIONS • THE IMAGE EMPORIUM • THE HOME STORE •

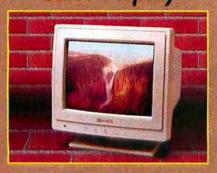
IMPACT030/WithFPU \$3

\$359

\$399



VividView™ 14 Color Display



The VividView 14 offers extremely high quality at an affordable price. With a sharp .28mm dot pitch, 640x480 resolution, and 16-bit unlimited colors, this monitor will work wonders with your Centris, LC or Mac II.

Relisys



#### CLARIS

Claris Works 2.0 ...... \$189

#### **NOLO PRESS**

Will Maker ......\$39 Record Keeper ......\$35

#### NORDIC SOFTWARE

Language Explorer ..... \$29

#### BERKELEY

AlterDark/More AlterDark\$45 Star Trek Screen Saver .\$32 Disney Screen Saver .\$35

#### SOFTSYNC

Expert Home Design .. \$29

#### **NOVA DEVELOPMENT**

Kaboom! 2.0/More Kaboom ......\$45

#### **BRODERBUND**

Kid Pix .....\$35 Kid Pix Companion .....\$27

#### **PSYGNOSIS**

Lemmings ..... \$35



Overnight Shipping Available

# CORDLESS SUPER MOUSE and Snooper 2.0 Lite



High-quality infrared cordless mouse is Macintosh ADB compatible but is self-powered, includes recharger mouse station. PLUS highly-rated SNOOPER 2.0 Lite Edition.

Mouse BUNDLE...

Super Mouse Only ..... \$2



# maxell



MAXELL is proven reliability in disk media, with a full lifetime replacement warranty. New Maxell Super RD II Series disks feature an energy saving formulation for optimum per-formance. Double sided, high density, conveniently pre-formatted for Macintosh applications.

DS/DD 10-pack . . . .

SHOO!

WERBOOK PALACE \* MULTIMEDIA THEATER \* ENTREPREUR'S CORNER \* CONNECTIONS \* THE IMAGE EMPORIUM \* THE HOME STORE \* MAC DEPOT

DS/HD 10-pack...

Horris



## Performer 2 ACCELERATORS

The Performer 2 series for the Macintosh Classic and Macintosh SE will make your machine over 230% faster! Includes a custom 64K SRAM Direct Map Cache Circuit. Video Port for future expansion such as large screen monitors. Easy installation.

Harris Accelerator for Classic or SE



POWERBOOK PALACE . MULTIMEDIA THEATER . ENTRE

R'S CORNER . CONNECTIONS . THE IMAGE EMPORIUM

## MAC DAYSTAR DIGITAL Turbo 040 25MHz .... \$899 Turbo 040i 20MHz .... \$699 Turbo 040i 25MHz .... \$749 NEW! Value 040 25MHz .. \$799 NEW! Value 040 33MHz .. \$949 NEW! Value 040i 20MHz . \$399 NEW! Value 040i 33MHz . \$599 PowerCache 33 MHz \$349

PowerCache 40 MHz \$499 PowerCache 50 MHz \$599 FastCache 700-950 .. \$349 NEW! ColorMatch .... \$199 Charger ...... \$499

PRICES DO NOT INCLUDE ADAPTER.

#### MacMall Policies

(applies to all MacMall showrooms) 30-day or other MBG (money-back-

guarantee) applies to designated manufacturers and/or products only. Call Customer Service at (310) 787-4520 for a Return Authorization if necessary. All returns without an authorization number (RA#) will be refused. Returned products must be in original condition and packaging, with blank warranty card, and must be sent back within 30 days of our invoice date. No refunds on labor or freight charges. Prices and availability subject to change without notice. Some items limited to stock on hand. Not respensible for typographic or photographic errors. Prices listed do not include shipping or insurance. "Next Day" shipping is available only on orders placed before 5:00 pm EST and may exclude certain rural areas, \$3.00 shipping offer applies to the U.S. only and orders over 10 pounds incur additional shippingcharges, If ordering by mail, include your name, street address, and telephone numbers, and send to MacMall 2645 Maricopa St., Torrance, CA 90503.Makes checks or money orders payable to MacMall. If ordering by credit card, include expiration date and billing address. California residents (only) add 8.25% state sales tax. PowerBook Palace, Multimedia Thealer, Entrepreneur's Corner, Connections, The Image Emporium, The Home Store and MacDepot are trademarks of Creative Computers. All other trademarks or registered trademarks are used to benefit and without intent to infringe on the mark holder. © 93Creative Computers. FAX # (310) 222-5800

#### **USE OUR TOLL-FREE** INTERNATIONAL PHONE LINES

Australia 0014-800-125-712 Canada 800-548-2512 Denmark 0434-0297 France 0590-1099 Italy 1678-74086 Japan 0031-11-1351 Netherlands 06-022-8613 Norway 050-12029 Switzerland 046-05-3420 United Kingdom 0800-89-1178







The Bargain

**Basement Store!** 

MAC DEPO

THE HOME STORE

CONNECTIONS . THE IMAGE EMPORIUM .

ENTREPRENEUR'S CORNER

**MULTIMEDIA THEATER** 

#### Turbo 040

Turbo 040 is a 68040 accelerator that turbocharges all your software up to 600% faster! Daystar's 040 family of accelerators are the only ones that can guarantee Quadra level compatibility with all standard software and hardware - even at full speed. The new Turbo 040i line gives you 040 power at 030 prices. They use an 040 without floating point support - ideal for most business environments. Adapters required for certain Mac models. THREE YEAR WARRANTY!

Turbo 040 33MHz

Turbo 040 40MHz . . . . . . 1599 Turbo 040i 33MHz ..... 



The Adesso Command System provides Mac users with a superior extended keyboard

Adesso Extended Keyboard

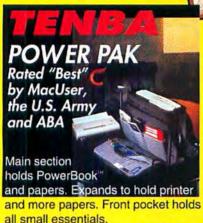


#### The Adesso Mouse

The Adesso Mouse is a two button 250 dpi optomechanical mouse that is 100% ADB compatible. Just plug it in and go.

Adesso Mouse comes with the exciting ACTION! PACK and Mouse Pad. The ACTION! PACK is a collection of 10 desktop enhancement utility software programs that will make your Mac friendlier than ever!

Adesso Mouse/Action Pack



Model 415C is 13.5x11x4-7 holds PowerBook in unexpanded main padded section.

Model 416 is 16x12.5x4-7" holds PowerBook and small

Model 418 is 18x14x4-7" holds PowerBook and large printer and is sized for

POWERBOOK PALACE • MULTIMEDIA THEATER • ENTREPRENEUR'S CORNER • CONNECTIONS • THE IMAGE EMPORIUM • THE HOME STORE

lawyers or accountants.

**FULLY GUARANTEED FOR FIVE YEARS!** 



#### SIGMA 20T

#### High Resolution Color Display

This 20" Color Monitor features brilliant, sharp, Trintron technology. Now get a great buy on the 20T, bundled with Sigma's 24XG color display adapter. The 24XG supports multiple resolutions up to 1024x768 and 16.8 million colors.

20T/24XG BUNDLE

Limited to stock on hand!

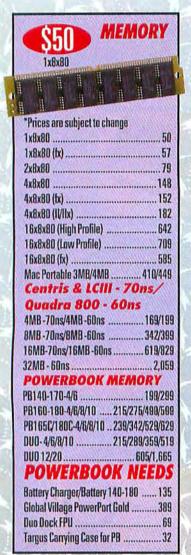
24XG Video Card . . . . . . . . .

• POWERBOOK PALACE • MULTIMEDIA THEATER • ENTRE

R'S CORNER . CONNECTIONS . THE IMAGE EMPORIUM

MM5 MW1293 CLS

# YOU'D BUY FROM US EVEN IF W



<b>SCANNERS</b> UMAX	
ScanOffice	859
UC630 600 Dpi Color	1,159
UC840	
UC120 1200 Dpi Color	3,099
MICROTEK	
ScanMaker II Color	889
Scan Maker IIXE Color	1,159

ove Fax Pro 14.4 + Voice	MODEMS	
32bis S/R Fax 14.4LC NEW! 165 400 Modem ONLY (NO CABLE) 59 ax 2400/9600/9600 139 upra V.32bis PowerBook 14.4 279  OVE 6ax Pro 14.4 + Voice 369 ove Fax PR 24/96/48 99  NORE MODEMS LOBAL VILLAGE elePort / PowerPort 60LD 14.4 389 eleport SILVER 96 319 owerPort SILVER 96 339	SUPRA	
400 Modem ONLY (NO CABLE)		
ax 2400/9600/9600 139 upra V.32bis PowerBook 14.4 279  OVE		
OVE    America / 12   12   13   14   14   15   15	CONTRACTOR AND	THE RESIDENCE OF THE PARTY OF T
ove Fax Pro 14.4 + Voice		
ove Fax 144E 235 ove Fax PB 24/96/48 99  MORE MODEMS LOBAL VILLAGE elePort / PowerPort GOLD 14.4 389 eleport SILVER 96 319 owerPort SILVER 96 339	DOVE	(n B
ove Fax PB 24/96/48		
NORE MODEMS LOBAL VILLAGE elePort/PowerPort GOLD 14.4389 eleport SILVER 96319 owerPort SILVER 96339	Dove Fax 144E	235
eleport Bronze II 24/9699 .S.ROBOTICSSporster 14.4 Mac 237	GLOBAL VILLAGE FelePort / PowerPort GOLI Feleport SILVER 96 PowerPort SILVER 96	114.4 389 319 339

## NETWORKING

HAYES Accura 9600bps Fax 96 ...... 247

HAYES Accura 14.4bps Fax 14.4 ..... 269

ZOOM 14.4 v.32 bis Fax w/sftwr ..... 275

Asante MacCon 3 Th/Tn/10-T 239
Asante EN/SC Th/Tn/10-T309
Asante MINI ENSC 10-t PowerBook . 269
Call for Complete line of Asante products.
Dayna LC/LCII/LCIII Tn/10-T 159/159
Dayna Friendly Net To or 10-T
Dayna Etherprint 10-T349
Call for Complete line of Dayna products.



#### MEDIA

SAMSUNG \$99 650Mb Optical Cart.

128 Optical Disk 3.5" ...... 35 600 Optical Disk 5.25" (512b/s) ...... 99 650 Optical Disk 5.25" (1024b/s) ..... 99

VERBATIM 128Mb Optical Cart.

Optical Cart/Verbatim 128MB ......39 Optical Cart Verbatim 650Mb ........ 109 Bernoulli 40MB Cartridge (3 Pack) .. 285 Bemoulli 90MB Cartridge (3 Pack) .. 399 Bernoulli 150MB Cartridge (5Pack) . 499 Flortical Disc 21 MB ......24 We stock DAT tapes ......CALL



Sylluest 44MB



SyQuest 44MB Cartridge	6	1
SyQuest 88MB Cartridge	9	5
SyQuest 105MB Cart		5

## Of course we do a great job, but here are more reasons to buy from The LLB Company:

- Knowledgeable and friendly sales force.
   First quality, new & brand-name products.
   Saturday delivery at no extra charge.
   Lifetime warranty on all memory products.
   All major credit cards accepted with no surcharge.
   P.O.'s accepted upon approval.
   Customer service guaranteed, You can depend upon us for Quality, Service and Value.
   Credit card not charged until day of shipment.
- COMPARE OUR SHIPPING PRICES AIRBORNE EXPRESS OVER NIGHT \$6 AND UP UPS GROUND \$5 AND UP

Orders received before 7:30 PM Eastern time weekdays ship the same day, • We export to most countries in the world, 2-3 days delivery to most countries. • Prices subject to change, Quantity pricing for dealer • All returns require approval and are subject to a restocking fee. • American Express, Visa, MasterCard, & Discover Cards gladly accepted.

## DIDN'T HAVE THE LOWEST PRICE!

#### MORE DRIVES

Quantum 85 PRO/127 PRO ....... 179/205 Quantum 170 PRO/240 PRO ...... 235/289 Quantum 525/1.2 Gig. PRO ..... 719/1,255

FWR INC

Manhatani Alexander Call Call Call Call Call Call Call Cal	
Hammer 525FMF/1000FMF	.1369//1779
Internal 525FMF/1000FMF	1109/1509
SCSI Jack Hammer	769
FWB Hard Disk Tool Kit Sftwr.	159
CD-Rom Toolkit	65
PINNACLE MICRO	
PMO 650MB Optical Drive	2,969
PMO TAHOE 128 MB	949
Recordable CD-ROM Drive	3,599
Of COULD C. LUCION	CALL

#### MAC NEEDS

MMC HEEDS	
SIMMs Installation Toolkit	8
SIMM Remover	3
Video-RAM 256K/ 512K 3	1/50
Mac Pro Plus Keyboard	129
Kensington Turbo Mouse	.106
LC/Classic 16mlz Math CoProcesso	or 59
LCIII-FPU/Centris	/369
Wristsaver:/ Mousepad1	2/12
AXION 3port Serial Switch	.125
WACOM (Others models Availab	le)
ArtZ Tablet	315
12x12 Digitizer Tablet	. 689

#### **PRINTERS**

QMS 860 Hammerhead	4,239
OMS 1725	4,549
<b>GCC WriteMove II Portable Printe</b>	er 519
GCC PLP II Quick Draw	689
GCC BLP Elite	849
TI-PS17/PS35	55/1,299
CoStar Labelwriter IVII +	185/229
Supplies - HP Printer Supplies	CALL

## MOBIUS



#### Outperform new Macs with the Speedster!

Acple's Quadra and Centris use the 040, and now you can put '040 power in your Mac for one third the price Sceedster instantly gives Quadra power you'n notice right away lostant screen redraws in PageMaxer. Freehand and QuarkXpress super last previews with Illustrator speedy reacties in Expet, and blazing special effects with Photoshop. Optional 1284 cache boosts speed another 20-40%.

040 Speedster 33/33 W-FPU 725/889
040 Speedster 40 W-FPU
Adapters for Ilsi, Ilcx, Ilx, SE/30
Optional 128k cache 179

Mocius' 68030 accelerator boosts SE parformance 6 to 8 times, Supports up to 16MB, all the performance you need to run even the most powerful applications.

030 -25Mhz SE/Classic	349/419
SE 030 -33 Mhz	389

#### **ACCELERATORS** APPLIED ENGINEERING

TransWarp LC030-40Mhz379
SE/Classic 030-25MHz/W-FPU 199/309
SE/Classic 030-40MHz/W-FPU 299/429
040 25/33/40 809/989/1219
Quadralink/W-DMA209/339
Plus Drive (3.5" 1.44Mb Floppy) 289
Quick Silver Ilsi 32k Cache Card 209
NEWER TECHNININGY

Variable OverDrive	269
MicroDock SCSI	135
MicroDack Color	250

### DAYSTAR DIGITAL



#### **NEW! Turbo 040 Accelerators**

Get the miximum in 58040 acceleration with all the compatibility of the Power-Cache. The effective way to increase your productivity up to loss these as feet up-liocal 125x access boosts performance another 4-305.

2012.00	
25 MHz Turbo 040	949
33MHz Turbo 040	1,125
FastCache Turbo 040	172
D40i 20Mhz Turbo NO FPU	699
040i 25Mhz Turbo NO FPU	779
040i 33Mhz Turbo NO FPU	869
FastCache Quadra (700/900 Only)	249
FastCache Quadra (ALL QUADRAS	349
RAM Power Card	430
Charger/ Charger PLUS	505/649



#### Universal PowerCache

The PowerCache is an award winning of that gives you altordable 68030 befor mence and the bass in compatibility or ought is and go no downtime and it works with sverything. Upgradable to

33MHz/33Mhzw/FPU	345/435
40MHz/40MHz w/FPU	519/605
50MHz/50MHzw/FPU	649/759
Adapter Se & Classic / Others	129/105
Combocache Ilsi/w/FPU	215/301
Equilizer LC / w/FPU	172/241
DualPort IIsi w/20Mhz FPU	172





#### MONITORS

RasterOps Sweet 16 Bundle	1,609
Sony 14"/17" MultiScan 66	9/1,189
Sony GDM 2036s 20" MultiScan	2.299

#### **DISPLAY & VIDEO PRODUCTS**

PaintBoard Turbo 20",16",13"	1,179
PaintBoard Li 20",16",13"	809
24XLi 21",16",13"	1,869
24STV	749
24MxTV	1,649
24XLTV	2,619
Movie Pak Daughterboard	749
Editition Acae Suita	2 010

#### **DUO DOCKS**

DUO Mate	8 8bit Video	409
Ouo Mate 1	6SC 16bit Vid.	W/SCS1 529

## LLB COMPANY

300 120TH Ave. NE Bldg 1, Suite 120 Bellevue, WA 98005 (206) 454-7258

n 7am to 6pm M-F & 9am to 4pm Saturday nd Email to Compuserve @ 73423,1272

FORTUNE 1000 CO. 800-848-1418

EDUCATIONAL/GOVERNMENT. 800-848-7

BUSINESS/INDIVIDUALS . 800-848-896

FAXYOUR ORDER-206-454-7302

Circle 35 on reader service card

# **End Your SCSI Nightmares**



improved SCSI stability can be expected in even the simplest SCSI chains,

#### SR 2000TM

DATerm, an APS exclusive, is only available in our new SR 2000 enclosure. The SR 2000 is the best external 3.5" drive enclosure available on the market today. It features a premium 40 watt heavy-duty, autoswitching digital power supply inside a

fully-shielded steel enclosure, covered by a rugged, impact-resistant plastic shell. Using premium components and, as always, the best possible cabling inside and out, the SR 2000, with DATerm, will help end your SCSI nightmares.

### APS HARD DRIVES

Model	Internal	ZFP	SR2000
<b>⇒</b> 127	MB -	245 W	В
APS Q 170 <sup>2</sup> Quantum 170 I	\$199	\$269	\$289

unique impedance-matching characteristics

provide superior signal-to-noise ratios by

impedance, and a consistent 2.81 volts -

mentations. DATerm decreases SCSI re-

termination. With switchable DATerm.

tries, allows more reliable data transmission

and eliminates the need for separate external

maintaining a constant 110 Ohm

ideal for SCSI-1 and SCSI-2 imple-

APS Q 2402 349 Quantum LP240 mechanism

APS MX 2452 259 349

- . Internal drives for Quadra 800 and Centris 610 available.
- 30-day money-back guarantee All drive products carry a 30-day money-back guerantee. Your risk in the transaction is the tost of shipping.
   Disk-for-disk replacement warranty SyQuest, most Quantum, Moster and DAT drives are warranted for two years. WREN, Quantum 2.5" drives, TEAC. drives, all CD-ROMs, MOs and SyQuest corts are warranted for one year · Prices and specifications subject to change without notice. Refused orders sub-
- jed to restorung tee.

  \*\*All our hard drives include brockets, cobles, cards and LEDs required for operation with the specified Macintosh. All hard drives from APS
  Technologies come preformatied with Apple's System 7.0.1 software, at least
  9.2M8 of comparado publishy-distributable software and APS Technologies' APS
  POWER TOOLS SCSI formers hard disk prefixioner.

  \*\*Little and data and advantage came with a premium 25 x 50.
- All external drive products and cases come with a premium 25 x 50 SCSI cable. Companion drives (not cases) include a 30 x 50 PowerBook
- Toll-free technical support as aften and for as long as you need.

  Regular hours are 8 am to 8 pm Monday thru Friday, 9 cm to 5 pm Saturday, Central Time.

Model	Internal	ZFP	SR2000
→ 345			

APS MX 3452 \$399 \$469 \$489

739 Quantum Lps525 mechanism

799 APS MX 540<sup>2</sup> 869 889

APS Q 10505 Quantum 1005S mechanism

APS MS 1.265 1099 1169 1189

APS Q 1225° \$1099 \$1169 \$1189



Drive, you get a 4-pack of PowerBalls for only... Available to fit all PowerBook models.

Offer good until December 31, 1993. Just mention this ad when you call APS sales at 1-800-874-1428 PowerBall Color Choices —

Internal

ZFP

SR2000

→ 1.24G - 3.0G APS MX 12403 \$1249 \$1319 \$1339 1899 APS ST 1.65 Seagate ST 11950N mechanism APS MS 1.75 1349 1419 1439 Micropolis 2217S mechanism APS ST 2.05 2299 Seagate ST 125500N mechanism

APS MS 2.465 1999 \*2099 Micropolis 1926 mechanism

APS MS 3.0G5 2499 \*2599

Micropolis 1936 mechanism

15 Denotes length of manufacturer's warranty \*External Case is Full Height Only, not ZFP or

M-F 6AM-10PM CST. SAT & SUN 9AM-5PM CST.

International: I-816 483-6100 FAX: I-816 483-3077 (24 Hours). Toll Free UK: 0800-897-545 Australia: 0014-800-125-875. For a Free Catalog, call APS Sales: 1-800 233-7550 InfoFax: 1-800-374-5802

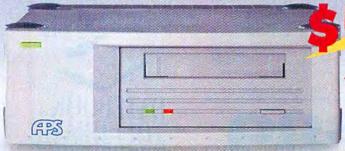




THE

# Never Back Up to Anything Else!





30-Day Money-Back Guarantee

Free Technical Support

Disk-For-Disk Replacement Warranty

Manufacturer-Direct Quality Assurance

Warranty Repair Return-Overnight

24-Hour Product Information by InfoFax

### This incredible offer is unmatched anywhere!

Get this premium APS DAT with a full two-year warranty, Retrospect by Dantz, superior APS cables, a 60 meter Maxell DAT tape and APS' legendary service and support. Backup up to 2.0GB on a 90 meter tape with backup speeds as high as 10MB per minute.... Amazing!

#### ....and Don't Forget Our Incredible CD-ROM Offer!

The APS T 3401 is a double-speed unit, fully multi-session photo CD compatible CD ROM drive based on the fastest mechanism available today..., An unbelievable deal!

\*B.Y.O.B. - Build your own bundle! Buy any 6 CDs from our full line of CD titles and you can get the fastest CD ROM drive available - the APS T 3401 - for just \$399

Call our 24-hour InfoFax line today to receive a complete list of CD titles. Call 1-800-374-5802 and request document ID# 6001.

#### **POWERBOOK ACCESSORIES**

POWERBOOK DRIVES			
Model	LW Pro 630	Internal	AC/DC Case
APS GRS 80	\$249	_	_
APS GRS 16	o 349	299	429
APS T 213 <sup>1</sup> Toshiba 2224 mes	519	469	599
APS T 340 <sup>1</sup> Toshiba 2224 mes	704	659	789

APS SCSI BO	Y & DOC
APS SCSI BOY	\$29
APS SCSI DOC	49

- Rugged Palm-Sized 25–30 PowerBook SCSI Adapter
- Never Get Caught with the Wrong Cable Again!
- Dealer Inquiries Welcome
- SCSI DOC includes a docking adapter for the Apple PowerBook and termination power indicator.



	<b>→</b> DAT	-	NUMBER OF STREET
	Model	Internal*	External
	APS DAT	\$749	\$799
NDV 111	APS Turbo DAT	1249	1299
	APS Hyper DAT	1649	1699
	60 meter DAT tone\$12	10 Pack _ \$110	

60 meter DAT tape — \$12, 10 Pack — \$110 90 meter DAT tape — \$16, 10 Pack — \$130 \*Internal models for Quadra 900 and 950 All APS DAT Drives Include Retrospect by Dantz

#### TAPE DRIVES

APST 155 MB Tape Backup \$479

#### **■** MAGNETO OPTICAL

Model Internal\* External APS 128MB MO \$869 \$899

Mechanism is Epson Magneto-Optical OMD-5010









Same day shipping for personal checks (Restrictions apply)

#### CD ROM BUNDLE

APS T 3401

as low as..

Model Without Bundle B.Y.O.B.\*
APS T 3401 \$499 \$399

#### **⇒** SYQUEST

Model MB External
APS SQ 555 44MB \$339
44MB cartridges — \$65 unformatted, \$70 formatted

APS SQ 5110c 44/88 499 88MB cartridges — \$100 unformatted, \$105 formatted

APS SQ 3105 105MB 599

APS now has an international sales department...!!!
Un parte Français. Se habla Español. Wir sprezhen Deutsch.
International fax response in less than 24 hours. Guaranteed !!
日本語でファンスをAPSにして下さい。



Great Products.
Priceless Supporti

-800 874-1428

1-800-255-6227

Fax orders: 1-908-905-9279

ORDER UNTIL MIDNIGHT(EST) FOR **OVERNIGHT** DELIVERY



#### SuperDoubler

OSuperDoubler combines the functionality of our bestselling compression products, AutoDoubler, DiskDoubler, and CopyDoubler into one integrated package. SuperDoubler gives you automatic background compression, manual compression options, Self-Extraction Archives, speedy Finder copying, seamless background operation, and much more! Publisher:

Fifth Generation Systems

UT10447

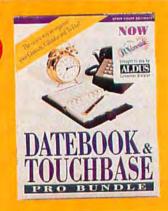


#### TouchBase Pro/DateBook Pro Bundle

OALL NEW! The award winners just got bener. TOUCHBASE and DATEBOOK have turned PRO! Now, a contact manager that provides power and ease of use, and a time manager that has the flexibility to tracts all your daily activities. With TOUTIBASE PRO, you can manage your contacts, dial your telephone, write letters, and print address books, labels, envelopes and fax covers. DATEBOOK PRO combines calendars appointments, To Dos, alarms and reminders to keep you on time. Best of all, TOUCHBASE PRO and DATEBOOK PRO are completely integrated. Together they form the BEST in personal information management Publisher: Aldus BUS0299

Also available: TouchBase Pro DAT0104 \$49, DateBook Pro BUS0298 \$49 and TouchBase Pro/DateBook Pro/Quicken Bundle BUS0349 \$99<sup>25</sup>







#### MiniCad+4

OMiniCad+4: An unsurpassed mix of ease of use and powerful features defines MiniCad+4. The award-winning MiniCad+ combines 2D CAD, true 3D CAD, a database/ Spreadsheet, programming language, intelligent interface and AutoCAD translator into one program. New features include 3D walkthrough and flyover tools, tolerancing, automatic roof, wall, and floor tools, and more. CAD0030 \$499<sup>14</sup>

#### Blueprint 4\*

Oblumperint 4 makes drafting and design easy for architects, engineers and illustrators. The new version 4 incorporates all the professional 2D features found in MiniCad+4. The price/performance ratio is absolutely unbeatable. Try it on Manufacturer's 30 day money-back guarantee! CAD0024 \$199\*

Publisher: GraphSoft

00

#### SoftPC Professional 3.1



Run DOS and NetWare Applications with VGA Graph-ics on Macintosh Computers SoftPC is the software only solution that lets you run more than \$0,000 standard or custom DOS applications on your Mac. SoftPC PROFES SIONAL rims PC programs which utilitze V6A graphics and extended memory. SoftPC PROFESSIONAL has MS-DOS

5.0 pre-installed and is ready to run on your Mac. Requirements: Suitable for the MacH ex. ct. st. fx. PowerBook, Performas and all Quadra computers **Publisher** 

Insignia Solutions COM0186

#### Language Explorer

OAnimate the discovery of language in English, French, German and Spanish. Languages are presented in 42 topics, with over 500 colorful, animated pictures. Simply select a topic and language, then match words to pictures. Five levels of difficulty add new challenges-from the basic exploration of Beginner, to all languages and topics at the Polyglot level! All ages. Requirements: Color Mac, System 6.0.7 or greater. Publisher: Nordic Software



#### Moriarty's Return

OHe's...backl...in an all new detective game of global pursuit. Two divisions: 1) for children and 2) more

challenging one for experienced sleuths. Over 1200 clues-most in rhyme-relating to 61 countries, Piece together a sketch of the criminal in the hilarious Sketch-a-Wretch notebook



and pick him out of a lineup. Fully animated in 256 frightening colors or b&w. Information Please Almanac included! Publisher:

Mysterium Tremendum

#### Practica Musica 2.4

OPractica Musica is an interactive music rator for both beginning and advanced students. An "Eddy Award" winner with MacLine's top "5 mice" rating, it covers both music theory and ear training, works with or without MIDL and includes a textbook. MUSO020

Songworks 1.3

OPlay a tone-with or without MIDI-and see it notated automatically! Songworks suggests chords, invents melodies transposes, plays, prints (one staff of melody, chord symbols, lyrics), "Eddy 1992. MUS0120

Publisher: ARS Nova





#### WristSaver or WristSaver MousePad

The WristSaver cradles your wrist with a contoured neoprene rubber pad and a washable nylon covering. It's ergonomically designed to support your wrist at the

proper angle to help avoid the pain associated with Carpal Tunnel Syndrome. The WristSaver MousePad (8" x 9.5") provides a comfortable rest for your wrist, plus a conventional mouse pad. Simple finger movements replace sliding the entire arm or hand. Manufacturer: LB Innovators

ACC0560 WristSaver (Red) ACC0635 MousePad (Red) Available in Gray, Black, Red or Navy. Please specify color.

#### Star Trek 25th Anniversary

OPHot the famous U.S.S. Enterprise on a wild ride through the heal frantier. This exciting game combines a realistic 3D space flight simulator with role planting adventures featuring the Star Trek teato. Control phasers, photon forpedoes, shields, communications, warp drives. Beam down to alien worlds, Come face to face with dozen of alien ruces. Complete with unusual score and digitized sound effects.

MACPLAY

Requirements: Color Mac with 1500K free memory, System 0.2 or later Publisher: MacPlay

#### Crossword Creator

OCreate crossword puzzles quickly and easily. Just enter the words to instantly generate a puzzle. Build/save dictionaries for use in future puzzles. Includes Roget's Thesaurus with wild card search. Print your puzzles directly or export desktop publishing files. ENTO440 \$39.





#### Letter Drop\*

Form falling letters into words. Combines hand-eye coordination, vocabulary, and spelling. Fun and challenging for all ages with multiple game variations and levels. Colorful graphics with word-picture association reinforce learning. Use built-in dictionaries or import your own.

ENTO602 \$2595 Publisher: Centron Software

# REFOUSETO PIO

CharkXPress

1. QuarkXPress 3.2 with FREE Kudo Image Browser and ClickArt Business Art

Ask for item # BND 0224 ...... \$599

2. Adobe Photoshop 2.5

Ask for item # GRA 0430 ...... \$549

3. Adobe Illustrator 5.0 Upgrade



Power User 44MB Syquest Cartridge Ask for item # MED 0035 ......\$75

The price of \$375 for Microsoft Office reflects \$100 Manufacturer's REBATE by mail direct from Microsoft, Price without rebate is \$475. Rebate offer expires 11/30/93. Your Microsoft Office package will include information on how to get your \$100 REBATE direct from Microsoft.

Microsoft Office 3.0

Ask for item # BUS 0285X ...... \$375\*

Microsoft Word 5.1

8. Power User Double-Speed CD-ROM 

Claris FileMaker Pro 2.1

Ask for item # DAT 0112 .....

10. TCI 14.4 Send & Receive Data Modem with FREE Accuweather

Ask for item # BND 0249 ...... \$99

Order toll-free anytime!

1-800-255-6227



Adobe Illustrator 5.0

#### **Business Plan Toolkit**

Offusiness Plan Toofkit works with your dsheet and contains a munu-drive guide, firmecials and business charts, fully-linked forecasts, cash flow, P&L balance, and ratios. The manual covers not just the

oftware but also the related problems of

0: information gathering, planning and implementation, FIN0116

Marketing Plan Toolkit

@Finally! An organized methodology for planning and managing the marketing process

from strategy to implementation. Requirements: Eccel, Lotus 1-2-3

Publisher: Palo Alto Software



Take FileGuard, TrashGuard & FileDuo together and save!

Publisher: ASD Software UT10423

FileGuard 2.7-"It's sleek, fast and safe. I highly recommend it," MacUser. Protect your hard drive, applications, files, and folders (including System Folder) from erasure. unauthorized access (including security bypass with a System diskette), deletion, and illegal

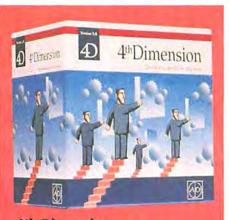
copying. UT10135

TrashGuard-Delete files forever, with TrashGuard, Using the Trash Can to delete a file only makes the space available, but does not erase data. TrashGuard not only deletes files, it actually removes them from your many complies with D.o.D. standards! UT10322 \$4 actually removes them from your hard disk. It even



FileDuo-Backup your important files quickly and automatically! FileDuo creates backups any time you want: every 5

minutes, at a specific time, or when you shut down your Mac. Backup your choice of files or folders, your entire hard disk or other mounted device UT10323



(B. PU Double-Speed CD-ROM)

#### 4th Dimension Competitive Upgrade

OYou've tried the rest, now step up to the best! Do you need to see the many to the one? Would you like to be able to produce relational reports, graphs, and labels quickly? Will you require multi-level searches and sorts? Search by example? If the answer is YES!, step up to the leader in Relational Data Management—4th Dimension Preserve your current investment in data and knowledge— Importing your current information is just a double click away! Ascii, text, sylk—Filemaker Pro, Excel, Foxbase Mac etc... NO PROBLEM!

Publisher: ACI US Inc.

Customer

available weekdays.

-800-255-6227

## Wiz Tools

These 9 powerful System enhancement modules are jam-packed with helpful time savers. Modules include a synchronization and backup module, hierarchical menus, a keystroke recorder for registering your keyboard input all day long, a simple but effective folder watching system, a

customizable clock for the Desktop, PowerBook utilities (including battery level indicator), direct access to frequently used items, new shortcuts for the Finder, and more... The powerful backup/synchronization module alone, makes this product a great value!

Publisher: ASD Software UT10414



#### Eco-Adventures: In the Oceans

OEco-Adventures: In the Oceans puts you aboard a research vessel to explore the Oceans of the World Digitized sounds and full-color underwater images

bring the aquatic plants and animals to life on your Mac. EDU0337

#### **Eco-Adventures:** In the Rainforest

OThis challenging game simulates the environment of a tropical rainforest. With the aid of a guide, maps, and

equipment, you'll travel through the rainforest, experiencing the digitized sounds and full color images of endangered species. EDU0336

Both come with a FREE full color poster and require a bard disk & 2MB RAM.
Publisher: Chariot Software

We carry more than 2000 Macintosh products, including all the latest releases and new versions. We pride ourselves on getting new products first. Just fill in the information requested below and mail the coupon. We'll start your free, one-year subscription to the MacWAREHOUSE catalog with the next issue.



#### FREE CATALOG SUBSCRIPTION MW1293

Free MacWAREHOUSE Catalog Subscription 1720 Oak Street, P.O. Box 3031, Lakewood, NJ 08701

Please enter, endree, one-year subscription to the Mac's 05780USE catalog

Address Apt.

(Expect to receive your first issue within 4-6 weeks)





ad Wire HOUSE



1-800-255-6227 Fax orders: 1-908-905-9279

Many of our products come with a thirty day money back guarantee, if you are not completely satisfied. Ask for details when you place your order.

GUARANTE

CI ACCO KEO SEO

<b>BUSINESS &amp; PRESENTATION</b>	
A Lasting Impression	
OResumExpert: MS Word: Cover Letters, Manage	E.
Sales & Marketing, Students, Computer Science &	- 10
Engineering, Financing & Banking, and more	ta 49
Abacus Concepts	
OSTA0032 StatView 4.0 OSTA0030 SuperANOVA	449
OSTADUSU SuperANUVA	309.
Aldus	225.05
BUS0066 Persuasion 2.1     DateBook Pro or TouchBASE Pro	#3 AG
OBUS0288 IN CONTROL 2.0	B5
Avid	
OSID0051 Video Shop 2.0 Competitive Upgrade	149
Clarie	
OBUS0338 ClarisWorks 2.0 w/ FREE Quicken 4.0	199 95
Gold Disk  BUS0329 Astound	210
	249.
Intuit	44.06
OFINO201 Ouicken 4.0 Lotus Development Corporation	44,33
BUS0188 Lotus 1-2-3 for Macintosh 1.1	200
OSID0004 Lotus 1-2-3 Competitive Upgrade	99
Microsoft	
ORUS0223 Microsoft Excel 4.0	295.
OUPG0010 Microsoft Excel 4.0 Upgrade ODAT0047 Microsoft FoxBASE+Mac 2.01	129.
ODAT0047 Microsoft FoxBASE+/Mac 2.01	329 95
OBUS0181 Microsoft Project 3 0 OBUS0186 Microsoft Schedule - 5 Pack	445.
OBUS0186 Microsoft Schedule+ 5 Pack	133.
OBUS0243 Microsoft Works 3.0 OBUS0285 The Microsoft Office 3.0	159.95
OBUS0269 PowerPoint 3.0	973.
OWRD0059Word 5.1	205
Pastel Development	- 230
OBUS0266 Daymaker 2.0	79
Round Lake Publishing	
Round Lake Publishing OLegal or Sales LetterWorks	. ea. 45
Teleware, Inc. OFIN0087 M.Y.O.B. 3.0	
@FIN0087 M.Y.O.B. 3.0	109.
Wordstar	
OWRD0060 WriteNaw Workshop	85.
WordPerfect Corporation  WRD0068 WordPerfect 3.0 w/ FREE Grammatik	1707
WHD0068 WordPerfect 3.0 W/ FREE Grammat/	125.
COMMUNICATIONS & NETWORK	ING
Adaba	

COMMUNICATIONS	8	NETWORKING	
Adobe			

Adobe	
OCOM0171 Adobe Acrobat Starter Kit	
Apple Computer, Inc.	
ONET0250 AppleShare 3.1	959
OCOM0131 AppleTalk Remote Access	149
OCOM0126 Macintosh PC Exchange	59.98
Dayna Communications, Inc.	
ONET0357 EtherPrint-3	379
ONET0077 DaynaPORT E/II	149
ONET0278 DaynaPORT SCSI Link	

#### Thunder 7 v.1.5.3



OThunder 7 is the universal spellchecker that alerts you the instant you make a mistake. helping you fix it immediately—in any application. With features such as the

Shorthand Glossary which expands abbreviations automatically as you type and an on-line thesaurus, you keep your work looking professional. You'll find it indispensable!

Publisher: Baseline Publishing SPL0029

ONET0359 DaynaSTAR Hub-24	859
Farallon™ Computing ONET0007 PhoneNET® Plus SE & II	31
Global Village (full line available)  OPowerPorts	Call
Hayes  MOD0130 ACCURA 144-Fax 144  MOD0129 ACURA 96-Fax 96  MOD0128 ACCURA 2400 (data only)	239.90 219.90



Insignia (Full line available)	70.01
OCOM0144 Soft PC Universal 3.0	- /9.90 80.05
PowerUser®	09.00
OMODO115 24/96 Send/Receive Fax Modem OMODO116 14.4 Send/Receive Fax Modem	129 95 199 95
Prometheus MOD0084 Home Office 24/96	135.95
OMODO085 Ultimate Home Office 24/96	239.95
ONET0246 LANRover/L Zoom Telephonics	599
OMCD0110 FaxModem PKT	
OMOD0109 VFX V 32bis MacPack OMOD0117 FXV FaxModem	185.95
FOLICATIONAL & ENTERTAINS	MENT

EDOCATIONAL & ENTERTAINMENT	
Broderbund	
GCDR0042 Just Grandma and me CD-ROM	
OGRA0268 Kid Pix 1 2 35	
Centron Software, Inc.	
Centron Software, Inc.  PENTO289 CasinoMaster Deluxe Color Version 45  PENTO440 Crossword Greator 39	
OENT0440 Crossword Creator 39	
Nordic Software	
@EDU0051 MacKids Turbo Math Facts 2.0	
Personal Training Sys.(Full line available)  ©Excel 4.0, Word 5.1, Filemake: Pro 2.0 ea. 49.	
©Excel 4.0, Word 5.1, Filemaker Pro 2.0 ea. 49.	
Software ToolWorks	
OMUS0092 Miracle Piano 349	
GRAPHICS & DESIGN	

Adobe Systems, Inc. (Full line available)	22 49 5
Adobe Systems, Inc. (Full line available)	
UMAUSOU IIIUSI SIOI 5 U	30
GRAD520 Adobe Premiere 3.0	42
GRA0430 PhotoShop 2.5	54
Aldus	
GRA0305 FreeHand 3.11	395 9
GRA0279 Gallery Effects Vol. I	129 9
GRA0599 IntelliOraw 2.0	139.9
GRA0503 SuperPaint 3.5	q
ODTP0088 PageMaker 5.0	579 0
OUPG0032 PageMaker 5 0 Upgrade	1.4
ODTP0080 Personal Press 2 0	

Wacom INP0303

Altsys	
oFON0509 Fontographer 4.0	259
Apple Computer, Inc. GGRA0347 QuickTime Starter Kil	100
Claris	109
OGRAD350 MacDraw Pro 1.5	275.95
Cachal	
GRAO432 Electronics for Imaging (EFI)	299.
OGRA0514 MacGallery II	27
OGRA0412 Painter 2.0	279
Granhsoft	
OCADO024 BluePrint 4.0	199
OCAD0030 MiniCad+4.0	589.
Gryphon Software	400
GRA0505 Morph 2.0	105.
GRAD443 Kodak Shoebox	279
ODTP0096 XPress 3.2	599.
Ray Dream	
GRA0383 addDepth	125
Softkey Software	40
OFON0480 KeyFonts	49
INPUT & OUTPUT	
Apple Computer, Inc. ACC0921 LaserWriter Toner Cartridge	
ACC0921 LaserWriter Toner Cartridge	89.95
ACC0922 LaserWriter 250 Sheet Letter Cassette	72.95
ACC0923 LaserWriter II Letter Cassette	65.95
Caere	000
OINP0289 OmniScan	399
Datadesk International	100.00
INPO174 Mac 101E Keyboard Platinum INPO183 Mac 101E w/Okeys 2	159.30
NPUISS Mac tute w/dreys 2	139
Kensington ©INP0231 Turbo Mouse (SE or II) 4.0	109

#### Retrospect

Mouse Systems
OINP0132 Little Mouse ADB

OINP0246 Microtek ScanMaker II ..... OINP0247 ScanMaker II XE

Temspect continues to dominate the mar-liet for serwork backup, and for good reason. Diamond Award.



Retrospect 2.0 providés both incremental backup to protect daily work and true archiving to remove inactive hand disk to a

orage device. Advanced script tog and schedoling provide automatic, unattended backup to : Publisher:

UI10227

SuperMac MON0053 SuperMatch 20+ Color Display .... UMAX INP0273 UC840 Color Scanner w/ Photoshop INP0287 UC630 Color Scanner w/ Photoshop LE

#### POWERBOOK PRODUCTS

Applied Engineering ACC0833 Automobile Power Adapter
ACC0834 Battery Charget
Battery Technology Inc. ACC0840 Battery for Powerbook 59.95

#### GameCheater



Mac games. Beadversary, every

Publisher: Baseline Publishing ė=

MG Computer Products COB37 Powerlock Plus	49
onnectix UTI0297 CPU Connectix for Powerbook Utilities	55 95
ensington INP0221 Notebook Keypad ophisticated Circuits	79
NP0232 Powerpad	75
<b>UPGRADES &amp; DRIVES</b>	

#### Applied Engineering DRI0728 40 MHz LC Accelerator DRI0731 25 MHz SE Accelerator DRI0531 AEHD Plus Drive 399. 189 299.95 DayStar Digital DayStar Digital OUniversal PowerCache 33 MHz w4882 OUniversal PowerCache 33 MHz w4882 OUniversal PowerCache 40 MHz w4882 OUniversal PowerCache 40 MHz w4882 369 459.95 565 639.95

Othrivetsal PowerCache 40 MHz w/88z Mass MicroSystems DRIDC53 Daafak 45MB Removable DRID719 35 in. 105 MB Syquest Drive .... DRID623 Data Pak 44/88C MB Removable DRI0623 Data Pak 44/88C MB Removable Peripheral Land, Inc.

ODRI0375 Infunty 88 Removable single PowertIsers\*
OCHP0011 4 Meg SIMMs 80ns
OCHP0013 1 Meg SIMMs 100ns
ODRI0550 85 Meg Drive
OBN0076 44/88C MB Syquest Removable
OBN00094 84MB Syquest Removable
OBN00095 88MB Syquest Removable
SuperMac Technologies
OCRI0437 Spectrum/8 24 PD0 599.95 Call Call 329 95 499 299 489 599

#### UTILITIES & PROGRAMMING

Should Continue Inc	
Abbott Systems, Inc.	
	59.95
Maddin Systems	
OLITIO302 Stuffit Deluxe 3 0	69
Apple Computer, Inc.	
SYS0004 System 7.1 Personal Upurade Kit	79.95
opple Computer, Inc. OSYS0004 System 7.1 Personal Upgrade Kit OSYS0010 Al Ease 2.0	45.95
linary Software	
OUTI0348 Square One 1.5	45,95
caere	
DUTI0293 OmniPage Direct	199 95
OUTI0202 OmniPage Professional	649
Cent Marsh, Ltd.	
OUTIO212 FolderBolt	75
MAXA Corporation	
DUT10353 Alert1	115
MicroMat Computer Systems	
DUT10285 MacEKG 2.0	89
Symantec Corporation	
DUHO151 Norton Utilities for the Mac 2.0	95.
DUTIONAL C. marker Artis on the Mary 25 (CAA)	DE DE

#### Kodak Shoebox

OKodak Shoebox Photo CD Image Manager Software provides the easiest way to manage thougands of images on your deskup. You can catalog, index and search high quality



images and multi-media objects as simply as pointand click. Now you can easily index, catalog and search thousands of files by user-defined fields, along with key words, attributes and captions Publisher: Eastman Kodak

#### UD-1212R **Graphics Tablet**

Based on Wacom's legendary reputation for quality, the new UD-1212R tablet incorporates features never before available on a graphics tablet, such as; "auto pressure range control" for pressure range control for personalizing the pen to your exact feel, and the incredible multi-device feature for having a pen and cursor working simultaneously on the tablet! These are just a few of the new features on this top-of-the-line Wacom tablet, and you get all this at a Manufacturer:

## Magyarehouse

1720 Oak Street, P.O. Box 3031, Lakewood, NJ 08701 101993 Micro Warehouse Inc.

- All major credit cards accepted. No surcharge
- Your creat cand will not be charged unit your order is snipped.

  If we ship a partial order, we say the freight on the remaining portion.

  All ILS shipments are insured at no extra charge.

- All U.S. shipments are insured at no estal change.
   C.O.D. orders accepted data \$5.600 including shipping)-\$1,000 maximum.
   All products are covered by a 170-bay limited warranty. Defenive subhasee replaced immediately. Handware replaced in repaired at our dozenion.
   Sales fair: Cit residents add 6%, MJ residents add 7%, this residents add.

SHIPPING

- All orders add 53 00 per order. We ship Airborne Express overnight unless
- Who den's act so to get often. It is supermotive to speak overlayin these UPS Ground delivers overlaying (Some rand areas require an estra day.)
  Crides placed by 12.00 MDMGHI (EST) (asexsbys) for "in-stock" items strip same day (barring system failure, etc.) for overlaght delivery.

  C.0.0 blooders ship you UPS (Blue Label) if you are more than 2 days from up via UPS Ground). Charge is \$6.00 including shipping.

  Alassi, Pawai, noutrise contriverabl U.S. APDFPD Card 988-367-0440 for information. Some products are not available outside the U.S.

- We regret that we cannot be responsible for typographical errors. For asser service for existing customers, our computers recognize incoming calls by the felephone number and instantly locate your records.

# Follow the Leader...



#### ColorBlaster LC

Botton Line Pick MacUser August 1993

Experience blazing 16-bit color graphics on monitors up to 14" and 8 bit color up to 21". The ColorBlaster LC fits into the VRAM slot of the LC, LC II, and the Performa

400,405,430. The Blaster comes bundled with ColorIT! by Timeworks, a \$249 Value. Special Quicktime features allow you to double the size of the presentation without sacrificing speed.

\$249.00

#### ColorBlaster PB

Enhance your PowerBook with 16-bit color presentations and graphics, using monitors up to 16"

or 8-bit color up to 21". The ColorBlaster PB also includes a 6MB RAM upgrade. Available for the PowerBook 140, 145, 145B, and 170.

\$999.00 ColorITI included

### JetInc.

Jetlnc is the most economical way to refill your ink jet printers. It provides over 50% savings, while also incorporating recycled materials that are environmentally conscious. (For IBM & Macintosh)

Two Pack Black \$15.99 High Capacity Black \$19.99 Two Pack Color \$22.99 High Capacity Color \$24.99 DeskWriter 550C (6) \$74.99



ColorBlaster

## Logic Keyboard

DGR "Logic" extended keyboard for Macintosh computers. Available in English, Spanish, French, Swiss and German. Includes a six foot cable and a one year warranty.

\$85.00



## **Optical Drives**

DGR Technologies' line of Magneto Optical Drives continues to be the leader in Optical Technology as it has for the past two years, that is why MacUser made us the industry standard by which all others are compared. Our new line of optical drives provides storage solutions that are fast, reliable, and cost-effective.

128REMe \$999.00 128REMf \$1149.00 256REM \$1499.00 650REM \$2199.00

## COLLEAGUE

COLLEAGUE Business Software is "all the software your business may ever need" in a single program. The new 3.4 version makes COLLEAGUE Business Software an even more useful tool for your business!

\$649.00

- · Client Database w/Search & Sort
- Multi-User Options
- Invoicing
- Word Processing

New Features Include:

- Ship to Address
- Inventory Search Function

New 3.4 Version!

Enhanced Sales and Analysis Tools



MacUser February 1992

## Tornado CD-ROM

DGR is proud to introduce its new multi-session CD-ROM. Awarded four mice by MacWorld Germany, it is one of the best CD-ROM drives in the industry. Bundled with AllCache accelerator software, the Tornado now out performs the Apple CD by over 5,000%.

\$599.00



800-235-9748



Look for Our Products at Your Local Dealer, or Call Us for One Near You

To order direct, call toll free Monday-Friday 8am to 7pm CST. DGR Technologies accepts MC, Visa, Discover, Pre-Paid & COD orders. DGR Technologies 1219 West Sixth, Suite 205 Austin, Texas 78703 Tel. 512/476-9855 Fax 512/476-6399 AppleLink: DGR.



DW3DM0

Circle 65 on reader service card



# orld's Fastest CD-ROM



Reviewed by MacUser, Macworld, MacWeek and PCWorld.

### Magic CD-ROM

The new Magic CD-Pro 6 disk changer is fast becoming one of our hottest selling items. The Magic CD-Pro 6's Quadraspin™ technology provides a 300% speed increase in transfer rate. And this PhotoCD compatible Pioneer drive is up to 5,000% faster than Apple's. Our custom AllCache software caches directory, database, QuickTime, Finder and application usage.

Magic CD-Pro	\$549
Magic CD-Pro w/6 Disk Bundle	
Magic CD Pro 6 QuadraspinTM	
Apple CD-ROM AllCache Upgrade	2\$59
CDs	
CD-ROM Encyclopedia	\$49

W/purchase of CD Drive Cinderella the Original Tale CD ......\$24 Arthur's Teacher Trouble CD \$\$\$\$ \$57.95 Aesop's Fables CD .....\$24 Music Madness CD .....\$69

Oxford English Dictionary .....\$839 Great for Students! The Journeyman Project .....\$59

Multi-Media Encyclopedia .....\$59 Call for CD-ROM Catalogue >

12 472 1794. VT100-8-1-None

Up to 5,000% Faster HFS Access Speed

Apple CD-ROM 300

Magic CD-Pro 6

300% Faster Transfer Rate

Magic CD-Pro/Pro 6

Dial our First Class BBS for software updates. Free BBS access software w

### **Magic Hard Drives**

Magic award-winning data storage

- Manufactured on premises.
- · Inspected and tested to ensure the highest quality.
- · Premium components, software, and manuals.
- Awarded for excellence.

Magic Hard Drives	Int.	Ext.
Magic 120MB**	\$179	\$259
Magic 240MB**	\$299	\$369
Magic 1.2GB*** Toshiba	\$999	.\$1099
Magic PowerBook Drives		
Magic 160MB PowerBook*	\$299	\$399
Magic 213MB Portable*	\$489	\$589
Magic 340MB Portable*	\$649	\$749
Magic High Capacity Drive	S	
1.0GB DEC*		\$1099
1.7GB Barracuda††	\$1999	\$2099
2.4GB Fujitsu††	\$1999	\$2099
Half Height Internal Mounti (includes bracket and cabl	ng Kit	

Battery Operated External Case.....\$99 To Order Call 1 800 622 8721

External Hard Drive Case.....\$79

#### Magic Optical

Magic 128MB Optical*	\$879
Magic 256MB Optical**	\$1299
Magic 650MB Optical*	\$1999
Magic 128 / 256MB Cart	\$34/\$65
Precision 128 Carts / 10 Pack°	\$290
Magic 650MB Cartridge	\$99

#### Magic SyQuest

Magic 45R SyQuest**	\$299
Magic 88C SyQuest**	\$489
Magic 105C SyQuest*	\$579
Magic 150 Transportable Iomega*	\$579
Magic SyQuest 45 Cartridge	\$59
Magic SyQuest 88 Cartridge	
Magic SyQuest 105 Cartridge	\$69
Magic 150 Transportable Cartridge	\$9.9

#### Magic DAT Tape

Magic 2.0GB W/Retro	spect\$999
Magic 5-8.0GB w/Ret	rospect\$1199
Magic 16GB w/Retros	spect\$1599
* One Year Warranty	***Three Year Warranty
** Two Vone Warrantist	44 Cina Vane Warrantu

Call now for the latest in mass storage technology. And put your Macintosh to work, Better, Harder, Faster, .



Magic purch

#### Precision

- A premium optical cartri
- Free data recovery
- Lifetime warranty



# and a 64MB 24-bit 50Mhz LC.

QuickDraw faster than the Thunder II and FPU acceleration faster than the Daystar PowerCache...

#### RailGun Pro II with 24-bit Color

For the SE 30, LC, LC II, Color Classic, SI, and Cl. Lets you install up to 64mb of RAM.

RailGun II 50MHz	\$599
(Accelerator Only)	
RailGun Pro II 50MHz	\$899

(Accelerator and 16" 24-bit color video) RailGun Pro II 50MHz .....\$1099 (Accelerator and 21" 24-bit color video)

#### RailGun

- For Plus, SE, and Classic
- Run your Mac 1200% faster
- Optional math co-processor
- FREE Connectix Virtual 3.02



#### RaliGun Pro with Video

- HOTT built-in SCSI Accelerator
- Sharp 32-bit video output
- Dual-Screen capability

w/19" Built-in PMMU RailGun Pro

Magic RailGun 16MHz \$279 \$479 \$678 Magic RailGun 25MHz \$299 \$499 \$698 Magic RailGun 33MHz \$399 \$609 \$808

Magic RailGun 50MHz \*All prices quoted for SE version. Call for pricing on

\$695 \$894

Classic or Plus version .



### **Magic Memory**

#### Memory upgrades available for all PowerBooks, Call for best pricing.

PowerBook RAM	Call
2MB SIMMs	
4MB SIMMs	Call
16MB SIMMs	Call
4MB 72-pin SIMMs	\$189
8MB 72-pin SIMMs	Call
LC/Quadra VRAM	Call
ColorBlaster LC™	\$219

Blazing high end color graphics for LC & Performa. Faster, larger QuickTime movies.



#### PowerBook Accelerators

140 Upgraded to 170	
25mhz (68030/68882)	\$329
145/145B Upgraded to 170	
25mhz (68882)	\$129
160 Upgraded to 180	
33mhz (68030/68882)	\$399
210 Upgraded to 230	
33mhz (68030)	\$399
33//// (00030)	

## Magic 14.4 Data/FAX/Voice

Te manufacture a full line of Hayes compatible Modems, FaxModems, and PowerBook modems. All FaxModems come with full feature Fax STFTM, Microphone®, America Online, and Compuserve communication software.

#### Magic PowerBook Modems

Magic AFX 24/96 Data/FaxModem......\$79 Mounts internally in any Macintosh PowerBook. 2400bps modem. 9600bps send & 4800bps receive fax.

Magic 14400 bps Data/FaxModem ......\$199 14400 Fax, V.32bis, V.42bis, MNP 1-5, Internal PB.

#### Magic FaxModems

Magic VFX V.32bis Data/FaxModem	
Data/FaxModem	
Data/FaxModem w/VoiceMail	\$199
14400bps modem. 14400bps send & receive fa	x,
V 42his/V 22his hardware & MND 1.5 protocol	c A





Austin, Texas 78705 USA Tel 512 476 5295 **Customer Service** 512 472 8881 ext 403 Fax 512 499 0888 Canada 800 624 9307

608 West 22nd Street

Magic. Hard Working Tools For Your Macintosh Since 1985.

a 30 Day Money Back Guarantee on all Magic<sup>14</sup> Products, excluding Original Shipping, Call for RMA before returning merchandise. Returns subject to a restocking fee. All brands & product names are

Circle 175 on reader service card

**MW3DMO** 



23 scalable Adobe PostScript fonts.

65 scalable Adobe PostScript fonts.

## **Texas Instruments** MicroLaser Pro 600 Printers 10



Colorblaster LC \$219.95



QuarkXPress 3.2 \$549.95 PTS Training Tape \$48.95



Adobe Photoshop 2.51 \$499.95



Adobe Illustrator 5.0 369.95 PTS Training Tape



SyQuest 44MB \$59 88MB \$89 105MB \$69 88MB



Symantec Act! v1.1 \$165.95



Aldus Fetch v 1.0 \$189.95



Deneba Canvas v3.5 \$259.95

\$48.95



MacroMedia MacroMind Director v3.1 \$749.95



Fractal Design Painter \$249.95 w/Wacom Tablet 200.95 69.95



Connectix CPU v2.0 \$45.95 V 1.0 Free with

PowerBook Purchase



Aldus PageMaker 5.0 \$579.95 PTS Training Tape \$48.95

SYSTEMS	
Quadra 950 8 0	\$3199.0
Quadra 800 8 230	2899.9
Quadra 840AV 8 230	3249.9
Quadra 840AV 16 500	4399.0
NEW Quadra 610 4 160E	Ca
NEW Quadra 650 8 230E	Ca
Centris 660AV 8 230	2149.9
Centris 650 8 230 CD	2474.9
PowerBook 165 4 80	1799.9
LC III 4 80	1249.9
NEW Duo 250 4 120	Ca
NEW Duo 270C 4 120	Ca
Duo Modem	305.9
Extended Keyboard w/Purchase	79.9
Dioni avo	

Extended Keyboard w/Purchase	79.95
DISPLAYS	
Apple 14° / 16° RGB Display	\$515/1199
ColorPage T16-II	1169.95
L-TV LC/Pro	269.95/349.95
L-TV Pro Nubus	369.95
Lapis Full Page Display	399.95
NEC 3FGe 15*/4FGe 15*	599.95/755.95
NEC 5FGe 17*/6FG 21*	1159.95/2375.95
Sigma Designs Ergo View 17*	1025.00
Sigma Designs Power Portrait	515.00
Silverview 21*	899.00
Sony CPD-1430s/1730	599.95/1049.95
Sony GDM-2036S/2038	2099.95/2325.95

SHAGIAIGM TI	099.00
Sony CPD-1430s/1730	599.95/1049.95
Sony GDM-2036S/2038	2099.95/2325.95
PRINTERS -	
Apple StyleWriter II	\$329
Apple LaserWriter 300 / 310	785 / 1025
LaserWriter Pro 600/630	1849/2375
SilentWriter 95F/1097	899.95/1449.00
QMS 420/1000	1799.95/Cal
QMS 860 HammerHead	3980.95
DEC Laser 1152	849.95
Turbo PS440B/PS660B	3219.95/3950.95
DataProducts LZR960	1066.95
GCC PLP II	509.00
GCC Writemove II	475.00
3M Rainbow Dyesublimation P	rinter 17,225.00
Call for accessories and consul	mables
HP 4M/4MI	1989 95/1099 95

PRINTERS Apple StyleWriter II Apple LaserWriter 300 / 310 LaserWriter Pro 600/630	\$329 785 / 1025
Apple LaserWriter 300 / 310 LaserWriter Pro 600/630	
LaserWriter Pro 600/630	795 / 1026
LaserWriter Pro 600/630	/03 / TUZ3
	1849/2375
SilentWriter 95F/1097	899.95/1449.00
QMS 420/1000	1799.95/Call
QMS 860 HammerHead	3980.95
DEC Laser 1152	849.95
Turbo PS440B/PS660B	3219.95/3950.95
DataProducts LZR960	1066.95
GCC PLP II	509.00
GCC Writemove II	475.00
3M Rainbow Dyesublimation	Printer 17,225.00
Call for accessories and consi	umables
HP 4M/4ML	1989.95/1099.95
DeskWriter/550C	375.95/669.95
HP 1200	2149.95
SCANNERS	
ScanMaker II/II XE	\$875.95/1140.95
Microtek Transparency	619.95
Microtek 35T	1349.95
Sharp 325 Kit	1099.95
Tamarak 600/800	735.95/919.95

Tamarak 1200	1564.95
Tamarak Transparency	560.95
ScanJet IIC	1299.95
INPUT DEVICES	
Turbo Mouse ADB V4.0	\$99.95
MacPro Plus 105	115.95
DGR 105 keyboard	79.95
Other Language Keyboards	89.95
Mouse Pen Pro	60.95
MVP Mouse	82.95
Touch Screens	Call
NETWORKING	
Asante EN/SC 10BaseT	\$238.95
Ethernet for Ilsi, Nubus, LC, & S	
SE30 10BaseT and AUI	99.95
Thin/10BaseT Transceiver	59.95
8 Port Hub 10BaseT, 1Bnc	219.95
MacCon + IIET64	148.95
Sonic 8 10BT Hub	199.00
Dayna Mini Hub	234.95
DaynaPORT E/LC-T	128.95
PhoneNet StarConnector	16.95
Ether10T Starcontroller	1054.95
FastPath 5 10BaseT	1759.00
	1700.00
	1755.55
DRIVES & TAPES	\$419.95
DRIVES & TAPES MacFloptical 21	\$419.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro	\$419.95 1450.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150	\$419.95 1450.95 670.95 1726.95 850.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Tahliti Ilm/4mb 1Gb optical	\$419.95 1450.95 670.95 1726.95 850.95 3000.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Tranbl Ilm/4mb 1Gb optical PMO 1300 Mac	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Tahiti Ilm/4mb 16b optical PMO 1300 Mac Taho130 Optical	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 920.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Taniti IlmV4mb 1Gb optical PMO 1300 Mac Taho 130 Optical PMO 650 Optical	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 920.95 2597.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Transportable 150 PMO 1300 Mac Taho130 Optical PMO 650 Optical Duantum Go 160	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 920.95 2597.95 280.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Tahiti Ilm/4mb 1Gb optical PMO 1300 Mac Taho130 Optical PMO 650 Optical Quantum Go 160 Quantum 85/170	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 920.95 280.95 280.95 179.95/199.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Tahbit Ilm/4mb 1Gb optical PMO 1300 Mac Taho130 Optical PMO 650 Optical Quantum 60 160 Quantum 85/170 Quantum 240/1050	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 920.95 280.95 179.95/199.95 259.95/979.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Transportable 150 PMO 1300 Mac Tahol 1300 Mac Tahol 30 Optical PMO 650 Optical Ouantum 60 160 Ouantum 60 160 Ouantum 85/170 Ouantum 240/1050 DEC 1.0 GB/1.6GB	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 920.95 2597.95 280.95 179.95/199.95 129.95/379.95
DRIVES & TAPES  MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Transportable 150 Tahiti Ilm/4mb 1Gb optical PMO 1300 Mac Taho130 Optical PMO 650 Optical Ouantum 650 Optical Ouantum 85/170 Ouantum 85/170 Ouantum 240/1050 DEC 1.0 GB/1.6GB Micropolis 1GB SCSI 2	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 920.95 2597.95 289.95 179.95/199.95 259.95/979.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Tahbit Ilm/4mb 1Gb optical PMO 1300 Mac Taho130 Optical PMO 650 Optical Quantum 65/170 Quantum 85/170 Quantum 85/170 Quantum 240/1050 DEC 1.0 GB/1.6GB Micropolis 1GB SCSI 2 Fujitsu 1.2GB/2.4GB	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 280.95 280.95 280.95 27.95/199.95 1029.95/1349.95 1029.95/1349.95
DRIVES & TAPES MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Transportable 150 Transportable 150 PMO 1300 Mac Tahol 1300 Mac Tahol 30 Optical PMO 650 Optical Ouantum 65/170 Ouantum 85/170 Ouantum 85/170 Ouantum 65/170 DEC 1.0 GB/1.6GB Micropolis 16B SCSI 2 Fujitsu 1.2GB/2.4GB Toshiba 1.2GB	\$419.95 1450.95 670.95 850.95 3000.95 5700.95 920.95 2597.95 280.95 179.95/199.95 1029.95/1349.95 1029.95/199.95
DRIVES & TAPES  MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Transportable 150 Transportable 150 Transportable 150 Dual Im/4mb 1Gb optical PMO 1300 Mac Taho130 Optical PMO 650 Optical Ouantum 60 160 Ouantum 65/170 Ouantum 240/1050 DeC 1.0 GB/1.6GB Micropolis 1GB SCSI 2 Fujitsu 1.2GB/2.4GB Toshiba 1.2GB Toshiba 340 PowerBook	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 920.95 2597.95 280.95 179.95/199.95 1029.95/1349.95 1029.95/1999.95 669.95
DRIVES & TAPES  MacFloptical 21  Dual Transportable 90 Pro  Transportable 90 Pro  Dual Multidisk 150  Transportable 150  Tahbit Ilm/4mb 1Gb optical  PMO 1300 Mac  Taho130 Optical  PMO 650 Optical  Quantum 65/170  Quantum 85/170  Quantum 85/170  Dec 1.0 GB/1.6GB  Micropolis 1GB SCSI 2  Fujitsu 1.2GB/2.4GB  Toshiba 1.4GB  Toshiba 1.4GB  Toshiba 340 PowerBook  DGR 128 Optical	\$419.95 1450.95 670.95 1726.95 350.95 3000.95 5700.95 280.95 280.95 2597.95 179.95/199.95 259.95/979.95 1029.95/1349.95 1029.95/1349.95 1049.95/1999.95
DRIVES & TAPES  MacFloptical 21  Dual Transportable 90 Pro  Transportable 90 Pro  Dual Multidisk 150  Transportable 150  Transportable 150  Transportable 150  Transportable 150  Transportable 150  PMO 1300 Mac  Tahol 1300 Optical  PMO 650 Optical  Ouantum 60 160  Ouantum 85/170  Ouantum 85/170  Ouantum 240/1050  DEC 1.0 GB/1.6GB  Micropolis 16B SCSI 2  Fujitsu 1.2GB/2.4GB  Toshiba 1.2GB  Toshiba 1.2GB  Toshiba 1.2GB  Toshiba 1.26 Optical  DGR Most 256 Optical	\$419.95 1450.95 670.95 850.95 3000.95 5700.95 920.95 2597.95 280.95 179.95/199.95 1029.95/1349.95 1029.95/1999.95 1049.95/1999.95
DRIVES & TAPES  MacFloptical 21 Dual Transportable 90 Pro Transportable 90 Pro Dual Multidisk 150 Transportable 150 Transportable 150 Transportable 150 Transportable 150 Transportable 150 Dual Multidisk 150 Transportable 160 Dual Mac Taho 130 Optical PMO 650 Optical Ouantum 65 160 Ouantum 65 170 Ouantum 85/170 Ouantum 240/1050 DEC 1.0 GBV1.6GB Micropolis 1GB SCSI 2 Fujitsu 1.2GB/2.4GB Toshiba 340 PowerBook DGR 128 Optical DGR Most 256 Optical Magic Syquest 88c	\$419.95 1450.95 670.95 1726.95 850.95 3000.95 5700.95 2597.95 280.95 179.95/199.95 1029.95/1349.95 1029.95/1999.95 949.95 669.95 899.95 1499.95
DRIVES & TAPES  MacFloptical 21  Dual Transportable 90 Pro  Transportable 90 Pro  Dual Multidisk 150  Transportable 150  Tahbit Ilm/4mb 1Gb optical  PMO 1300 Mac  Taho130 Optical  PMO 650 Optical  Quantum 65/170  Quantum 85/170  Quantum 85/170  Quantum 85/170  Suntum 85/170  Dec 1.0 GB/1.6GB  Micropolis 1GB SCSI 2  Fujitsu 1.2GB/2.4GB  Toshiba 1.4GB  Toshiba 1.4GB  Toshiba 340 PowerBook  DGR 128 Optical  DGR Most 256 Optical  Magic Syquest 88c  ThirdWave 2.0GB Dat Drive	\$419.95 1450.95 670.95 1726.95 350.95 3000.95 5700.95 280.95 2597.95 280.95 179.95/199.95 1029.95/1349.95 1029.95/1349.95 1049.95/199.95 1049.95/199.95
DRIVES & TAPES  MacRoptical 21  Dual Transportable 90 Pro  Transportable 90 Pro  Dual Multidisk 150  Transportable 150  Transportable 150  Transportable 150  Transportable 150  Transportable 150  Transportable 150  Abil Ilm/4mb 16b optical  PMO 1300 Mac  Taho130 Optical  PMO 650 Optical  Quantum 65/170  Quantum 65/170  Quantum 85/170  Quantum 86/170  DEC 1.0 GB/1.6GB  Micropolis 16B SCSI 2  Fujitsu 1.2GB/2.4GB  Toshiba 1.2GB  Toshiba 1.2GB  Toshiba 340 PowerBook  DGR 128 Optical  DGR Most 256 Optical  Magic Syquest 8Bc  ThirdWave 2.0GB Dat Drive  MODEMS & FAX MODEN	\$419.95 1450.95 670.95 1726.95 350.95 3000.95 5700.95 280.95 2597.95 279.95/199.95 1029.95/1349.95 1029.95/1349.95 1049.95/199.95 1049.95/199.95
DRIVES & TAPES  MacFloptical 21  Dual Transportable 90 Pro  Transportable 90 Pro  Dual Multidisk 150  Transportable 150  Tahbit Ilm/4mb 1Gb optical  PMO 1300 Mac  Taho130 Optical  PMO 650 Optical  Quantum 65/170  Quantum 85/170  Quantum 85/170  Quantum 85/170  Suntum 85/170  Dec 1.0 GB/1.6GB  Micropolis 1GB SCSI 2  Fujitsu 1.2GB/2.4GB  Toshiba 1.4GB  Toshiba 1.4GB  Toshiba 340 PowerBook  DGR 128 Optical  DGR Most 256 Optical  Magic Syquest 88c  ThirdWave 2.0GB Dat Drive	\$419.95 1450.95 670.95 1726.95 350.95 3000.95 5700.95 280.95 2597.95 280.95 179.95/199.95 1029.95/1349.95 1029.95/1349.95 1049.95/199.95 1049.95/199.95

Tamarak 1200	1564.95	Magic 14.4 DATA/FAX PB
Tamarak Transparency	560.95	Magic 14.4 DATA/FAX
ScanJet IIC	1299.95	Magic 14.4 DATA/FAX/Voice
INPUT DEVICES		ACCELERATORS -
Turbo Mouse ADB V4.0	\$99.95	TransWarp 040
MacPro Plus 105	115.95	Railgun 25mhz SE
DGR 105 keyboard	79.95	ImagePro 25
Other Language Keyboards	89.95	TokaMac 25 040
Mouse Pen Pro	60.95	DiimoCache 50mhz IICI
MVP Mouse	82.95	SOFTWARE
Touch Screens	Call	
NETWORKING		4TH Dimension V 3.0
	20.000	Access PC V3.0
Asante EN/SC 10BaseT	\$238.95	Adobe Type Reunion
Ethernet for Ilsi, Nubus, LC, & S		After Dark V2.0
SE30 10BaseT and AUI	99.95	Aldus Freehand V3.1
Thin/10BaseT Transceiver	59.95	AutoDoubler /Disk Doubler
8 Port Hub 10BaseT, 1Bnc	219.95	AutoDoubler V2.0
MacCon + IIET64	148.95	cc:Mail Mac 2.0
Sonic 8 10BT Hub	199.00	CD-ROM Tool Kit
Dayna Mini Hub	234.95	Citadel with Shredder
DaynaPORT E/LC-T	128.95	Claris Works
PhoneNet StarConnector	16.95	Colleague
Ether10T Starcontroller	1054.95	Color It
FastPath 5 10BaseT	1759.00	ColorSense Color Manager
DRIVES & TAPES		Debabalizer
MacFloptical 21	\$419.95	DesignCad 2D/3D V3.0
Dual Transportable 90 Pro	1450.95	Disk Doubler v3.7
Transportable 90 Pro	670.95	DiskExpress II V2.2
Dual Multidisk 150	1726.95	Diskfit Pro v2.2
Transportable 150	850.95	EPS Exchange 2.0
Tahiti Ilm/4mb 1Gb optical	3000.95	FastBack Plus V3.0
PMO 1300 Mac	5700.95	FileMaker Pro
Taho130 Optical	920.95	Fontmonger V1.5
PMO 650 Optical	2597.95	Fontographer V4.0
Quantum Go 160	280.95	Freedom of Press 3.01
Quantum 85/170	179.95/199.95	GamePad Mac
Quantum 240/1050	259.95/979.95	Geometry
DEC 1.0 GB/1.6GB	1029.95/1349.95	Gracelan Asset Manager GreatWorks V2.0
Micropolis 1GB SCSI 2	1029.95	Hard Disk Tool Kit
Fujitsu 1.2GB/2.4GB	1049.95/1999.95	Hellcats Over the Pacific
Toshiba 1.2GB	949.95	In Control v2.0
Toshiba 340 PowerBook	669.95	In Touch V2.0
DGR 128 Optical	899.95	Just Grandma and Me
DGR Most 256 Optical	1499.95	Kai's Power Tools 2
Magic Syquest 88c	449.95	Kid Pix companion
ThirdWave 2.0GB Dat Drive	999.95	Kid Pix V1.2
MODEMS & FAX MODEM	8	Kids Time
PowerPort/TelePort/Gold	\$349.95	M.Y.O.B. V3.0
Comstation IV PSI	349.95	MacDraft V3.0
PSI PB 144 IV	349.95	MacDraw Pro
Supra 14.4 Mac Pack	219.00	MacDraw Pro Macflow V3.7
and a state time i wan	2.10.00	machury vo.r

ACCELERATORS TransWarp 040 \$1,878.95 Railgun 25mhz SE 299.95 ImagePro 25 699.95 TokaMac 25 040 849.95 DilmoCache 50mhz IICI 599.95  SOFTWARE  4TH Dimension V 3.0 \$559.95 Access PC V3.0 74.14 Adobe Type Reunion 40.95 Alter Dark V2.0 26.95 Aldus Freehand V3.1 379.95 AutoDoubler /Disk Doubler Bdle 81.95 AutoDoubler /Disk Doubler Bdle 81.95 Cc:Mail Mac 2.0 325.95 Cc:Mail Mac 2.0 325.95 Cladel with Shredder 53.95 Cladel with Shredder 53.95 Cladel with Shredder 49.95 Coller It 79.88 Color Sense Color Manager 20.95 Disk Doubler V3.7 49.95 Disk Doubler V3.7 49.95 Disk Express II V2.2 43.95 Disk Express II V2.2 43.95 FastBack Plus V3.0 97.95 FastBack Plus V3.0 97.95 FilleMaker Pro 243.95 Fontlongare V4.0 249.95 Freedom of Press 3.01 225.95 Gracelan Asset Manager 476.74 GreatWorks V2.0 83.06 GamePad Mac 29.95 Gracelan Asset Manager 476.74 GreatWorks V2.0 83.06 Fard Disk Tool Kit 119.95 Helicats Over the Pacific In Control V2.0 80.95 In Touch V2.0 52.95 Just Grandma and Me 33.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraty V3.7 206.54	Magic 14.4 DATA/FAX/Voice	200.95
TransWarp 040 \$1,878.95 ImagePro 25 699.95 TokaMac 25 040 849.95 TokaMac 25 040 849.95 TokaMac 25 040 849.95 TokaMac 25 040 849.95 SOFTWARE  4TH Dimension V 3.0 \$559.95 Access PC V3.0 74.14 Adobe Type Reunion 40.95 Alter Dark V2.0 26.95 Aldus Freehand V3.1 379.95 AutoDoubler /Disk Doubler Bdle AutoDoubler /Disk Doubler Bdle AutoDoubler V2.0 56.95 Cc:Mail Mac 2.0 325.95 Cc:Mail Mac 2.0 325.95 Claris Works 190.95 Claris Works 190.95 Colleague 449.95 Colleague 449.95 Colleague 449.95 Colleague 449.95 Disk Doubler V3.7 49.95 Disk Doubler V3.0 97.95 FastBack Plus V3.0 97.95 FieldMaker Pro 243.95 Fontographer V4.0 249.95 Fontographer V4.0 249.95 Gracelan Asset Manager 476.74 GraetWorks V2.0 83.06 Fard Disk Tool Kit 119.95 Gracelan Asset Manager 476.74 GraetWorks V2.0 83.06 Fard Disk Tool Kit 119.95 Gracelan Asset Manager 476.74 GraetWorks V2.0 83.06 Hard Disk Tool Kit 119.95 Louch V2.0 90.95 List Grandma and Me 33.95 Kid Pix V1.2 34.95	ACCELERATORS	
Railgun 25mhz SE         299.95           ImagePro 25         699.95           TokaMac 25 040         849.95           DiimoCache 50mhz IICI         599.95           SOFTWARE         4           4TH Dimension V 3.0         74.14           Access PC V3.0         74.14           Adobe Type Reunion         40.95           Atter Dark V2.0         26.95           Adus Freehand V3.1         379.95           AutoDoubler /Disk Doubler Bdle         81.95           AutoDoubler V2.0         56.95           Cc/Mail Mac 2.0         325.95           CD-ROM Tool Kit         47.95           Cladel with Shredder         53.95           Claris Works         190.95           Colleague         449.95           Colleague         449.95           Color Sense Color Manager         317.29           Desbalzer         call           DesignCad 2D/3D V3.0         143.95           Disk Doubler v3.7         49.95           DiskExpress II V2.2         43.95           DiskExpress II V2.2         43.95           DiskExpress II V2.2         85.95           FSPS Exchange 2.0         85.95           FastBack Plus V3.0		\$1,878.95
ImagePro 25         699.95           TokaMac 25 040         849.95           DilimoCache 50mbz IICI         599.95           SOFTWARE           4TH Dimension V 3.0         \$559.95           Access PC V3.0         74.14           Adobe Type Reunion         40.95           Adter Dark V2.0         26.95           Aldus Freehand V3.1         379.95           AutoDoubler Disk Doubler Bdle         81.95           AutoDoubler V2.0         56.95           cc:Mail Mac 2.0         325.95           Col-ROM Tool Kit         47.95           Claris Works         190.95           Colleague         449.95           Color It         79.88           Color Sense Color Manager         317.29           Debabalizer         call           Debabalizer         call           Disk Doubler v3.7         49.95           Disk II V2.2         43.95           Disk Express II V2.2         43.95           Disk Express II V2.2         43.95           FOS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FlielMaker Pro         243.95           FonImographer V4.0         249.95 <td>Railgun 25mhz SE</td> <td>299.95</td>	Railgun 25mhz SE	299.95
TokaMac 25 040         849.95           DilmoCache 50mbz IICI         599.95           SOFTWARE         599.95           Access PC V3.0         74.14           Adobe Type Reunion         40.95           Access PC V3.0         74.14           Adobe Type Reunion         40.95           Atter Dark V2.0         26.95           Aldus Freehand V3.1         379.95           AutoDoubler /Disk Doubler Bdle         81.95           AutoDoubler V2.0         56.95           cc:Mail Mac 2.0         325.95           CD-ROM Tool Kit         47.95           Citalel with Shredder         53.95           Callague         449.95           Coller It         79.88           Color-Sense Color Manager         317.29           Debabalizer         call           DesignCad 2D/3D V3.0         143.95           Disk Doubler v3.7         49.95           Disk Express II V2.2         43.95           Disk Pro V2.2         70.95           EPS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FileMaker Pro         243.95           Fontographer V4.0         249.95           Freedom of Press 3.01		
SOFTWARE           4TH Dimension V 3.0         \$559.95           Access PC V3.0         74.14           Adobe Type Reunion         40.95           Atter Dark V2.0         26.95           Aldus Freehand V3.1         379.95           AutoDoubler /Disk Doubler Bdle         81.95           AutoDoubler V2.0         56.95           cc:Mail Mac 2.0         325.95           CD-ROM Tool Kit         47.95           Claris Works         190.95           Calleague         449.95           Coller Sense Color Manager         317.29           Debabalizer         call           Disk Doubler v3.7         49.95           Disk Doubler v3.7         49.95           Disk Express II V2.2         43.95           Disk Fit Pro v2.2         70.95           EPS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FlielMaker Pro         243.95           Fontlongrapher V4.5         89.95           Fontlongrapher V4.0         249.95           Gracelan Asset Manager         476.74           GreatWorks V2.0         83.06           Hard Disk Tool Kit         119.95           HeliCats Over the Pacific		849.95
SOFTWARE           4TH Dimension V 3.0         \$559.95           Access PC V3.0         74.14           Adobe Type Reunion         40.95           Atter Dark V2.0         26.95           Aldus Freehand V3.1         379.95           AutoDoubler /Disk Doubler Bdle         81.95           AutoDoubler V2.0         56.95           cc:Mail Mac 2.0         325.95           CD-ROM Tool Kit         47.95           Claris Works         190.95           Calleague         449.95           Coller Sense Color Manager         317.29           Debabalizer         call           Disk Doubler v3.7         49.95           Disk Doubler v3.7         49.95           Disk Express II V2.2         43.95           Disk Fit Pro v2.2         70.95           EPS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FlielMaker Pro         243.95           Fontlongrapher V4.5         89.95           Fontlongrapher V4.0         249.95           Gracelan Asset Manager         476.74           GreatWorks V2.0         83.06           Hard Disk Tool Kit         119.95           HeliCats Over the Pacific		
4TH Dimension V 3.0       \$559.95         Access PC V3.0       74.14         Adobe Type Reunion       40.95         Atter Dark V2.0       26.95         Aldus Freehand V3.1       379.95         AutoDoubler /Disk Doubler Bdle       81.95         AutoDoubler V2.0       56.95         cc:Mail Mac 2.0       325.95         CD-ROM Tool Kit       47.95         Gitadel with Shredder       53.95         Claris Works       190.95         Colleague       449.95         Coller It       79.88         ColorSense Color Manager       317.29         Debabalizer       call         DesignCad 2D/3D V3.0       143.95         Disk Doubler v3.7       49.95         Disk Doubler v3.7       49.95         Disk Doubler v3.7       49.95         SEPS Exchange 2.0       85.95         FastBack Plus V3.0       97.95         FileMaker Pro       243.95         Fontmonger V1.5       89.95         Fontmonger V1.5       89.95         Fontmonger V4.0       249.95         Geometry       49.95         Gracelan Asset Manager       476.74         Gracelan Asset Manager       476.74		
Access PC V3.0 74.14 Adobe Type Reunion 40.95 After Dark V2.0 26.95 Aldus Freehand V3.1 379.95 AlutoDoubler /Disk Doubler Bdle 81.95 AutoDoubler V2.0 56.95 cc:Mail Mac 2.0 325.95 CD-ROM Tool Kit 47.95 Claris Works 190.95 Claris Works 190.95 Colleague 449.95 Colleague 449.95 Color It 79.88 ColorSense Color Manager 317.29 Debabalizer call DesignCad 2D/3D V3.0 143.95 Disk Doubler v3.7 49.95 DiskExpress II V2.2 43.95 DiskExpress II V2.2 70.95 EPS Exchange 2.0 85.95 FastBack Plus V3.0 97.95 FileMaker Pro 243.95 Fontographer V4.0 243.95 Fontographer V4.0 249.95 GamePad Mac 29.95 GamePad Mac 29.95 GamePad Mac 29.95 Garacelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 Garacelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Touch V2.0 90.95 In Touch V2.0 90.95 In Touch V2.0 90.95 Kid Pix v1.2 34.95 Kid S Time 23.94 M.Y.O.B. V3.0 104.95 Kid Pix V1.2 34.95 Kid Pix V1.0 249.95 Kid Pix V1.0 249.95 Kid Pix V1.0 34.95 Kid Pix V1.0	ATH Dimension V 3.0	SEE0 0E
Adobe Type Reunion 40.95 After Dark V2.0 26.95 After Dark V2.0 379.95 AutoDoubler /Disk Doubler Bdle 81.95 AutoDoubler V2.0 56.95 Cc:Mail Mac 2.0 325.95 Cc:Mail Mac 2.0 325.95 Cclaris Works 190.95 Citadel with Shredder 53.95 Claris Works 190.95 Colleague 449.95 Color It 79.88 Color Sense Color Manager 317.29 Debabalizer call DesignCad 2D/3D V3.0 143.95 Disk Doubler v3.7 49.95 Disk Doubler v3.7 49.95 Disk Express II V2.2 70.95 EFS Exchange 2.0 85.95 EFS Exchange 2.0 85.95 FolleMaker Pro 243.95 Fonlographer V4.0 97.95 FileMaker Pro 243.95 Fonlographer V4.0 249.95 Freedom of Press 3.01 225.95 GamePad Mac 29.95 Geornetry 49.95 Gracelan Asset Manager 476.74 GraetWorks V2.0 80.95 In Touch V2.0 19.95 In Touch V2.0 19.95 Kid Pix V1.2 89.00 Kid Pix Companion 49.95 Kid Pix V1.2 34.95 Kid Pix V1.2 34.95 Kid Pix V1.2 34.95 Kid Pix V1.0 3.95 Kid Pix V1.2 34.95 Kid Pix V1.0 3.95 Kid Pix V1.0 3.95 Kid Pix V1.2 34.95 Kid Pix V1.0 3.95 Kid Pix V1.2 34.95 Kid STime 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 249.95 Kid Pix V1.2 34.95 Kids Time 24.95 Kids Time 24.95 MacDraft V3.0 249.95		
After Dark V2.0 After Dark V2.0 Aldus Freehand V3.1 AutoDoubler /Disk Doubler Bdle AutoDoubler /Disk Doubler Bdle AutoDoubler V2.0 56.95 Cc:Mail Mac 2.0 56.95 Cc:Mail Mac 2.0 Claris Works 190.95 Claris Works 190.95 Claris Works 190.95 Colleague 449.95 Color It 79.88 Color Sense Color Manager Debabalizer call DesignCad 2D/3D V3.0 143.95 Disk Doubler v3.7 49.95 Disk Doubler v3.7 49.95 Disk Express II V2.2 2 70.95 EPS Exchange 2.0 85.95 FastBack Plus V3.0 Field Maker Pro 243.95 Fontloorgapher V4.0 243.95 Fontloorgapher V4.0 249.95 Fontloorgapher V4.0 66 Geometry 49.95 Geometry 49.95 Gracelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Touch V2.0 52.95 In Touch V2.0 52.95 In Touch V2.0 53.95 Kid Pix V1.2 34.95 Kid Pix V1.2 34.95 Kid Pix V1.2 34.95 Kid Pix V1.2 34.95 Kid Pix V1.0 38.06 MacDraty V7.0 249.95 Kid Pix V1.2 34.95 Kid Pix V1.2 34.95 Kid Pix V1.0 38.96 MacDraty V7.0 249.95 Kid Pix V1.0 38.94 M.Y.0.8 V3.0 V3.95 MACDratt V3.0 MACDratt V3.0 MACDraw Pro V4.95		
Aldus Freehand V3.1 AutoDoubler /Disk Doubler Bdle AutoDoubler /Disk Doubler Bdle AutoBoubler V2.0 56.95 cc:Mail Mac 2.0 CD-ROM Tool Kit 47.95 Claris Works 190.95 Calleague 449.95 Color It 79.88 ColorSense Color Manager Call DesignCad 2D/3D V3.0 143.95 Disk Doubler v3.7 19.95 DiskExpress II V2.2 19.95 DiskExpress II V2.2 19.95 FPS Exchange 2.0 19.95 Fontographer V4.0 19.95 Fontographer V4.0 19.95 GamePad Mac 19.95 GamePad Mac 19.95 GamePad Mac 19.95 GamePad Mac 19.95 Garaclan Asset Manager 19.95 Gracelan Asset Manager 19.95 Gracelan Asset Manager 19.95 Gracelan Asset Manager 19.95 Gracelan Sover the Pacific 19.95 In Touch V2.0 19.95 In Touch V2.0 19.95 In Touch V2.0 19.95 Kid Pix v1.2 19.95 Kid Pix v1.2 19.95 Kid Pix v1.2 19.95 Kid Pix v1.2 19.95 Kid Silme 19.95 Kid Pix V1.2 19.95 Kid Pix V1.2 19.95 Kid Pix V1.2 19.95 Kid Pix V1.0 19.		
AutoDoubler /Disk Doubler Bdle AutoDoubler /V2.0 55.95 Cuthail Mac 2.0 325.95 CD-ROM Tool Kit 47.95 Citadel with Shredder 53.95 Colleague 449.95 Colleague 49.95 Freedom of Press 3.01 225.95 GamePad Mac 29.95 Gracelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Touch V2.0 52.95 In Touch V2.0 52.95 In Touch V2.0 52.95 In Touch V2.0 52.95 List Grandma and Me 33.95 Kid Pix V1.2 89.00 Kid Pix Companion 22.95 Kid Pix V1.2 34.95 Kid STime 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 249.95		
AutoDoubler V2.0 56.95 cc:Mail Mac 2.0 325.95 Cc:Mail Mac 2.0 325.95 Citaris Works 190.95 Claris Works 190.95 Colleague 449.95 Colleague 449.95 Color It 79.88 Color Sense Color Manager 317.29 Debabalizer call DesignCad 2D/3D V3.0 143.95 Disk Doubler v3.7 49.95 Disk Doubler v3.7 49.95 Disk Doubler v3.7 49.95 Disk Doubler v3.7 49.95 Disk Fourbler v3.7 49.95 Disk Pro v2.2 70.95 EPS Exchange 2.0 85.95 FastBack Plus V3.0 97.95 FileMaker Pro 243.95 Fontlographer V4.0 249.95 Fontlographer V4.0 249.95 CamePad Mac 29.95 GamePad Mac 29.95 GamePad Mac 29.95 Garacelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Touch V2.0 80.95 In Touch V2.0 80.95 In Touch V2.0 80.95 Kid Pix Companion 22.95 Kid Pix Companion 22.95 Kid Pix V1.2 34.95 Kid STime 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 249.95 Kid STime 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 249.95 MacDraft V3.0 249.95		
cc:Mail Mac 2 0         325.95           CD-ROM Tool Kit         47.95           Clarled With Shredder         53.95           Claris Works         190.95           Colleague         449.95           Coller It         79.88           Color Sense Color Manager         317.29           Debabalizer         call           DesignCad 2D/3D V3.0         143.95           Disk Express II V2.2         43.95           Disk Floubler v3.7         49.95           Disk Floubler v3.7         49.95           Disk Floubler v3.0         97.95           EPS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FileMaker Pro         243.95           Fontmonger V1.5         89.95           Fontographer V4.0         249.95           Freedom of Press 3.01         225.95           GamePad Mac         29.95           Geraclan Asset Manager         476.74           GraatWorks V2.0         83.06           Hard Disk Tool Kit         119.95           Hellcats Over the Pacific         37.69           In Couch V2.0         50.95           Just Grandma and Me         33.95           Kid Pix companion <td></td> <td></td>		
CD-ROM Tool Kit 47.95 Citadel with Shredder 53.95 Claris Works 190.95 Colleague 449.95 Colleague 449.95 Colleague 449.95 Color It 79.88 Color It 79.88 Color It 79.88 Color Shade It 79.88 Color It 79.95 Color It 79.98		
Gitadel with Shredder         53.95           Claris Works         190.95           Colleague         449.95           Coller It         79.88           Color Sense Color Manager         317.29           Debabalizer         call           Desbabizer         call           Disk Doubler v3.7         49.95           Disk Express II V2.2         43.95           Disk Express II V2.2         70.95           EPS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FileMaker Pro         243.95           Fontmonger V1.5         89.95           Fontographer V4.0         249.95           Freedom of Press 3.01         225.95           GamePad Mac         29.95           Geometry         49.95           Freadworks V2.0         83.06           Hard Disk Tool Kit         119.95           Hellcats Over the Pacific         37.69           In Control V2.0         80.95           In Touch V2.0         80.95		
Claris Works 190.95 Colleague 449.95 Colleague 449.95 Coller It 79.88 Color Sense Color Manager 317.29 Debabalizer call DesignCad 2D/3D V3.0 143.95 Disk Express II V2.2 43.95 DiskExpress II V2.2 43.95 DiskExpress II V2.2 70.95 EPS Exchange 2.0 85.95 FastBack Plus V3.0 97.95 FeleMaker Pro 243.95 Fontographer V4.0 243.95 Fontographer V4.0 249.95 Fontographer V4.0 249.95 GamePad Mac 29.95 GamePad Mac 29.95 Garcelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Touch V2.0 52.95 In Touch V2.0 90.95 In Touch V2.0 52.95 Kid Pix Companion 22.95 Kid Pix V1.2 34.95 Kid S Time 23.94 M.Y.O.B. V3.0 104.95 Kid S Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V7.0 249.95		
Colleague 449.95 Color It 79.88 Color It 79.88 Color It 79.88 Color Secolor Manager 317.29 Debabalizer call DesignCad 2D/3D V3.0 143.95 Disk Doubler v3.7 49.95 Disk Doubler v3.7 49.95 Disk Express II V2.2 43.95 Diskfit Pro v2.2 70.95 EPS Exchange 2.0 FastBack Plus V3.0 97.95 FileMaker Pro 243.95 Fontlmonger V1.5 89.95 Fontlorgapher V4.0 249.95 Freedom of Press 3.01 225.95 GamePad Mac 29.95 Gracelan Asset Manager 476.74 Great Works V2.0 83.06 Hard Disk Tool Kit 119.95 In Control v2.0 19.95 In Touch V2.0 19.95 In Touch V2.0 19.95 Kid Pix V1.2 89.00 Kid Pix V1.2 89.00 Kid Pix V1.2 89.00 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V7.0 249.95		
Color It 79.88 ColorSense Color Manager 317.29 Debabalizer call DesignCad 2D/3D V3.0 143.95 Disk Doubler v3.7 49.95 Disk Doubler v3.7 49.95 Disk Express II V2.2 43.95 Disk Flore v2.2 70.95 EPS Exchange 2.0 85.95 EPS Exchange 2.0 97.95 FileMaker Pro 243.95 Fontlmonger V1.5 89.95 Fontlographer V4.0 249.95 Freedom of Press 3.01 225.95 GamePad Mac 29.95 GamePad Mac 29.95 Garcelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Touch V2.0 19.95 In Touch V2.0 80.95 In Touch V2.0 80.95 In Touch V2.0 80.95 Kid Pix Companion 22.95 Kid Pix Companion 22.95 Kid Pix V1.2 34.95 Kid Stime 23.94 M.Y.O.B. V3.0 104.95 Kid Stime 23.94 M.Y.O.B. V3.0 104.95 Kid MacDraft V3.0 249.95	The state of the s	1,000,000
ColorSense Color Manager call Debabalizer call DesignGad 2D/3D V3.0 143.95 Disk Doubler v3.7 49.95 Disk Express II V2.2 43.95 DiskExpress II V2.2 43.95 DiskExpress II V2.2 70.95 EPS Exchange 2.0 85.95 FastBack Plus V3.0 97.95 FileMaker Pro 243.95 FonImonger V1.5 89.95 FonImonger V1.5 89.95 FonImonger V1.5 243.95 GamePad Mac 29.95 GamePad Mac 29.95 GamePad Mac 29.95 Garcelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Touch V2.0 30.95		
Debabalizer         call           DesignCad 2D/3D V3.0         143.95           Disk Doubler v3.7         49.95           Disk Express II V2.2         43.95           Diskfit Pro v2.2         70.95           EPS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FilleMaker Pro         243.95           Fontmonger V1.5         89.95           Fontmonger V4.0         249.95           Freedom of Press 3.01         225.95           GamePad Mac         29.95           Geometry         49.95           Gracelan Asset Manager         476.74           Gracelan Fasset Manager         476.74           Hellcats Over the Pacific         37.69           In Control V2.0         80.95           In Touch V2.0         52.95           Just Grandma and Me         33.95           Kid Pix companion         22.95           Kid Pix V1.2         34.95           Kid S Time         23.94           M.Y.0.B. V3.0         104.95           MacDraty Pro         249.95		
DesignCad 2D/3D V3.0         143.95           Disk Doubler v3.7         49.95           Disk Doubler v3.7         49.95           Disk Express II V2.2         43.95           Disk Express II V2.2         70.95           EPS Exchange 2.0         85.95           EastBack Plus V3.0         97.95           FileMaker Pro         243.95           Fontmonger V1.5         89.95           Fontgrapher V4.0         249.95           Freedom of Press 3.01         225.95           Gemerlay         49.95           Gracelan Asset Manager         476.74           GreatWorks V2.0         83.06           Hard Disk Tool Kit         119.95           Hellcats Over the Pacific         37.69           In Control v2.0         80.95           In Touch V2.0         52.95           Just Grandman and Me         33.95           Kid Pix companion         22.95           Kid Pix V1.2         34.95           Kid S Time         23.94           M.Y.O.B. V3.0         104.95           MacDraty Pro         249.95		
Disk Doubler v3.7         49.95           DiskExpress II V2.2         43.95           DiskExpress II V2.2         43.95           DiskExpress II V2.2         70.95           EPS Exchange 2.0         85.95           FastBack Plus V3.0         97.95           FileMaker Pro         243.95           FonImonger V1.5         89.95           FonImonger V4.0         249.95           Freedom of Press 3.01         225.95           GamePad Mac         29.95           Geometry         49.95           Gracelan Asset Manager         476.74           GraetWorks V2.0         83.06           Hard Disk Tool Kit         119.95           Hellcats Over the Pacific         37.69           In Control v2.0         30.95           Just Grandma and Me         33.95           Kid Pix companion         22.95           Kid Pix V1.2         34.95           Kid Pix V1.2         34.95           Kid S Time         23.94           M.Y.0.B. V3.0         104.95           MacDraty Pro         249.95		
DiskExpress II V2.2         43.95           Diskfit Pro v2.2         70.95           EPS Exchange 2.0         85.95           FSF Sexchange 2.0         85.95           FastBack Plus V3.0         97.95           FilleMaker Pro         243.95           Fontmonger V1.5         89.95           Fontmonger V1.5         89.95           Foredom of Press 3.01         225.95           GamePad Mac         29.95           Geometry         49.95           Gracelan Asset Manager         476.74           GreatWorks V2.0         83.06           Hard Disk Tool Kit         119.95           Hellcats Over the Pacific         37.69           In Control V2.0         80.95           In Touch V2.0         52.95           Just Grandma and Me         33.95           Kid Pix companion         22.95           Kid Pix V1.2         34.95           Kid S Time         23.94           M.Y.0.B. V3.0         104.95           MacDraty Pro         249.95		
Diskfit Pro v2.2         70.95           EPS Exchange 2.0         85.95           EPS Exchange 2.0         97.95           FastBack Pius V3.0         97.95           FileMaker Pro         243.95           Fontmonger V1.5         89.95           Fontgrapher V4.0         249.95           Freedom of Press 3.01         225.95           Gemetry         49.95           Gracelan Asset Manager         476.74           GreatWorks V2.0         83.06           Hard Disk Tool Kit         119.95           Helicats Over the Pacific         37.69           In Control v2.0         80.95           In Touch V2.0         52.95           Just Grandma and Me         33.95           Kai's Power Tools 2         89.00           Kid Pix Companion         22.95           Kid Pix V1.2         34.95           Kid S Time         23.94           M.Y.O.B. V3.0         104.95           MacDraty V7.0         249.95		
EPS Exchange 2.0 85.95 FastBack Plus V3.0 97.95 FastBack Plus V3.0 97.95 FileMaker Pro 243.95 FonImonger V1.5 89.95 FonImonger V1.5 89.95 FonImonger V1.5 225.95 GamePad Mac 29.95 GamePad Mac 29.95 GamePad Mac 29.95 Gareelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 Helicats Over the Pacific 37.69 In Control v2.0 80.95 In Touch V2.0 39.95 In Touch V2.0 39.95 In Touch V2.0 39.95 Kid Pix Companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V3.0 249.95		
FastBack Plus V3.0 97.95 FlielMaker Pro 243.95 FlielMaker Pro 243.95 Fontmonger V1.5 89.95 Fontmonger V1.0 249.95 Freedom of Press 3.01 225.95 Geometry 49.95 Geometry 49.95 Gracellan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 Hellcats Over the Pacific 37.69 In Touch V2.0 80.95 In Touch V2.0 98.95 In Touch V2.0 39.95 Kid Pix companion 22.95 Kid Pix companion 22.95 Kid Silme 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V3.0 249.95		
FileMaker Pro 243.95 FonItmonger V1.5 89.95 Freedom of Press 3.01 225.95 GamePad Mac 29.95 Gracelan Asset Manager 476.74 Great Works V2.0 83.06 Hard Disk Tool Kit 119.95 In Control v2.0 80.95 In Touch V2.0 80.95 In Touch V2.0 80.95 In Touch V2.0 80.95 Kai's Power Tools 2 89.00 Kid Pix V1.2 34.95 Kid S Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V7.0 249.95		
Fontmonger V1.5 89.95 Fontmonger V1.5 89.95 Fontographer V4.0 249.95 Freedom of Press 3.01 225.95 GamePad Mac 29.95 Geometry 49.95 Gracelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 Helicats Over the Pacific 37.69 In Control v2.0 80.95 In Touch V2.0 52.95 Uset Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pix companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V7.0 229.95		
Fontographer V4.0 249.95 Freedom of Press 3.01 225.95 Geometry 49.95 Geometry 49.95 Gracellan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 Hellcats Over the Pacific 37.69 In Control v2.0 80.95 In Touch V2.0 52.95 Just Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pik companion 22.95 Kid Pik V1.2 34.95 Kids Time 23.94 M.Y.0.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V3.0 249.95		
Freedom of Press 3.01         225.95           GamePad Mac         29.95           Geometry         49.95           Gracelan Asset Manager         476.74           Great Works V2.0         83.06           Hard Disk Tool Kit         119.95           Helicats Over the Pacific         37.69           In Countrol v2.0         80.95           In Touch V2.0         52.95           Just Grandma and Me         33.95           Kai's Power Tools 2         89.00           Kid Pik Companion         22.95           Kid Pik V1.2         34.95           Kid S Time         23.94           M.Y.O.B. V3.0         104.95           MacDratt V3.0         286.64           MacDratw Pro         249.95		
GamePad Mac 29.95 Geometry 49.95 Geometry 49.95 Gracelan Asset Manager 476.74 GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 In Control v2.0 80.95 In Touch V2.0 52.95 In Touch V2.0 52.95 Sust Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pix companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraft V7.0 249.95		
Geometry         49.95           Gracelan Asset Manager         476.74           GraetWorks V2.0         83.06           Hard Disk Tool Kit         119.95           Helicats Over the Pacific         37.69           In Control v2.0         52.95           Just Grandma and Me         33.95           Kai's Power Tools 2         89.00           Kid Pix Companion         22.95           Kid Pix V1.2         34.95           Kids Time         23.94           M.Y.O.B. V3.0         104.95           MacDraft V3.0         286.64           MacDraft V3.0         249.95		
Gracelan Asset Manager 476.74 Great Works V2.0 83.06 Hard Disk Tool Kit 119.95 Helicats Over the Pacific 37.69 In Control v2.0 80.95 In Touch V2.0 52.95 Just Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pix companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraw Pro 249.95		
GreatWorks V2.0 83.06 Hard Disk Tool Kit 119.95 Helicats Over the Pacific 37.69 In Control v2.0 80.95 In Touch V2.0 52.95 Just Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pix companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraw Pro 249.95		
Hard Disk Tool Kit 119.95 Hellcats Over the Pacific 37.69 In Control v2.0 80.95 In Touch V2.0 52.95 Just Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pix Companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y. O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraw Pro 249.95		
Helicats Over the Pacific 37.69 In Control v2.0 80.95 In Touch V2.0 52.95 Just Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pix companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.0.8. V3.0 104.95 MacDraft V3.0 286.64 MacDraw Pro 249.95		
In Control v2.0 80.95 In Touch v2.0 52.95 Just Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pik companion 22.95 Kid Pik v1.2 34.95 Kids Time 23.94 M.Y.O.B. v3.0 104.95 MacDraft v3.0 286.64 MacDraw Pro 249.95		
In Touch V2.0 52.95 Just Grandma and Me 33.95 Kai's Power Tools 2 89.00 Kid Pix companion 22.95 Kid Pix V1.2 34.95 Kids Time 23.94 M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraw Pro 249.95		
Just Grandma and Me     33.95       Kai's Power Tools 2     89.00       Kid Pix Companion     22.95       Kid Pix V1.2     34.95       Kids Time     23.94       M.Y.O.B. V3.0     104.95       MacDraft V3.0     286.64       MacDraw Pro     249.95		
Kai's Power Tools 2     89.00       Kid Pix V1.2     22.95       Kid Pix V1.2     34.95       Kid S Time     23.94       M.Y.O.B. V3.0     104.95       MacDraft V3.0     286.64       MacDraw Pro     249.95		
Kid Pix companion     22.95       Kid Pix V1.2     34.95       Kids Time     23.94       M.Y.O.B. V3.0     104.95       MacDraft V3.0     286.64       MacDraw Pro     249.95		
Kid Pix V1.2     34.95       Kids Time     23.94       M.Y.O.B. V3.0     104.95       MacDraft V3.0     286.64       MacDraw Pro     249.95		
Kids Time         23.94           M.Y.O.B. V3.0         104.95           MacDraft V3.0         286.64           MacDraw Pro         249.95		
M.Y.O.B. V3.0 104.95 MacDraft V3.0 286.64 MacDraw Pro 249.95		
MacDraft V3.0 286.64 MacDraw Pro 249.95		
MacDraw Pro 249.95		

PAGEMAKER	
MacLink Plus/Pc V7.0	119.95
MacMainFrame DX	705.95
MacPro Plus 105	118.54
Macrecorder Pro	229.89
MacTools 2.0	86.95
MacWrite Pro	158.91
Macromind Director v3.1	786.64
Managing Your Money V5.0	31.10
Mathcad V3.1	302.26
MicroPhone Pro	202.53
MiniCad +	489.00
More After Dark	21.95
MS Excel V4.0/Word 5.1	285.00
MS FoxBase + V2.01	320.05
Ms Office/Works V3.0	449.00/157.70
MS PowerPoint V3.0	313.52
MS Project V3.0	449.36
MS Quick Basic	62.70
Norton Essentials PowerBook	82.45
Norton Utilities V2.0	89.95
Now Contact/Compress	59.95
Now Up To Date V2.0	59.95
Now Up To Date/Contact	107.95
Now Utilities V4.0	77.95
Ofoto V2.0	260.11
Personal Training Systems	44.95
Persuasion 2.12	320.95
PowerPrint	95.95
Quicken 4.0	41.89
Quickeys V3.0	102.95
QuickMail 2.6	119.95
Retrospect/Remote V2.0	141.95/252.95
SAM 3.5	63.28
Showplace/Renderman v1.3	370.20
SimCity Supreme	33.01
SimLife	27.52
SoftPc Universal	89.95
Stacker	61.73
Star Trek The Screen Saver	32.95
Stuffit Deluxe V3.0	63.95
Suitcase V2.1	49.95
Super ATM	86.95
Super Quickdex	53.95
Talking Reader Rabbit Think C 6.0	31.93
Thunder 7	191.13
TimesTwo V1.0	50.95 93.39
Tmon Professional v3.01	144.95
Touchbase Pro V3.0	
Typestry V1.1	42.95 159.27
View From Earth	47.35
Where In USA is Carmen SD	27.95
World Atlas V3.0 CD rom	47.92
Trong Alias 43.0 CD TOTA	47.92



Thunder II	\$3375.95
ThunderStorm Pro	2699.95
Spectrum/24 series IV	789.95
Thunder 24	2149.95
SuperMatch Hi-Res 20	2699.95
SuperMatch 20 TXL	2479.95
SuperMatch 20 Plus	1645.95
SuperMatch 17-T	1045.95
Spectrum /24 PDQ Plus	1511.95
Thunder II Light	2734.95
Digital Film	2869.95
SuperMatch 21"	2399.95



PaintBoard LI	\$749.95
Paintboard Turbo	1149.95
Painthoard Turbo XL	1475.95
24STV	
24XLTV	2548.95
MoviePak 1	1149.00
MoviePak 2	1539.95
DuoMate 16sc	459.95
15" Grayscale Portrait	399.95
20" 20/20c Multiscan	1585.95
20" Multi-Scan Trinitron	2489.95
CorrectPrint 3001	7299.95



Color PivotLE With Purchase of Card.	\$349.95
Rocket 040 33	1389.95
Precision Color 8XJ	475.95
Video Vision + Premier or Div	a 1849.95
PhotoBooster	779.95
Precision Color 24XP Pro	469.95
Precision Color 24X Pro	1989.95
Precision Color 24X	1469.95
Intellicolor Display 20i	2499.95
Precision Color Pivot	899.95
NEW! 20GS Display	819.95
Video Vision Studio	3489.95



40MHZ Turbo 040	\$1583.95
25MHZ Turbo 040	899.95
33MHZ Turbo 040	1069.95
FastCache Turbo 33	165.95
040 i 25MHZ	739.95
33MHZ PowerCache w/FPU	415.95
40MHZ PowerCache	495.95
40MHZ PowerCache w/FPU	570.95
50MHZ PowerCache	619.95
50MHZ PowerCache w/FPU	719.95
Fastcache Quadra 128K	365.95
Disk Runner	585.95



Infinity 40 Turbo	\$339.95
Infinity 88C	499.95
Infinity 105 SyQuest	629.95
Quick SCSI	309.95
MiniArray 1.0GB	2249.95
1.3GB Tahiti III Optical	3349.95
3401 CD-Rom Drive	599.95
3401 internal CD-Rom	
128mb Optical	
8GB DAT	



ArtZ & Painter Bundle	\$479.95
ArtZ	279.95
6 x 9 standard	
NEW 12 x 12 UD Electrostatic	525.95
NEW 12 x 12 UD + Painter	725.95
12 x 12 Electrostatic	695.95
12 x 18 Electrostatic	999.95
18 x 25 Electrostatic	
Painter V2.0	200.95
Painter X2	69.95



MicroWriter PS23	\$719.95
MicroWriter PS65	989.95
Microlaser PS17	764.95
Microlaser PS35	810.95
Microlaser Turbo	1068.95
1MB Mem Upgrade	40.95
4мв Turbo Upgrade	250.95
Microlaser Pro 600 PS23	1375.00
Microlaser Pro 600 PS65	1525.00



630LE Flatbed	\$865.95
840 Flatbed	1225.95
1260 Flatbed	1809.95
630 Flatbed	1075.95
630LE & Transparency	1539.95
1260 & Transparency	2525.95
Transparency Adapter	689.95
Auto Document Feeder	425.95
Scan Office	829.95



Apple PowerBook 165 4 80 **\$1875.00** 



Pioneer 6 Disk CD-ROM \$1399.00



Radius Color Pivot LE \$349.95 with Purchase of a video card.



E-Machines T-16 II Display \$1169.95 Futura IISX Card 419.95 Ultura LX 1099.95



Supra V.32 bis MAC Package \$219.00 LC Package \$189.00



DGR 128REMe \$899.95



Sonic Ethernet Cards 10BaseT Transceiver Dual Transceiver



Digital Equipment Corp. DECLaser 1152 \$849.00



QMS Colorscript 1000 \$11499.95

#### INTERNATIONAL ORDERS

BOTTOM LINE PROVIDES THE EXTRA LEVEL OF SUPPORT INTERNATIONAL CLIENTS REQUIRE. 24-HOUR INTERNATIONAL FAX LINE, 220-VOLT VERSIONS OF MOST HARDWARE. DHL, UPS, FEDERAL EXPRESS DISCOUNT RATES AND CUSTOMS BROKERAGE. 2-3 DAYS DELIVERY TO MOST COUNTRIES.

●Internationale Händlerkonditionen!
■EXYIMPETOYME AIRONEES INAPATEARS

Nous acceptons des commandes internationales
■Se Hace Pedidos Internacional

■MBI FOBOPCM NO-PYCCKÔ



# 1-512-472-4956 BOTTOM LINE

HOW TO ORDER: CALL 512-472-4956. PARMENT: Visa, MASTERCARD, DISCORE TAX: TEXAS RESIDENTS ADD 8% SALES TAX. PRICES AND ITEMS SUBJECT TO GIVANCE AND ANALABLITY, INSTRUMENDAL: 5% SURPORTED ON WITEMATIONAL ORDERS SA DISCRESS. MALL REPTAY OF DESIRES. NO DIVERSES UNTIL ORDER IS SHIPPED. PROVE DIVERSES NOT REPUNDED. SHIPPING: ANNIALM SS-UPS GROUND, BLUE, PED, FEDERAL EXPRESS. RETURNS MUST BE IN ORDINAL CONDITION AND PROVIDE AN FINANCE OF THE SURFICE TO A RESTOCKING FEE. BOTTOM LINE DISTRIBUTION CANNOT BE RESPONSIBLE FOR BHOODS IN TYPOGRAPHY OR PROTOGRAPHY. ALL BRANDS, AND PRODUCT NAMES ARE TRADE WAYNS OF THEIR RESPECTIVE HOUSERS.

BINSDMOM









\$99.00

\$59.00

\$99.00

All Products We Sell Are PowerPC Compatible!

# ACCIENTER

### **NEW! 600**dpi TI microLaser Pro 600

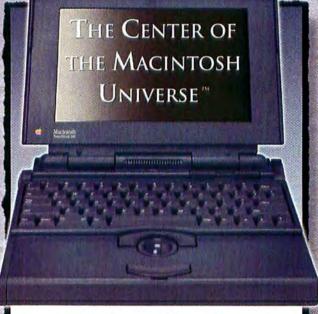


- PostScript Level 2
- 2 paper drawers
- B pages per minute
- 20 MHz RISC Processor
- . 6 MB RAM (28 MB maximum)
- Macintosh and PC compatible

TI microWriter PS23 \$699

\$**1399** 





#### Mac CPUs

We stock all PowerBooks: 145B, 160, 165c, 180, 180c, Duos, Power Book batteries and chargers, carrying cases and modems.

2	
PowerBook 165 4.80	CAL
PowerBook 180c 4.160	CAL
Centris 610 8.230 w/CD ROM	\$209
Centris 660AV 8.230 w/CD ROM_	CAL
Quadra 800 8.500 w/CD ROM	\$376



- The only PowerBook SCSI adapter which does not interfere with the ADB port and the modem jack.
- . The only internally shielded Power-Book SCSI adapter (eliminates SCSI chain problems encountered with other adapters).
- . The lightest PowerBook SCSI adapter less than 1 oz. vs. 1/4 pound.
- . The most compact 2 in. vs. 3 in.
- 30 Day money back guarantee.

#### Accelerators

DayStar 50 MHz PowerCache	\$625/735
DayStar Turbo '040 25 MHz	\$1049
DayStar Value '040i 20 MHz	\$519
Newer Quadra Overdrive	\$259
DiiMOCache 50 MHz	\$729

#### Fax Modems

US Robotics Sportster 14.4/14.4	_\$249
Supra Fax Modem 14.4/14.4	\$299
Twincom PowerTwin 14.4/14.4	\$299
Global Village PowerPort Bronze	\$189
Global Village PowerPort Silver	\$339
Global Village PowerPort Gold	\$399

#### SIMMs

LIFETIME WAR	YTMAS
4 MB, 80ns (with trade in)	CAL
4 MR 8fine (Centrie 1.C.III)	CAL

1 MB. 80ns\_ CALL 10 MB PowerBook 160/180.

## **ACCENTER**

4930 South Congress, Suite 303 Austin, Texas 78745 FAX 512.444.3726 International Orders 512.445.5114 B AM - 8 PM CDT Monday-Friday

10 AM-5 PM CDT Saturday AppleLink Mac.Center

CompuServe......MacCenter 75260,334



#### CD ROMS

NEC MultiSpin 74-1	\$399
Apple CD300 w/9 CDs	\$399
Toshiba XM3401	\$599
Pioneer DRM-604x	\$1249

#### Storage Systems

All MacCenter® storage products include FWB Hard Disk Toolkit PE, double shielded SCSI cables & ext. terminator.

#### Puma™ Optical Drives

Puma 256	\$1399
Puma 128	\$899/999

#### Fagle™ Syfuest Drives

	Sie of muone	
Eagle	44	\$399
Eagle	88c	\$499
Eagle	105	\$639

#### Cobra™ DAT Drives

(Includes 90m tape & Retrospect) Cobra Turbo DAT (8.0 GB) BBMB per minute .......\$1499 Cobra DAT (2.0 GB) 44MB per min. transfer rate \_\_\_\$1299

#### Falcon™ Hard Drivee

Talcoll Halu Dil	VG3
Micropolis 1.2 GB	\$1099/1199
Micropolis 2.0 GB	\$1449/1549
Fujitsu 1.2 GB	\$1029/1099
Seagate Barracuda 1.9 GB	\$1799/1899
Quantum 60 • 120	\$269/369
Toshiba 213 (PowerBook)	\$499/699

We stock all Micropolis, Fujitsu, & Toshiba drives.



36



## FOR

- **Best Prices** & Service
- **Technical** Support
- Delivery



MICR	OTEK
Microtek	
	ScanMaker II
	ScanMaker lixe
Microtek	
	ency Adapter
KAMAI	

MODEL

UMAX UC840 UMAX UC1260 Transparency Adapter

MODEL

24-bit Color, 600x300 dpi 24-bit Color, 600x300 dpi 24-bit Color, 600x300 dpi For 600/Scanmaker II \$749 \$875 \$1,149 \$489 CALL For Scanmaker II/lixe

24-bit Color, 600x300 dpl 24-bit Color, 800x400 dpi 24-bit Color, 1200x600 dpi For All Models

\$1,089 \$1,279 \$1,879 \$689

SEEK MACKIT

PRICE



#### HARD DRIVES

CAPACITY	DESCRIPTION	INTERNAL	EXTERNA
520MB	3.5" HH 9ms	\$630	\$690
1200MB	3.5" HH 9ms	\$969	\$1.029
2000MB	5.25" FH 14ms	\$1,650	\$1.750
2400MB	5.25" FH 11.5ms	\$1,710	\$1,810

CAPACITY	DESCRIPTION	INTERNAL	EXTERNAL
80MB	2.5" Notebook 17ms	\$205	\$305
120MB	2.5" Notebook 17ms	\$265	\$365
160MB	2.5° Notebook 17ms	\$279	\$379
42MB	3.5" LP 19ms	\$99	\$159
85MB	3.5" LP 17ms	\$165	\$225
127MB	3.5" LP 17ms	\$185	\$245
170MB	3.5" LP 17ms	\$189	\$249
240MB	3.5" LP 10ms	\$255	\$315
525MB	3.5" LP 10ms	\$615	\$675
700MB	3.5" HH 10ms	\$775	\$835
1000MB	3.5" HH 10ms	\$899	\$959
1200MB	3.5" HH 10ms	\$999	\$1,059

CAPACITY	DESCRIPTION	INTERNAL	EXTERNA
1200MB	3.5" HH 10.5ms	\$919	\$979
1200MB	5.25" FH 15ms	\$969	\$1,069
2100MB	5.25" FH 12.9ms	\$1,435	\$1,535
2100MB	3.5° HH 8ms	\$2,099	\$2,159
1600MB	5.25" FH 11.5ms	\$1,149	\$1,249
2400MB	5.25" FH 11ms	\$1,765	\$1,865
3400MB	5.25" FH 11ms	\$2,249	\$2,349

CAPACITY	DESCRIPTION	INTERNAL	EXTERNAL
120MB	3.5" LP 15ms	\$194	\$254
212MB	3.5° LP 15ms	\$259	\$329
345MB	3.5" HH 15ms	\$429	\$499
540MB	3.5" HH 8.5ms	\$849	\$919
1200MB	3.5" HH 8.5ms	\$1,249	\$1,319
1700MB	5.25" FH 13ms	\$1,299	\$1,399

MONITORS

Maxtor 3.5" Drives carry a 1 year warranty 5.25" Drives carry a 2 year warranty

#### 3.5" OPTICAL DRIVES



MODEL	CAPACITY	SEEK	MACKIT
Panasonic-128	128mb	35ms	\$729
Fujitsu-128	128mb	30ms	\$989
Sony-P301	128mb	35ms	\$1,269
Most-256	128/256mb	37ms	\$1,499
Includes external drive,	25/50 SCSI Cable	Mac SW, an	d Terminator
CARTRIDGES		Right n	Philippine .
Sony 128mb as t Komag 128mb a		\$45 \$33	

#### SYQUEST DRIVES



MODEL	INTERNAL	EXTERNAL
SyQuest 105 SyQuest 88C SyQuest 88 SyQuest 44	\$499 <b>\$369</b> \$309 \$219	\$559 \$409 \$369 \$269
DUAL DRIVES		
SyQuest 88/44 SyQuest 88/88 SyQuest 44/44	N/A N/A N/A	\$678 \$699 \$569
CARTRIDGES		

88MB Cartridges (Se or with drive Purchase) \$89.99 44MB Cartridges (5+ or with drive Purchase) \$59.99

### 5.25" OPTICAL DRIVES

DESCRIPTION



CAPACITY

Ricoh-9200EII Sony-E501 Sony-E502 Ricoh-9200EX MaxOptix-Tahiti II PMO-650 MaxOptix-Tahiti IIIM Includes external drive, 25/	594/650mb 594/650mb 594/650mb 594/650mb 594/650mb 1gb/Worm	66ms 66ms 66ms 35ms 25ms 19*ms 25ms	\$1,999 \$1,949 \$2,049 \$2,799 \$CALL \$2,999
CARTRIDGES	A DOOT CADIO, MILE	arr, and ren	MINION
Sony 594/650mb as LOW Tahiti II 1Gb as LOW OEM 594mb as LOW	XV 25		.\$119 .\$109 .\$179 .\$99
No One Has A More Comple Rewritable Optical Drives th			

#### **CD-ROM DRIVES**





MODEL	DESCRIPTION	MACKIT
Texel Toshiba 3301 Toshiba 3401 Pioneer 600 Pioneer 604	Multi Session/Dual Spin Multi Session/Single Spin Multi Session/Dual Spin 6 Disc/Single Spin 6 Disc/Dual Spin	\$439 \$299 \$459 \$899 \$1,199
PM CDR	CD-ROM Recorder	\$3,499

and the same		and the control (0)
	TAPE DRIVES	
N		-90M
\=	THE REAL PROPERTY.	

MODEL	CAPACITY	SIZE	MACKIT
Archive Viper 250	250MB	3.5"HH	\$499
Archive Viper 525	500MB	3.5"HH	\$699
Sony SDT-2000	2Gbyte	3.5"HH	\$999
Sany SDT-5000	5-16Gbyte	3.5"HH	\$1,799
Archive Phython	2Gbyte	3.5" HH	\$984
Archive Turbo	2-8 Gbyte	3.5" HH	\$1,249
HP 35470A	2Gbyte	3.5"HH	\$1,199
HP 35480A	3-5Gbyte	3.5"HH	\$1,299
Exabyte 8200	2Gbyte	5.25"FH	\$1,599
Exabyte 8500	5Gbyte	5.25"FH	\$2,599
Exabyte 8205	2-5Gbyte	5.25"HH	\$1,654
Exabyte 8505	5-10Gbyte	5.25"HH	\$2,375
Retrospect 2.0: A	50 SCSI Cable, MA dd \$75	C Soltvackup II, s	nd Terminator
TAPES Sony DATS	22 Ma	xell 8mm	\$19





MODEL	DESCRIPTION	PRICE
LZR-960 LZR-965 LZR-1560, 1 Tray LZR-1580	300dpi, 9ppm, RISC, 8.5x11 600dpi, 9ppm, RISC, 8.5x11 400dpi, 15ppm, RISC, 11x17 400dpi, 15ppm, RISC, 11x17	\$1,049 \$1,799 <b>\$2,799</b> CALL
NewGen 660B	COOdel Onem DICC 11v17	\$3,799
NewGen 1200	600dpi, 9ppm, RISC, 11x17 1200dpi, 9ppm, RISC, 11x17	\$4.899

1926 S. PACIFIC COAST HWY #114, REDONDO BEACH, CA 90277 • 1-310-792-2510 INTERNATIONAL • 1-310-792-2514 FAX



800-352-3415

**Federal Express** VISA . MASTERCARD . COD GASH . COD COMPANY CHECK

NET-30 ON AN APPROVED CREDIT APPLICATION. Circle 126 on reader service card





MACWORLD December 1993

# MICROTECH INTRODUCES THE ULTIMATE BUNDLE



**POLARIS HARD DRIVES** 

Maxtor 245

280 5250

Quantum 525

529 600

Quantum 1050

1969 1999

CEDVICE

# MICROTECH PRIORITY () SERVICE

Microtech doesn't just sell you great products at great prices, we back every purchase with award-winning Microtech Priority 1 Service:

PRIORITY TRADE-UP — Apply 35, 60, 80, even 100% of today's purchase cost towards your next drive.\*

LIFETIME TOLL FREE TECH SUPPORT — Our team

answers your questions for the life of the drive.

MICROTECH PRIORITY NETWORK BBS — Access to our

full service, full time BBS comes with every drive we ship.

CASE CONVERSION — Take your drive from internal to external or external to internal for a minimal fee.\*

And what if your drive needs service? Microtech Priority 1 Service backs you up with:

ADVANCE REPLACEMENT — Eliminate downtime with a
Priority 1 replacement shipped the same day you receive an RMA.\*

48 HOUR REPAIR — We turnaround your repair in two business days or less.

**DATA RECOVERY** — Receive a special discount on service from a premier data recovery resource if we can't recover your data.\*

EXTENDED WARRANTY — For an extra year of Priority 1
Service at an affordable rate.\*

MICROTECH PRIORITY SERVICE — We bundle it with every drive because we know its what's behind the drive that counts.

CALL 1-800-626-4276 to get the complete story.



TRITON DAT 4GB/8GB

TRITON DAT STEP 9

TRITON DAT TO TO DDS-2 8GB

	TAPE SIZE	CAPACITY	AVG TSFR SPD
468	90M	4-6GB	10MB/min
868	120M	8-12GB	22+MB/min

Upgrade your PowerBook or Duo with a Roadrunner 200i or 320i internal drive, use its original drive in a Roadrunner DataXpress Case. Add a 10MB memory upgrade for the ultimate in portable power.

INTERNAL	W/IEMB COYOTE MEMORY	W/RRD XPRESS EXT CASE
RR2001 9469	<sup>5</sup> 938	1538
RR3701 5659	1128	1728

DRIVES & MEMORY

FOR POWERBOOKS

FAX: 203.468.6466

Mon – Fri 8AM - 6:30PM EST

Visa/Master Card

International: 203.468.6223
Fax 203.467.8124



Leaders in Mass Storage and Memory Since 1985

\*\*Certain conditions and restrictions apply. For complete details call, fax or write Microtech International, Inc. 21993 Microtech International, Inc. 158 Commerce Street, List Haven, CT 65312. All trademarks or registered trademarks are prepared their respective connects. The few year warranty, where offered, applies to export products sold, delivered and used in the U.S. and Causada only. Two year warranty applies to export products sold, delivered and used in the U.S. and Causada only. Two year warranty applies to export products. Microtech researchs the right to change prices and specifications without notice.

# TigerDirect<sup>®</sup>

# MAC PRICE BLITZ!

### Information & Order Hotline 1-800-666-2562

- Mours: Mon.-frl. Bam-Midalle, Sat. 8:30am-8pm & Sun. 11am-5pm (E81)

- Fax:305-528-2990 Int'l Orders: 305-448-8212

- VISA, MasterCard, American Express & Discover

- All orders are shipped via Faderal Express

# THE NEC MULTISPIN CD-ROM R

## NOW ST TRIII.

per month for 3 months

TIGER & NEC... Team up to bring you the industry's most advantage ROM readers featuring compact portable and desktop

models. NEC has consistently been the innovative force in CD-ROM; and the first to introduce MultiSpin™ technology – rocketing your CD-ROM reader to incredible speeds! And these readers are built to perform in even the most hostile environments - they're built with the finest materials, and they feature the most advanced optical components. The superior NEC engineering is everywhere, from the clean exterior to the laser unit, to the connectors and the cables.

The MultiSpin 74 is an expression in fine craftsmanship - and is ready to run right out of the box. The NEC interface kit includes everything you need for a neat, quick installation. So, if you're looking for lightning speed - in the form of smooth, crisp video and rich,



One of the fastest CD-ROM readers in the world. Sleek and rugged, this desktop instrument delivers the ultimate in CD per-

formance - and sports a trim, compact footprint. You get explosive power without tying up valuable desk space. The MultiSpin 74 features the professional caddy design that keeps discs clean and safe. Plus, a double dust-cover door that keeps foreign particles out. The MultiSpin 74 contains sophisticated optical technology that keeps the data, graphics, movies and sound pumping at a lifelike pace. Plus, multisession capability to handle Kodak Photo CD image libraries. A CD-ROM reader is the heart of a multimedia system. And the MultiSpin 74 is the top of the line, with all the guts and glamour needed for full-



#### Details on this money-saving offer: . TigerDirect's 3 month installment plan is only available on the NEC MultiSpin 74 CD-ROM

- reader, and is limited to VISA, MasterCard or Discover credit card purchases only
- TigerDirect will bill 3 installments to your credit card, one installment every 30 days, equal to the
  total price of your purchase divided by three. Shipping and handling charges and any applicable
  taxes will be added to the first installment. Your first installment will be billed on the date of ship-
- · TigerDirect reserves the right to limit quantities, make credit inquiries and bill in full at any time.
- . If your account is past due or over your credit limit, we have the right to demand full payment and bill in full. If we do not receive a new credit card number 20 days prior to your card's expiration date, we have the right to bill in full.
- · Offer valid on orders placed on or before December 31, 1993.

#### **NEC CD-ROM HOLIDAY SPECIAL**

BHU8474-B NEC MultiSpin 74 Multimedia Drive with Interface... ..... \$438.00 Or just \$146 a month for 3 months! See above or call for details

## EYZA BEMILLE ELMORK VEGESS

S hiva pioneered the ad-vanced dial-in remote networking techniques for AppleTalk networks and today, their second-generation networking products

(with special PowerBook features) handle the most demanding jobs in corporate America.

Shires Nathhamy

LanRover/L. Hey PowerBook users! Now you can use your AppleTalk Remote Access dial-in software from anywhere in the world to call the software from anywhere in the world to can the
office and get on the network just like you were
sitting at your office desk. Plug in your existing modem to the LanRover/L, then plug in the
LanRover/L to the nearest LocalTalk cable and you're ready to go. With two easy connections you just replaced an entire Mac computer. Lan-Rover/L is the perfect remote networking server for low cost, space-saving size, maintenancefree connections. If you run with AppleTalk Remote Access software - get the LanRover/L.

TeleBridge. If you don't already use AppleTalk Remote Access software for dialing in to the office network, check out the Shiva Tele-Bridge. Plug in your existing modem and the TeleBridge is your connection to not only dialin and dial-out communications, but also network-to-network connections whereby two distant LANs can be connected as one. The TeleBridge is a complete modem server ready to plug directly to the nearest LocalTalk cable - no need for another Mac.

#### Dial-In/Dial-Out & Net-to-Net Routing.

If you like the idea of distant coworkers keeping in touch by calling in from anywhere in the world and connecting to the office network as if they were sitting at their own desk, you're ready for all the advantages of a network modem. Do you like the idea of any network user in the office easily calling out to CompuServe or Dow Jones for the latest updates in an instant? If the answer is yes, you're in the market for a network modem. And when you gather all the facts, there really is only one way to go
- the Shiva NetModem/E (for Ethernet) and the Shiva NetModem V.32 (for LocalTalk).

NetModem/E. The Shiva NetModem/E does it all; just plug this sleek, compact communication server with built-in 14,400 bps modem into the nearest Ethernet cable and it's ready. Nothing else is required. The NetModem/E takes the place of a computer, high-speed 14.4KB modem and Ethernet board - at a fraction of the cost. Besides saving money you get instant, trouble-free connectivity, simple clean wiring, and a very small size.

NetModem V.32. For LocalTalk, twistedpair networks, the Shiva NetModem V.32 de-livers three communication essentials – allowing distant computers to dial in and have full access to all network services, letting any Mac on the network call out to information services;

joining far-off networks to form a single internetwork over a standard phone line.

NetModem V.32 combines a Hayes-compatible 9600 bps modem and

built-in LocalTalk - eliminating the need for a dedicated Mac as a modem server.

LanRover/E For AppleTalk Remote Ac-Cess. 1 Already Have New Modems. What Can You Do For Me? To provide remote network access to multiple users, the rack-mount-

able LanRover/E is the choice of the pros. Plug in your own high-speed modems to this compact remote networking server and instantly eliminate 4 computers with the LanRover/4E, or clear away the headaches of 8 computers with the LanRover/8E.

FastPath 5 Router/Gateway. Connect to UNIX, VMS and Other Alien Networks. The fastest way to directly connect your LocalTalk network to almost any Ethernet network. Supports UNIX, DECnet, IPTalk, Sun NFS and others - more protocols than any other gateway on the market. FastPath 5 is backed by 5 years of product development and testing, resulting in the fastest gateway money can buy.





#### Free Sony Headphones with any Shiva Purchase!

BHU6588 LanRover/L. \$589.90 Requires external 2400 or faster modern. Includes Free ARA Software and I Year Premium Support (575 value). Includes Local Talk connection for Apple Lalk.

BHU6587 NetModem V.32. \$989.90 Includes Bult-In V.32 Modem, Includes Free 1 Year Premi-um Support (\$150 value), Includes LocalTalk connection for AppleTalk.

BHU6588 LanRover/4E (4 port) .....\$1,689.90 Bandled with Free ARA Software. Requires external 2400 or faster modern. Includes Free 1 Year Fremium Support (475 value). Supports 10BaseT, Thin AND Thick Ethernet.

value), Supports (oblace), I and AGD I take Electrics Burdled with Free ARA Software. Requires external 2400 or Jasto modem. Includes Free 1 Year Premium Support (\$75 value). Supports 10BaseT, Thin AND Thick Ethernet.

BHU6587 TeleBridge...\$389.90 Requires external 2400 or faster modem. Includes Free I Year Premium Surport (\$75 value). Includes LocalTalk connection for AppleTalk.

Returns For Exchange On Defective Items Only

#### A Tiger Exclusive

#### PREMIUM SUPPORT PROGRAM

Strategic Support For Your Shiva Remote Networking Products.

Overnight Unit Exchange. Alleviates down time! This pro-gram simplifies and expedites the unit exchange process. Toll-free "800" Holline (9am-8pm EST). It's our dine; not yours. And, we've extended our hours for our West Coast customers!

Priority One-Hour Response Time On The Shiva Tele-phone Support Holline. Our \$100,000 tracking system as-sures this level of response quality.

Unlimited Number Of Calls To Hotline. We work with you until the problem is resolved, even if it takes more than one call. 10% Discount On Accessory Parts. You receive a reduced

price on extra sets of documentation, cables.

Support Via Fax, America Online\*, Applelink\*, Com-puserve\*, Internet And The Shiva BBS. Use the service that's most convonient for you. All messages sout to technical sup-port accounts at the above e-mail services are uniomatically downloaded to our Call Tracking System.

Minor Software And Hardware Revisions Mailed Automatically. These valuable revisions are passed on to you as soon as they're published.

Software Warranty Extended For One Year. An insurance program for all parts of your network system.

Paland At De La FREE!



"Zero to 100 in 4½ Seconds,...



Xante Corporation 2559 Emogene Street Mobile, AL 36606

As owner of a rate car marketing company, I have been using your Accel-a-Writer products, problem free, for over two years now. I purchased your \$100 images etter with 1200 dpi output and it always goes to the races with my staff to produce on the fly while 1220 up output and to aways goes to the cares with my star to produce or printing of press updates, badges, award certificates, newsletters, you name it. Recently, I had a need to print a small run of 11" x 17" folded newsletters with

several black & white photos at 133 lpi. The results were phenomenal. Zero to 100 in 4 1/2 seconds! Pastest high quality output I have ever seen, like an Indy car, Xante's Accel-a-Writer 8100 is designed to win races.

I plan to get a local printer to print a year's supply of color headers with our  $11^n \times 17^n$  paper stock. This way I can pull a quantity for each race and print the finished black plate on our 8100 for quick turnaround time in dis-

Oh, by the way, Parnelli Jones has a couple of sons ready to win you more tributing a four page newsletter.

races at better than zero to 100 in 4 1/2 seconds.

...the fastest high quality output I have ever seen, like an Indy car, XANTE's Accel-a-Writer 8100 is designed to win races." Iim Joiner, U.S. Motorsports, Redondo Beach, Calif.

XANTE® has now entered the racing circuit with its high performance, 1200 X 1200 dpi imagesetter. The Accel-a-Writer®8100 has more power and better handling capabilities than any other imagesetter on the track. When these engines start, no one can catch us! Engineered for speed at 8ppm - your business will take off and win!

For only \$6695, you'll get a 29030 RISC Processor and 48 MB of RAM. The 8100 can also be purchased at 960, 800 dpi, or, for just \$3995, you can get 600 dpi and upgrade later. The 8100 is fully PostScript® Level 2 Compatible and comes with 35 resident typefaces. Simultaneous Mac®/PC Printing is simple with concurrently active AppleTalk®, Parallel and Serial interfaces. Optional EtherTalk\* is also available.

> Oh, and check out our new oversized 11" X 17" format! It's great for an edge-to-edge finish.

You can take the checkered flag, with a lease plan for as little as \$90 per month. XANTE's optional On-Site Service plan will also put a new spin on the track. Our fast, professional services and support is the Indy way of doing things.

For more information, call XANTE today at:

1-800-926-8839 ext. 2107

Fax 205-476-942



We receive so many letters from our satisfied 8100 owners. This is just one that proves -We're Blowing The Doors Off The Competition!



\*Bherret supporting EtherTalk protocol, is optional





800-624-2926

USA/Canada



708-888-8300

Your #1 Source for Educational Software & Technology

## **Educational Software for the Holidays!**

Save up to 60% every day on home, school and academic versions, lab packs, site licenses and network versions of the most popular educational software. Great prices on multimedia, hardware and accessories, too! Call today.



395 MAC School Version \$59.95 Ages 3 - 10



(Retail \$49.95 Ages 5 - 12



(Retail \$59.95) Ages 6 - 10



695 (Retail \$59.95) Ages 9 - up

Educational Resources • 1550 Executive Dr., Elgin, IL 60123 • Fax 708-888-8499/8689



- Checks & School P.O.s welcome \$ \$25 min. on charge cards Free shipping over \$400 in U.S.
   Under \$400 add 5% shipping with \$5 min Canado under \$200 add 10% with \$6 min./over \$200, add 5% also add 7% GST Prices effective through January 31, 1994.

Call today for your FREE Educational Macintosh Catalog!



Circle 28 on reader service card



## DIRECT CONNECTIONS

## 800-572-4305 30 DAY MONEY-BACK





TECH: 612-937-9604 FAX: 612-937-6285 HOURS: M-F 8:00-6PM CST

#### HARD DRIVES

FUĴĨT	SU	<b>G</b> YE	A R	WAR	RA	NTY
CAPACITY	SIZE	ACCESS	IN	TERNAL	EXT	ERNAL
520MB	3.5"	9MS	\$	595	\$	655
1.2GIG	3.5"	8.5MS	\$	850	\$	910
2.4GIG	5.25"	11.5MS	\$	1550	\$	1610

#### Seagate TYEAR WARRANTY

No.	Acres Sec.		770		25.00
283MB*	3.5"	16MS	\$	339	\$ 399
344MB	3.5"	12MS	\$	451	\$ 511
600MB*	3.5"	10.5MS	\$	889	\$ 949
1.2GIG	3.5"	9MS	\$	919	\$ 979
1.6GIG*	5.25"	15MS	\$	1289	\$ 1348
2.2GIG*	5.25"	12MS	5	1439	\$ 1539
2.4GIG	5.25"	11MS	\$	1760	\$ 1860
2.4GIG	3.5"	9MS	\$	1695	\$ 1755
2.5GIG	3.5"	8MS	\$	2039	\$ 2099
3.4GIG	5.25"	10MS	\$	2390	\$ 2490

#### HITACHI DYEAR WARRANTY

CAPACITY	SIZE	ACCESS	INTERNAL	EXTERNAL
1.2GB	3.5"	11.8 MS	\$ 999	\$ 1049
1.6GB	3.5"	11.8 MS	\$ 1539	\$ 1599
3.7GIG	5.25"	12.8 MS	\$ 2789	\$ 2889

Anubis Formatting Software included with all hard drive purchases

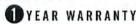
#### RAID SYSTEMS



- Support levels 0, 1, 3, 4 and 5
- · Fault tolerant
- Front Panel LED Controls
- . On-the-fly Removability
- Fast SCSI II Interface
- · Tape backup options

#### OPTICAL DRIVES

INCLUDES ONE CARTRIDGE



CAPACITY	MODEL	ACCESS	EXTERNAL
128MB	Ricoh	30MS	\$ 839
128MB	Fujitsu	30MS	\$ 855
650MB	Ricoh Hyperspace	28MS	\$ 1799
1.0616	Panasonic	90MS	\$ 2999

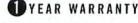
#### THE DC DIFFERENCE

Direct Connections provides Unlimited tech support. We stand behind our products. No surcharge for Visa/M.C., Highest quality, best service, greatest value. Please call for RMA# to have returns accepted. Credit cards verified for security. Lease options available. 30 day money back except freight. [7950 Wallace Road Eden Prairie MN 65341 ONLORS U.S. ANDONE J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. J. W. S. WARDANDER J. J. C. ANDONE J. 55344] COMPARE US TO ANYONE! \* 1 YR WARRANTY

#### TAPE BACKUP SYSTEMS

INCLUDES TAPE RETROSPECT SI	oftware 2	YEAR	WARI	RANTY
CAPACITY	MODEL	MEDIA	INTERNAL	EXTERNAL
250MB	Sankyo CP-150	DC6250	\$ 415	\$ 475
500MB	Sankyo CP-525	DC6250	\$ 565	\$ 625
750MB	Exabyte 2501	DC2750	\$ 626	\$ 686
1.3-2GIG	Archive 4320*	4MM	\$ 1109	\$ 1149
1.3-8GIG	Archive Turbo*	4MM	\$ 1299	\$ 1359
1.3-2GIG	Exabyte 4200*	4MM	\$ 999	\$ 1059
1.3-5GIG	Exabyte 8205	8MM	\$ 1506	\$ 1659
1.3-10GIG	Exabyte 8505	8MM	\$ 2224	\$ 2379

#### CD ROMS



Unparalled speed and reliability. Fully integrated audio, double speed drives, MPC compliant, and supports Toshiba 3401 \$ 475 Multi-session photo CD. T 3028 Multi-session photo CD, 265MS access time, SCSI II, Dual Speed, Audio Output, \$ 419 self cleaning lens mechanism Sony CDU-561 Multi-session photo CD, double speed, Fully integrated audio. \$ 405

With one of our drives, you can pick and choose your title or bundle from our largeselection. All our CD titles are only \$25.95. A purchase of two or more titles saves you an additional \$2 per title.

Ricoh Playwright 1000 Recordable CD \$ 3899

# We're not like the other

# We'll give you more



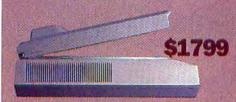
# Macintosh Systems

Whether you need a system for highend color publishing, professional prepress applications, desktop design and production or simply business productivity – Express Direct can custom configure a Mac System that's right for your specific job and right for your budget. And remember, all Macs aren't created equal! At Express Direct we do more than take orders and ship boxes. We install the memory, video card and system software. Then we test every System – so all you need to do is plug it in! And only Express Direct gives you Toll-Free Technical Support with every Mac!

\$2199

Apple Centris 650
8MB RAM, 230 MB HD, includes Ethernet & FPU. Add E-Machines 16" trinitron display with accelerated 24 bit color card, Apple Ergo Adjustable Keyboard & System 7.
Complete System \$4099

Call about new Quadras!



The Units UC1260 offers intreality accurate 1200 dpl scanning or 1 to 24-bits of coin. Shown with optional transparancy adapter.

### UMAX"

From affordable 24-bit color at under \$900, to top-of-the-line, 1200 dpi performance, Umax offers a scanner for every need and budget. With Adobe Photoshop for image editing and manipulation and an optional transparency adapter for scanning slides and transparencies, Umax scanners bring professional power to the desktop!



The PLF I foliate removable store gives you withinted storage and universalished speed of a compact 3.5" syguest format.

## PLI

Since 1985 PLI has been the most trusted name in storage. The combination of speed, capacity and reliability – all at a low price – has made PLI removable syquest drives the industry standard. For mass storage needs, PLI also offers a complete line of optical drives and mini-arrays with capacities up to 4.2 gigapytes. Demand performance and reliability. Demand PLI.



пежаеп

The new high resolution, eagle to eagle filesigns happer 65, productes 600 db. 11417; production quality output.

Newgen's superior engineered products bring high-resolution, "service-bureau-like printing" to the personal printer. Newgen's proprietary Image Enhancement Technology produces incredibly crisp output normally found in printers at twice the price. And patented Auto Recognition Technology allows all Newgen printers to be attached to multi-platform networks for maximum flexibility and compatibility.

We stock a complete line of quality products from all of the above manufacturers & more.

1-800-765-0020

Express Hours (central time) M-F 8am-7pm, Sat 10am-2pm • 24hr Fax

# mail order companies.

# than a sales pitch.













· Full warranty coverage



· Authorized service & sales





 Flexible payment & leasing terms for those who qualify



International Orders Shipped Daily Fax: 312.549.6447 Ph.: 312.549.0030

## We'll give it to you straight.

When it comes to product knowledge and understanding the needs of graphic professionals - nobody even comes close to Express Direct. Not the other mail-order companies, not the superstores, not even your local dealer.

When you call us - you'll talk with an expert. Someone who's done their homework, knows the product, knows what they're talking about. Not an order-taker, like you get with the other mail-order companies.

We carry only top-notch products from the industry's best manufacturers. No garbage. You demand quality and so do we. What's more, our strict criteria for selecting products means we always get the lowest price - directly from the manufacturer. So nobody can give you a better value than Express Direct.

But that's just the beginning. With customer service and technical support that's the best in the industry, we make it our business to take care of you. All this is just a free phone call away. So, call Express Direct today. You're going to love working with us!

1801 W. Larchmont Ave., Chicago, IL 60613 USA



"The Color Experts"

Apple Mac are trademants of Apple Computer. Prices are subject to change without notice. All returned orders may be subject to a 15% restocking fee plus return shipping. Call for RMA before returning.
\*All warrantees on Macintosh or Apple brand products sold by Express Direct will be nonored by Express Direct or its authorized agents only. All other manufacturers warrantees shill apply.







#### **GO • DRIVE SERIES**

2.5" POWERBOOK DRIVES

Capacity	Access	Internal	External
80mb	17ms	\$209	\$309
120mb	17ms	\$265	\$365
160mb	17ms	\$265	\$365
	80mb 120mb	80mb 17ms 120mb 17ms	

#### **ELS SERIES**

3.5" LOW PROFILE, LOW POWER

Coposity	Access	Internal	External
42mb	19ms	\$99	\$159
85mb	17ms	\$165	\$225
127mb	17ms	\$185	\$245
170mb	17ms	\$189	\$249

#### LPS SERIES 3.5" LOW PROFILE

	Capacity	Access	Internal	External	
240mb		10ms	\$249	\$309	
	525mb	10ms	\$615	\$675	
	LPS, ELS and	PRO drives	carry a TWO Yea	r Worranty.	
	GO+D	RIVES corry	a OHE Year Warr	onty.	

#### PRODRIVE SERIES

3.5" HALF HEIGHT

Coposity	Acres	Internal	External
700mb	10ms	\$749	\$809
1.0GIG	10ms	\$899	\$959
1.2GIG	10ms	\$999	\$1059
<b>1.8GIG</b>	10ms	\$1249	\$1309

30 DAY MONEY BACK

230mb\* 520mb 1.2GIG 2.4**GIG** 



•		,			
Model	Description	Access. Time	Actual MAC Capacity	Internal	Entered
M2637	2.5" Low Profile	15ms	220mb	\$489	\$549
M2624	3.5" Half Height	9ms	496mb	\$615	\$675
M2694	3.5" Half Height	8.5ms	995mb	\$959	\$1015
M2654	5 25" Full Height	11 5ms	2000mh	\$1699	\$1799

\* Dea Year Warrest

## **CLUBMAC OPTICAL DRIVES**

## **SHARP 5.25**"

**650 MB OPTICAL DRIVE** 

- . Law-profile 5-1/4" half-height drive
- 40 ms seek time
- . 652 MB maximum memory capacity
- . Built-in SCSI interface (SCSI 1 or SCSI 2)
- · High data reliability
- Includes ONE optical cartridge and ONE Year Warranty
- Internal solutions available



İ	art Humber	Model	Capacity	Description	Sock	Internal	External
(	MO-DynaMo	Fujitsu	128mb	3.5" LP	35ms		\$929
(	MO-M2511A	Fujitsu	128mb	3.5" LP	35ms	\$899	\$929
	CMO-3D3000	Teac	128mb	3.5" HH	45ms	\$769	\$799
(	MO-OMDS010	Epson	128mb	3.5" HH	45ms	\$849	\$879
(	MD-JY750	Sharp	594/652mb	5.25" HH	40ms	\$1769	\$1799
1	CMO-5031E	Ricoh	594/652mb	5.25" FH	28ms		\$2199
	CMO-C1716T	HP	1.3GIG	5.25" FH	24ms		\$2729
	128mb / 600	Omb / 1.3GIG	Cartridge			\$35 /8	9 / 109

All ClubMac Opticals include ONE cortridge and ONE Year Warrenty.

## SYQUEST REMOVABLE DRIVES

44MB REMOVABLES ClubMac 44mb Ext. 5299 ClubMac 44mb Int. \$259 88MB REMOVABLES \$459 ClubMac 88c Ext. 5419 ClubMac 88c Int. 105MB REMOVABLES ClubMac 105mb Ext. 5549 \$509 ClubMac 105mb Int.







REMOVABLE

TECHNOLOGY

CARTRIDGES 44mb/88mb/105mb

\$59/\$89/\$59

SyQuest Drives include a TWO Year Warranty, one cartridge & necessary cables, SCSI Director™ Formatting Utility . SyQuest Cartridges carry a ONE Year Warranty.

30 DAY MONEY BACK GUARANTEE



5	eaga	3te	2	MONE	DAY Y BACK RANTEE
Model	Description	Access Time	Actual MAC Capacity	Internal	Externa

ILF HEI	GHI				
ST11200N		10.5ms	1000mb	\$899	\$95
ST12400N		9ms	2000mb	\$1609	\$166
ST11950N	Barracuda 1	8ms	1350mb	\$1549	\$160
ST12550N	Barracuda 2	8ms	2050mb	\$1864	\$192
FULL HE	EIGHT				
ST41651N	Wren-8	15ms	1350mb	\$1149	\$124
ST42100N	Wren-9	12.9ms	1900mb	\$1409	\$150
ST42400N	Elite-2	11ms	2050mb	\$1685	\$178
ST43400N	Elite-3	11ms	2750mb	\$2115	\$221
	Seagate drin	ves corry a ON	E Year Warranty.		
	ST11200N ST12400N ST11950N ST12550N FULL HE ST41651N ST42100N ST42400N	\$\text{\$ST12400N} \\ \$ST11950N \\ \$Barracuda 1 \\ \$ST12550N \\ \$Barracuda 2 \\ \$\text{\$EULL HEIGHT} \\ \$ST41651N \\ \$ST42100N \\ \$ST42400N \\ \$Elite-2 \\ \$ST43400N \\ \$Elite-3	ST11200N         10.5ms           ST12400N         9ms           ST11950N         Barracuda 1         8ms           ST12550N         Barracuda 2         8ms           FULL HEIGHT         ST41651N         Wren-8         15ms           ST42100N         Wren-9         12.9ms           ST42400N         Elite-2         11ms           ST43400N         Elite-3         11ms	ST11200N         10.5ms         1000mb           ST12400N         9ms         2000mb           ST11950N         Barracuda 1         8ms         1350mb           ST12550N         Barracuda 2         8ms         2050mb           FULL HEIGHT         ST41651N         Wren-8         15ms         1350mb           ST42100N         Wren-9         12.9ms         1900mb           ST42400N         Elite-2         11ms         2050mb	ST11200N         10.5ms         1000mb         \$899           ST12400N         9ms         2000mb         \$1609           ST11950N         Barracuda 1         8ms         1350mb         \$1549           ST12550N         Barracuda 2         8ms         2050mb         \$1864           FULL HEIGHT           ST41651N         Wren-8         15ms         1350mb         \$1149           ST42100N         Wren-9         12.9ms         1900mb         \$1409           ST42400N         Elite-2         11ms         2050mb         \$1685           ST43400N         Elite-3         11ms         2750mb         \$2115

## CLUBMAC TAPE BACKUP SYSTEMS

Capacity	Model	Media	Internal	External
	CKUP SYSTEM		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Line
155mb	Teac MT2ST/N50	CT600N	\$429	\$44
600mb	Teac MT2ST/F50	CT600F	\$629	\$64
DAT TAP	E BACKUP SYS	TEMS		
2.0GIG	Archive Python	4mm	\$959	\$97
3-5GIG	Archive Turbo DAT*	4mm	\$1229	\$124
2.0GIG	Hewlett Packard 35470A	4mm	\$1179	\$119
3-5GIG	Hewlett Packard 35480A*	4mm	\$1259	\$127
All Chibling I	one Backup Systems include ONF contridue	and ONE Year Wa	erenty	* Data Compression

## NEC CD-ROMs Solutions



NEC CD-ROMS corry a TWO Year Warr











\$49

\$36

MW CHOICE October 1997 NEC CDR-74

\$399

\$269

Toolworks Encyclopedia

U.S. Atlas

Mayo Clinic The Animals World Atlas

.\$1469

\$459

\$1159 / 779

\$899 / 459



E-Machin	es ==
T16 II	
= 640 x 480 up	E 1440111
10 1024 x 768	E-MACHI

MacUser

E-MACHINES MONITORS	
ColorPage T16II	\$125
E-Machines E20 Dual Mode Color Display	\$163
E-Machines T20 Multi-Mode Calor Display	\$249
E-MACHINES GRAPHIC CARDS	
24-Bit Futurn SX / MX	5355 / 79

E-MACHINES

	E-Machines T20 Multi-M
	E-MACHINES GRA
	24-Bit Futura SX / MX .
(	24-Bit Futura II SX / LX
>	24-Bit Ultura LX

E-MACHINES GRAPHIC CAI	RDG
24-Bit Futura SX / MX	\$355 / 799
24-Bit Futura II SX / LX	\$429 / 775
24-Bit Ultura LX	\$1619



5	SUPERMAC
	SUPERMAC

MONITORS	a Marketon
SuperMac High Res 20	\$2749
SuperMatch 21"	\$2379
SuperMatch 20T Multimode XL	
SuperMatch Plus 20" Color	\$1649
SuperMatch 17T	\$1049
MULTIMEDIA	
Video Spigot NuBus / Pro NuBus	
Spigot & Sound NuBus / Pro NuBus	\$479 / 1125

24-BIT GRAPHIC CARDS	3
Thunder/24	\$2159
ThunderLight	
Spectrum/24 PDQ Plus / Series IV	\$1459 / 789
8-BIT GRAPHIC CARDS	
Thunder/8	\$1129
Spectrum 8-24 PDQ / PDQsi	Call
ACCELERATORS	
ThunderStorm / Deluxe / Pro\$42	9 / 835 / 2675

#### BUY A NEC 6FG WITH A MACFG 24X & GET A MULTISPIN 74-1 FREE



5" MultiSync 3FGe

5" MultiSync 4FGe

7" MultiSync 5FGe

7" MultiSync 5FG

21" MultiSync 6FG

AucFG 24X /24Xp .....\$1199/479



	Militar
MacFG 24X	*Purchase a NEC 6FG with a MacFG 24X and get a NEC MultiSpin 74-1 from NEC, via mail-in coupen, offer ends 12/31/93
The state of the s	PRINTERS
	Silentwriter 1097\$1439
	Silentwriter 95f\$899
	Silentwriter 97\$1119
	Silentwriter 95fx\$1139
No. No.	Silanburitar 07fv \$1240

GLOBAL VILLAGE POWERPORT (for Park	erBooks)
Bronze / Silver / Gold\$165 /	299 / 359
GLOBAL VILLAGE TELEPORT (External Deskite	09)
Bronze / Silver / Gold \$105 /	299 / 359
PSI MODEMS	
PowerModem I / II / III / IV\$105 / 225 /	319 / 359
Comstation I / Comstation V\$ SUPRA MODEMS	169 / 425
uprafaxModem 14.4 LC v.32bis, v.42bis w/FAXsd & Micro	\$165
upraFaxModem 14.4 v 325is, V.42bis Standalane	\$235
upraFoxModem 14.4 v.3256, v.4266 w/FAXstl & Micro	\$289
upraFoxModern PB 14.4 V.32bis, V.42 Internal for PB	\$299
uproFaxModem PB+ 14.4 v.32bis, v.42bis, VOICE let for PB	\$395
upra 2400 Baud External Modern	569

5719

\$1099

\$1299

\$2349

# MODEMS



### **NETWORKING**





OTHUB/12	10BT Hub w/12 10T, Thk & Thn ports \$479
OTHUB/8	10BT Hub w/8 10T, Thn port\$239
Aini EN/SC	Thn/10BT SCSI Ether. w/DT & PB cable\$297
Aini EN/SCIOT	10T SCSI Ethernet w/DT & PB cable\$239
NIOTA	10T FriendlyNet Media Adapter
NTNA	Thn FriendlyNet Media Adapter
AC+11E64	Mac II & Perf 600, Thk/Thn, 64K\$145
MC+IIET64	Mac II & Perf 600, Thk, 10BT, 64K\$145
AC3NB	Mac II & Perf 600, Thk/Thn/108T, 64K\$189
P1001	Asnoté Print Thk/108T or Thk/Thn \$239

	Justice 3 in 1 cara modes, 103, 30 ins. 103/1 3147
1	Star Net Thk/Thn for NuBus, PDS, SE\$99
	StarNet Thk/10BT for NuBus, PDS, SE\$99
١	StarNet MicroSCSI Thn/10BT SCSI Ethernet\$249
١	StarNet Apple AUI Ethernet Adapter (Quadras, Centris, Lazarwiters, WorkGroup Servers)
	Single Port 10BT or Thin\$69
Ì	Dual Port 108T and Thin\$99
Ì	StarNet MAUI Products
١	(Allows connection of two of the following products to one ethernet port, comp., with Quadras, Centris, Laserwriters, WorkGroup Servers)

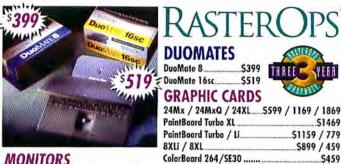
### CLUBMAC NETWORKING

ClubMac EZ-Mac ANII Transcoiver	\$59
ClubMac EMac-IIC (Nu8xs) 3 In 1 (ard	5129
ClubMac SE30C (SE/30 and Mac IIsi) 3 in 1 Card	\$129
ClubMac LCBT (LC, LCII, LCIII, Calor Classic, Perf. 490)	.\$149
Ether-H12 14 Part 108T Hub w/AUL & BKC & 12 RJ45	.\$399
19" rack mount, or desktop. Universal Power Supply	
Ether-H9 9 port 1031 Heb w/9 8145	\$199
Wall mount or Desktop. Built in re-timing	

forcentes. All items manufactured by CirbMac are returned to CirbMac for warranty repair. All other items carry manufacturer's warranty. Money Back Governotes:

Il products manufactured by CirbMac carry a 30 day maney back governotes. CirbMac restends all other resunfacturer's return policies to its outstoners Mac CirbMac records carry 30 day money back guarantee when specified. Forums: Call for IMA number! Are product that is returned WITHOUT on IMAA number will be refused.

Il product information and prices on subject to change without native. Not responsible for typographical errors.



#### MONITORS

21" Color (2168)\$2295	MULTIMEDIA
20"/20T Multiscan (2075R0)\$2495	MoviePak / with Adobe Premiere \$749 / 1129
20/20 Multiscan Color (2020C)\$1529	MoviePak2 \$1549
21" Mono/GrayScale (2110)	MediaTime \$1485
15" Clear Vue / 15 Portrait (1510)	24XLTV / 24MXTV / 24STV\$2599/1639/745

## radis WORRY-FREE SERVICE WARRANTY

ustek

\$519



MONITORS	
IntelliColor Display/20	\$25
PrecisionColor Display/20v	
PrecisionColor Pivot	59
Mono. Pivot Display/E	\$5
Full Pg Display (FPD)	54
Two Pg Display 20GS / 21GS	



GRAPHIC CARDS PrecisionColor Pro 24X....\$2069 PrecisionColor Pro 24XP ....\$485 PrecisionColor 24X.....\$1495 PrecisionColor 24XK ... \$809 PrecisionColor 8XJ.. \$485 Color Pivot/Pivot ..\$489 / 249 FPD / Two Pg......\$189 / 375



MULTIMEDIA	
VideoVision Studio	\$3639
VideoVision Studio Upgr	ade .\$1599
VideoVision (Presentation	n)\$1929
VideoVision (Basic)	\$1599
Rocket 25i / 33\$9	79 / 1449
RocketShare	\$399
PhotoPoorter	\$700

**PARAGON** 

## MICROTEK

Better Images Through Innovation.



canMaker II"	58/9
canMaker IIXE \$	1159
Aicrotek 35t**\$	1379
Include PhotoShop 2.5 ** Includes Photoshop 2.5	IE .

### • True 1200 dpi • TWAIN compliant · Built in SCSI for PC and Mac Scanning speed is

The state of the s	3.6 msec per line
cer II\$879	• 8.5° x 14"
	Scanning Area
cer IIXE\$1159	<ul> <li>Bundled with Ful</li> </ul>
35t**\$1379	Adobe Photosho

op 2.5 Optional Transparency Unit

33 MHz PowerCache .. \$335 ... \$419

40 MHz PowerCache .. \$499 ... \$585

50 MHz PowerCache .\$625 ...\$735

w/o FPU



TURBO 040i

20 MHz Turbo 040i

25 MHz Turbo 040i

33 MHz Turbo 040i

5699

5749

\$835

## **PSON**



ES-800C Pro	-Mac\$1249
ladudes PhatoShop 2.5, Sc	an Fastic & KAI's Power Fack
ES-800C	\$1065
ActionScan 6	005799
ES-600C Sconner, PhotoSho	p 2.5 LE & SconTestic

## ClubMac Keyboard







WARRANTY: All items monufactured by ClubMac are returned to ClubMac for wetrootly repair. All other items corry manufac-turer's warranty. MONEY BACK GUARANTEE:: All products ther is worthery, MONET SEAK GUIDANCE: All processing and more located by Ubblac corry of 30 day maney befor guidantes. Ubblac carbon deleter in extenses. The Guidance entered and extenses in the customers. The Guidance products carry 30 day money both guidance when specified. REFURRIS: Call for INA number of the product that is restarted MTHOUT on RIAA number will be refused. ALL PRODUCT INFORMATION AND PREES AS ESUBECT TO CHARGE WITHOUT HOTOLE. NOT RESPONSIBLE FOR TYPO-GRAPHICAL ERRORS



## CALL FOR FREE CATALOG -2622

Info (714)768-8130 • Tech Support (714)768-1490

Fax (714)768-9354 • 7 Hammond, Irvine, CA 92718

# With Prices This Low, By The Time You Read This, It May Be Too Late.

As recently as September of 1993, these Texas Instruments printers were winning major awards. Today, we're selling them at incredibly low prices\*. And tomorrow, we just may be sold out.

















## microLaser Plus Entry Level Windows Solution

9 PPM
HP LaserJet® II
Emulation
68000/TI ASIC
14 HP fonts
Prints TrueType fonts

NOW \$669

## microLaser PS17 Affordable PostScript® Solutions

9 PPM
HP LaserJet II/PostScript
Emulation
68000/TI ASIC
17 scalable fonts
Prints TrueType fonts

**NOW \$765** 

## microLaser PS35 Affordable PostScript Solutions

9 PPM
HP LaserJetII/PostScript
Emulation
68000/TI ASIC
35 scalable fonts
Prints TrueType fonts

NOW \$810

#### microLaser Turbo PostScript for the Power User

9 PPM HP LaserJet II/PostScript II Emulation RISC/8220

35 scalable fonts Prints TrueType fonts

NOW \$1068

All printers come with a 1 year limited warranty. AppleTalk® kits available for Mac users for an additional \$50.00.

Current microLaser Owners: TURBO UPGRADE KIT

Was \$1250 **NOW** \*399!!

Call for immediate delivery before it's too late.

TI EXPRESS 1-800-847-2787 Ext. 300

PCs COMPLEAT 1-800-669-4727

CDW 1-800-884-4CDW

USA FLEX 1-800-888-2702

INSIGHT 1-800-859-5615

THIRD WAVE 1-800-880-7555

MacUser

###1/2

MacUser \$\$\$\$

MacUser microLaser Turbo Sept '92

MacUser 1

MW

MACWORLD microLaser Series

MACWOR

MACWORLD microLaser Seri



\*Dealer prices may vary.† Limited warranty, see dealer for details. AppleTalk and TrueType are registered trademarks of Apple Computer, Inc. HP Laserdet is a registered trademark of Hewlett-Packard, Inc. microLaser is a trademark of Texas Instruments. ©1993 T1.

**Call for a FREE** catalog with many more products.



# 1-800-896-0009 Prices good thru Dec. 15, 1993.

for great prices and service. The Place to call first



### UnderWare

Firebreathing dragons vaporize your trash can in this unique desktop diversion. It gives you all the fun of a screen saver while you work! Other screen savers only run while your Mac is idle, but UnderWare runs in the background on your desktop. And these modules don't just blank out your screen, they actually interact with the icons and windows. Like folders sprouting legs and walking off your screen. You get over 30 modules and After Dark modules work too. This is the hottest desktop diversion of the year. "You can't be cool if you don't have it," says Guy Kawasaki. Well, what are you waiting for?

Minimum requirements: Mac LC, 4MB RAM, System 7, Color QuickDraw.

Bit Jugglers

6931 UnderWare



#### The Disney Collection Screen Saver

Delight in the magic of Disney with all your favorite characters in this latest addition to the After Dark family! Enjoy over 15 fantastic sound-packed displays including The Sorcerer's Apprentice, The Little Mermaid, and 101 Dalmatians, Includes screenlocking password protection.

Minimum Requirements: Mac Plus, 2MB RAM, System 6.0.4.

Berkeley Systems 6990 The Disney Collection

Screen Saver Free with purchase

FREE PIZZA HU



#### SuperPaint 3.5

Aldus SuperPaint 3.5 combines the best of paint and draw packages into one program. It's won 15 major awards in the last six years because it provides more "graphics horsepower" for the money. And for a limited time, get a \$10 free pizza coupon for Pizza Hut inside your SuperPaint box. Take a break from the holiday bustle and get some free pizza on Aldus. Minimum requirements: Mac SE, 2MB RAM, System 6.0.5, a hard drive.

BUNDLE

Aldus Consumer Division

6493 SuperPaint 3.5



## SupraFAXModem V.32bis MacPac

"The SupraFAXModem V.32bis is an excellent value," raves Tom Negrino of Macworld. It features 14,400 bps data and fax communications with up to 57,600 bps throughput using V.42bis data compression. The modern automatically negotiates the fastest connection, and sending a fax is as easy as printing. You can even delay transmission until times when long-distance rates are lower. The Silent Answer feature detects if an incoming call is fax or voice, and handles it appropriately. The MacPac includes cables, FaxMania, and WorldLink, FREE.
FaxMania is a collection of fun cover sheets, and WorldLink lets you connect to the Internet.

Supra Corporation

4017 SupraFAXModem V.32bis MacPac

6651 SupraFAXModem 144 LC

5575 SupraFAXModem 144 PB

MAC'S PLACE FEATURED



DATEBOOK PRO and TOUCHBASE PRO are now totally integrated, and with this specially priced bundle, you can organize your finances, save money, and save time. DATEBOOK PRO is a powerful calendar and time-management program. Calendaring, scheduling, to do lists, and alarms combine to keep you informed. TOUCHBASE PRO stores information about your personal and business contacts. Print Rolodex cards, address books, envelopes, and more. Move from office to home without missing a beat. File synchronization updates records automatically. And Quicken 4.0 is the latest version of the popular personal and small business finance program. Print and automatically address checks, update your check register, keep track of tax information, and print detailed reports.

Minimum requirements: Mac Plus, 1MB RAM, System 6.0.5, a hard drive or external floppy. Aldus Consumer Division

7056 DATEBOOK PRO, TOUCHBASE PRO, and Quicken 4 Bundle

# FREE SNOOPY DOLL

#### Yearn 2 Learn – PEANUTS

Match wits with Snoopy and the PEANUTS Gang and get a FREE Snoopy stuffed animal with your order! In Yearn 2 Learn-PEANUTS, kids can join in five activities where they learn and practice math, geography, reading, coloring, and more. Real-voice narration, zany sounds, and the appearance of Charles Schulz' much-loyed characters make this a popular program with kids.

Minimum requirements: Any color Mac, 4MB RAM, System 6.0.7, a hard drive, 8-bit color

Image Smith

6866 Yearn 2 Learn-PEANUTS (For ages 3-10)





#### **Holiday Lemmings**

The Holiday Lemmings are here!!! Join your jolly green-haired friends in a wintertime romp through Lemming land. This special holiday version of Lemmings has 32 levels of award-winning Lemmings action in a snowy terrain, complete with bouncing snowmen, brightly wrapped holiday gifts, and an assortment of seasonal trimmings. Minimum requirements: Mac Plus, 2.5MB RAM for B&W, 4MB RAM for color, System 6.0.5, a hard drive. 7001 Holiday Lemmings



## If anyone has it, And always at a great

price! Our custom database lets us manage our vast inventory with precision. So if it's available from the manufacturer, we've got it in stock - just a day away from your door. Circle Reader Service # 250.

ORDER NOW AND GET A FREE ISSUE OF MACHOME JOURNAL!

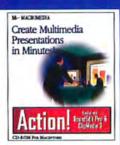
# 1-800-896-0009 Prices good thru Dec. 15, 1993.

All the latest products All major credit cards **Ouick & easy to order Ask about Money Back** 

**Guarantees** 



for great prices and service.

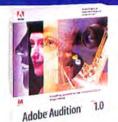


### **Action! Bundle**

This bundle is all you need to create professional-quality, high-impact business presentations. It includes Action! multimedia presentation software, SoundEdit Pro, and Perfect Presentations ClipMedia 3. Action! is a revolutionary application that lets you create dazzling multimedia presentations with sound, motion, text, graphics, animation, video, and interactivity. Assemble your presentation scene by scene using built-in drawing and text tools, or import from other programs. Sixty ready-to-use templates are included. Perfect Presentations contains nearly 1000 digitized videos, graphics, photos, animations, and sounds to Jazz up your work — all royalty-free! Then use SoundEdit Pro, the leading product of its kind, to create a fantastic sound track.

Minimum requirements: Mac IIci, 4MB RAM, System 7, color monitor, CD-ROM drive,

7048 Action! Bundle



Limited editions of two of the industry's leading graphics manipulation programs are now together in one package. Together Adobe Photoshop and Adobe Premiere give you everything you need to enter the world of digital image editing. Start with scanned photos or your own original footage. Or choose from 700 stock photos and dozens of QuickTime movie clips included on the bonus CD-ROM. With Adobe Photoshop 2.5 LE, you can add or correct color with a few simple keystrokes, execute delicate retouching, and even import filmstrips from Adobe Premiere LE and edit individual frames. With Adobe Premiere LE 2.1, you can combine video, audio, animation, still images, and graphics, then produce your

Minimum requirements: Premiere - Mac II, 4MB available RAM, System 6.0.7. Photoshop - Mac II, 2MB available RAM.

6989 Adobe Audition

QuickTime movie.

### **Movie Movie**

Display, capture, and play back full-motion QuickTime movies with sound on your Mac. Colorful full-motion video helps your presentation communicate more effectively, and this is a great value for synchronized video and audio capture. Movie Movie displays video at the standard 30 frames per second and captures NTSC composite video input from ordinary video cameras, VCRs, or laserdisc players. It digitizes the video, automatically synchronizes the audio, and creates a digital file you can see and manipulate right on your screen. Movie Movie samples 8-bit audio at 22kHz and gives you manual control over the recording level. Then you can edit your footage with included ScreenEdit software.

Minimum requirements: System 7, QuickTime 1.5, 16-bit graphics card recommended Sigma Design

6986 Movie Movie

6987 Movie Movie w/VideoShop .....

\$10 OFF.

#### Transparent Language: Spanish 2.0

#### The easiest, most enjoyable way to learn a foreign language.

Learn a language by reading interesting literature. It's true. You'll learn by reading and understanding rather than by drill and memorization. Just place your cursor on any text you don't understand and instantly see the meaning, grammar, and more. You read real literature that grabs and holds your attention, all in the original Spanish. You also hear the stories on the included audio cassettes. New to version 2.0 are word review lists and the VOCABULOUS! game. Also available in French, German, Italian, or Latin.

Minimum requirements: Mac 512K, System 6.0.

Transparent Language

4864 Transparent Language: Spanish 2.0

#### Kai's Power Tools 2.0

Kai's Power Tools version 2.0 has been totally redesigned to boost your creative productivity. Software enhancements include an advanced color picker, intelligent keypad control, new transparency controls, real-time previews, and more. These image generators and filters deliver truly superb effects. Apply effects to images from within Adobe Photoshop, Fractal Design Painter, and other programs.

Minimum requirements: Any Mac with coprocessor, 4MB RAM, System 6.0.5. HSC Software

6878 Kai's Power Tools 2.0 - U.S. and Canadian customers only.

Enjoy all the benefits of a Bernoulli with the flexibility to read and write to disks of many capacities – 35MB, 65MB, 105MB, and 150MB. And the Multidisk 150 is downward compatible so it reads and writes to 90MB disks and reads 44MB disks. You get unlimited storage expandability, lock-away security, and transportability. The patented Bernoulli design resists head crashes and the sturdy control of the contro disks can survive a drop of eight feet! This Bernoulli is internally terminated with a single external SCSI connector, so it must be installed as the last device on your SCSI chain.

10MEGA

5609 Bernoulli MacTransportable Multidisk 150 🍪







#### Bullseye TrueType Font Collection

Running low on inspirational fonts? With over 330 new typefaces, the Bullseye TrueType Font Collection can add typographical zest to anything from business letters to 3D flying logos. At under twenty five cents per font, this package is a serious bargain. And it's all on disks so you don't need a CD-ROM drive. Minimum requirements: System 7. II Productive

6972 Bullseye TrueType Font Collection

**Call for a FREE** catalog with many more products.



Prices good thru Dec. 15, 1993

1-800-896-0009 MacsPlace

The Place to call first

for great prices and service





### Design Your Own Railroad

All aboard... Now you can design precision, to scale (HO, N, O, Z, S, G) layouts, right on your Mac. With Design Your Own Railroad, you control all the elements of model railroading - coupling, uncoupling, switching, bridges, crossings, everything. Once you've got a layout, climb aboard the train you created and barrel down the tracks. Minimum requirements: Mac Plus, 1MB RAM, System 6.0.7.

Abracadata

6428 Design Your Own Railroad





### Spaceway 2000

Test your intergalactic combat driving skills! Spaceway 2000 is a high-speed. alien-infested freeway. Watch out for all the bad guys like Blockers who follow your movements like bad mimes and keep you from passing, Use laser cannons, automatic shields, and more to battle your way through. Minimum requirements: Mac Plus (LC recommended), 2MB RAM, System 6.0.5, hard drive, 4MB RAM for color. Casady & Greene

6906 Spaceway 2000 5956 Crystal Crazy \$36. 6907 ZOA \$36.



### Sailing Master

Don your sailing cap and deck shoes as you race against your Mac and learn how to sail without getting wet. Sail against as many as three boats, and learn about wind shifts. Course options, skill levels, hazards, and other features offer a challenge for land lubbers and old salts alike, "Sailing Master is a lot of fun - well worth the price," says Macworld. (Nov. '93) Minimum requirements: Mac 512K. Starboard Software

5318 Sailing Master





Plan your spring garden now with FLOWERscape! View its growth in color, as it would appear in any month of the year. Through its easy-to-use interface, FLOWERscape helps you choose what to grow and where to grow it. Just enter soil, sun, and geographic information, and the program recommends suitable plants. Includes FREE pH test strips. Minimum requirements: Any Mac with a

256-color monitor and high-density floppy drive, 1.5MB RAM, System 6.0.4, 8.5MB hard disk space. Voudette

6701 FLOWERscape 6702 FLOWERscape-Windows ...\$49.



### Axis The Gamecheater

It's a win-win situation with The Gamecheater, the world's first game utility. Your weaponry is superior and you are immortal. Axis The Gamecheater lets vou override predefined game functions with assignable hot keys. Add time, lives, money, extra ammo or fuel, and jump to different play levels in your favorite games - whatever it takes to win. Minimum requirements: Mac Plus, 1MB RAM, System 6.0.7.

6896 Axis The Gamecheater



### ReadySetGrow!

Waaaa! Why didn't someone come up with this sooner? It's a fun, interactive guide for expecting parents that covers all facets of pregnancy and early childhood. Animation, illustrations, sound effects, and text combine to create a thorough reference. ReadySetGrow! also includes sections for a family profile, medical records, calendar, and address book to record the history of your child's beginnings. Minimum requirements: Any Mac with 1MB RAM (2MB RAM recommended), System 6.0.5, a hard drive. Atlantis

6991 ReadySetGrow! 6992 ReadySetGrow! Windows ...\$41.



### F/A-18 Hornet

Get ready for the ride of your life in the cockpit of an F/A-18 Hornet. Each of these 28 missions takes you deep into a new conflict in the Middle East, Incredible fast and fluid graphics, leading edge 3D technology, and stunning custom sound will have you sweating through the heat of each battle. Battle with or against up to three other players on a network. Minimum requirements: Mac SE/30, 3MB RAM, System 6.0, 8-bit color. Graphic Simulations Corporation

**Gus Goes** 





Join Gus, the hippest, most lovable dog ever in this multimedia learning experience. Search Cybertown for the elusive Cyberbuds, three intriguing friends your kids will love. This CD ROM is completely interactive and has original songs, full-motion video, and captivating graphics and animation. Kids eight and under learn about counting, Minimum requirements: Any Mac supporting 256 colors, 4MB RAM, System 6.0.7, a CD-ROM

Modern Media 7014 Gus Goes to Cybertown CD-ROM



Save the galaxy from an evil alien invasion! Sound familiar? Well, you've never seen it like this. Bright, impressive, 3D graphics and equally lush sound help make Space Madness "state-of-the-art shoot-'em-up in the grand tradition," says Inside Mac Games. In fact, they gave it a four out of five rating. Unlike other games of this type, everything interacts with everything else. So enemy ships can shoot each other, and when you blast an enemy base at close range, you may find your ship damaged. The ultra-smooth 60 frames-per-second animation keeps the action fast, and lots of variety will keep you hooked.

Minimum requirements: 2.5MB RAM, System 6.0.7, 2MB hard drive space, 8-bit color or grayscale. High Risk Ventures

6490 Space Madness



6502 F/A-18 Hornet





### Pathways into Darkness

Think fast! You'll have to if you're going to keep up with continuous-motion, 3D, texture-mapped graphics and defeat an alien demon. As a member of a secret special forces team, you've been dropped by parachute near the site of a pre-historic asteroid impact. Separated from your team and unable to locate them, you assume the worst, and embark on your mission to save the world, alone. You'll need your wits, not just firepower, to get by many of the obstacles. Explore miles of catacombs through a smooth-scrolling, first-person interface. Beautifully rendered graphics and active panning stereo sound combine to make Pathways Into Darkness the closest thing to virtual reality without a helmet. Minimum requirements: Any 256 or 8-bit color Mac, 2MB RAM, System 6.0.5,

5MB hard disk space. Bungie Software

6639 Pathways into Darkness

# TacsPlace 1-800-896-0009 Money Back Guarantee CD-ROM Product Works with your Power

Prices good thru Dec. 15, 1993. 🛮 😵 Works with your PowerBook

for great prices and service. The Place to call first





### PowerBook Compan

PowerBook Companion contains a wealth of practical solutions for the most common and difficult issues facing PowerBook users. This Second Edition has been updated to cover all the latest PowerBook models including the Duos and color PowerBooks. Topics include set up, software installation, getting connected, care and maintenance, hardware upgrades, peripherals, and components. And within each topic, the differences between portable and desktop computing are addressed. A disk containing a bunch of handy PowerBook utilities is also included. You'll get applications for battery management, cursor control, and file synchronization. "The computer book of the year" "—MacHeer computer book of the year." - MacUser.

Addison-Wesley
7058 PowerBook Companion



### **Rae Assist**

Rae Assist has everything you need to successfully manage your contacts, schedule, to do's, projects, notes, pictures, and other personal and business information. All your information is in one convenient and highly-integrated application. Freely tag and link information for easy retrieval. For example, you could list or find all entries that are tagged "clients" or "suppliers." Tags are fully customizable, and linking files keeps you organized. A built-in smart assistant helps you save time. Easily enter and import your data once, and start using it in multiple ways. Quickly find, sort, and print all your information. It was designed with PowerBook users in mind. MacUser called it "The Super-PIM."

Minimum requirements: I.C, 2MB RAM (2.5MB RAM recommended), System 6.0.7, 5MB hard disk space.

Rae Technology, Inc.

6624 Rae Assist





### ClarisWorks 2.0 with Ouicken 4

Until Jan. 31, 1994, get Quicken 4 FREE! It's the fastest, easiest way to organize personal and small business finances. ClarisWorks offers you a single application where you can seamlessly combine text, graphics, spreadsheets, and charts all within the same page on the same screen. It's perfect for small businesses, home offices, corporate managers, and notebook users. Minimum requirements: Mac Plus, 2MB RAM, System 6.0.4.

6144 ClarisWorks 2.0 with Quicken 4







Expand the capabilities of your PowerBook Duo with this light weight, low-cost, extremely small docking bar. It lets you easily connect your Duo to ADB devices like a mouse and SCSI devices like a SyQuest or CD-ROM drive. And you can use the same SCSI cable to connect your Duo to another Mac, and have it appear as another hard drive on the other Mac's desktop. Newer Technology

 Many products carry a money back gurarantee (MBG). Defective software is replaced immediately with like Items. Defective bardware items repaired or replaced

·We reserve the right to revoke money back

Call 406-758-8000 for our international sales line.
 Fax your order to 406-758-8080 for

6904 SCSI MicroDock

additional shipments

guarantee privileges

International Orders





### System 7 Pro

System 7 Pro gives you System 7 with new PowerTalk, plus AppleScript and QuickTime software in one package, PowerTalk allows you to correspond and work with others using built-in mail and collaboration services. Use your modem or an AppleTalk network to send messages of any type – including text, images, video, and sound – to other System 7 Pro users. AppleScript is a system level "macro" language that lets you use pre-scripted automated tasks with the click of a button. With AppleScript, you can use your favorite off-the-shelf applications to create powerful, cost-effective solutions. QuickTime is Apple's industry-leading multimedia technology. It lets you view, copy, and paste video animations, images, and sounds as easily as you manipulate text.

Minimum requirements: 4MB RAM (SMB recommended), a hard drive, Apple SuperDrive floppy drive. Apple 6797 System 7 Pro

5255 System 7 Personal Upgrade Kit ...... . \$54.



### **How to Order**

•Gall 1-600-896-0009 anywhere in the USA or Canada. Call 406-758-8000 for international orders. •Fax your order to 1-800-881-3090. International fax orders: 406-758-8080

For electronic orders, use Compuserre (76635,660), GEnie (MACSPLACE), or America Online (MacsPlace), -Mac's Place is open from 6 a.m. to 10 p.m. M-F Mountain Time, and 7 a.m. to 6 p.m. on Sat., and 8 a.m. to 5 p.m. on Sun. -No sales tax except OH residents add 6% to total, legislate tax except OH residents add 6% to total,

including shipping.

VISA, MasterCard, Discover Card, American Express,
OPTIMA, checks, and P.O.s glady accepted.

Your credit card is never charged until your product ships
international orders will be charged full

All In stock items ship sameday, (barring system failure, etc.) to your doorstep, for just \$3 (USA) via Airborne Express overnight service. Rural locations may require an additional day for delivery. Areas not serviced by Airborne Express will be sent via Priority Mail.

 Our \$3 shipping charge includes insurance at no extra charge. •When a partial order is shipped, we pay freight on

shipping rates plus insurance.

Mac's Place **100 Financial Drive** Kalispell, MT 59901

Like all expects of Mac's Place operation, this ad was entirely assembled using Macintosh technology. No paste up. No stripping. No Existing, 201903 Mac's Place, Inc. Mac's Place and the Mac's Place logo are trademarks or registered trademarks of Mac's Place, the. All other marks remain the property of their respective companies. All prices and promotions are subject to change without notice. Not responsible for typographical errors.



\$10 OFF. SPECIAL PROMO

### Square One

Square One stores all of your favorite files in an easy-to-use icon palette. To access a file, just double click on its icon. Group several files into a single work-group icon and open them all at once. No more time wasted rummaging through your hard drive, and no goofy hierarchical menus. Just point and click with Square One. Minimum requirements: Mac Plus, 2MB RAM, System 7.

Binary Software 7027 Square One





### **Now Contact**

New Now Contact is a complete contact manager that fully integrates with Now Up-to-Date to create the ultimate personal information manager. It's designed so efficiently that it launches, finds, and sorts instantly. So you won't be waiting for information when you need it. And it stores lots of contacts in a small amount of disk space. Now Contact also includes a full-featured word processor. Minimum requirements: Mac Plus, 2MB RAM, System 7, a hard drive.

Now Software 6919 Now Contact

# The Intelligent Choice

# 800-243-4IMS







DuoMate 16sc	\$519
20/20C	\$1515
2075RO	\$2489
PaintBoard Li	\$799
PaintBoard Turbo	\$1109
24STV	\$739
Media Time	\$1479



	w/o FPU	w/ FPU
33MHz PowerCache	\$335	\$419
40MHz PowerCache	\$499	\$585
50MHz PowerCache	\$625	\$735
20MHz Turbo 040i		\$699
25MHz Turbo 040i/040	\$749	\$919
33MHz Turbo 040i/040	\$835	\$1085
40MHz Turbo 040		9992



6" x 8" ArtZ ADB Table	et							\$299
6" x 9" Standard								\$462
12" x 12" Standard		+	+		•			\$660
12" x 18" Standard			á			è		\$990
12" x 18" Electrostatic		Ĭ.						\$1059





FWE	HDT PE softwa	are includ	ed FREE!	
<b>ELS Series</b>	Access	Int .	Ext.	
85MB	17ms	\$165	\$225	
127MB	17ms	\$185	\$245	
170MB	17ms	\$189	\$249	
LPS Series				
240MB	10ms	\$255	\$315	
525MB	10ms	\$615	\$675	
<b>PRO Series</b>	3			
425MB	9ms	\$499	\$559	
700MB	10ms	\$779	\$839	
1.0GB	10ms	\$899	\$959	
1.2GB	10ms	\$999	\$1059	
GO•Series				
80MB	17ms	\$209	\$309	
120MB	17ms	\$265	\$365	
160MB	17ms	\$275	\$379	

Warranty LPS-2 yrs./PRO-5 yrs./GO-1 yr.

SyQuest, Fujitsu, Micropolis, Maxtor drives also available. Please call for a competitive quote.

### **EXTERNAL DRIVE ENCLOSURES**

Premium Housing	\$99
<ul> <li>Standard Housing</li> </ul>	\$89
• Full Height Housing	\$145
Mini Housing	\$99



### FOR THE POWERBOOK

SCSI - Gear . . . . \$29 Adapts standard SCSI cable to PowerBooks HDI-30 SCSI

connector. Works on all PowerBooks including 100 and Duo models.



IMS proudly represents:

SUPERMAC. radus MASANTÉ

AGFA

Maxtor 1



1652 Deere Avenue, Irvine, CA 92714 Int. (714) 851-3092 24 hour FAX (714) 851-1516 AppleLink: IMS.TUSTIN

Prices and product availability subject to change without notice. Not responsible for typographical errors. University and corporate P.O.'s accepted. All returned product must have RMA authorization number, subject to 15% restocking fee. Apple, the Apple logo, and Macintosh are registered trademarks of Apple Computer, Inc. All brand names and product names are trademarks or registered trademarks of their respective owners.







### Ergo-View 17 \$1069

Ergo-View 14										\$399
Power Portrait								,	,	\$549
Movie Movie	i	á								\$299



w/ FPU w/cache

1300 Series - for SE 25MHz . . . . . \$199 . . \$299 40MHz . . . . . . \$289 . . \$379 . . \$99

2300 Series - for Classic 25MHz . . . . . . \$199 . . \$299 40MHz . . . . . . \$289 . . \$379 . . \$99 4300 Series - for LC,LC II,Performa 400

& Color Classic

PowerCharge Single

40MHz . . . . . . \$379 . . \$505 6400 Series - for Ilsi,Ilci,Ilvi,Ilvx & Performa 600

33MHz . . . . . . . . . . . . . . . . \$999 40MHz . . . . . . . . . . . . . . . . \$1210 DataLink PB \$469 Plus Drive \$299



\$69

Umax scanners bundled with Adobe PhotoShop.

UC630 LE/Full 300 x 600 res. \$789/959 UC840 400 x 800 res. \$1248

Agfa Arcus Plus 600 x 1200 res.

# Our Prices Have the



RasterOps 20/20C 20" Multimode color display. 4 resolutions up to 1152x870.



Sigma Designs 14" Color Trinitron Multi-resolution Trinitron display. 25mm dot pitch





Focus 44 MB Removable Drive Includes Free Cartridge. Speedy 20 ms access time

### **Displays & Cards**



VIDEO CARDS PaintBoard Turbo 1149 New 7" 24-bit accel, color for screens up

New 7" 24-bit accel to 20" at 1024x768 PaintBoard Turbo XL 1449 New 7" 24-bit accel. color for screens up New 7" 24-bit accel. to 21" at 1152x870

**DUO DOCKS** 

Duo Mate 8 41 8-bit/21" video out, HD 1-20, floppy, ADP, stereo

Duo Mate 16SC 16-bit/21" video out, SCSI, HD 1-20, floppy, ADP, stereo

MULTI MEDIA 24XLTV/24MXTV/24STV 2599/1649/749 MoviePak

full saven, real time compress/decompress. MoviePak with Adobe Premier 2.01129 Media Time 1489

16-bit stereo, record & playback Video Expander 549 diting Aces Suite Call Complete solution, includes MoviePak w/Premiere, Media Time & Expander II Editing Aces Suite

E-MACHINES

E-Machines T16 II/T20 XL Call/2579 E-Machines Futura SX 24-bit card 399 E-Machines NEW Ultura LX





### **Drives & Storage**



CD ROm Ext. multisession



flying logo in a snap. Save \$200, reg \$695.

Ask about special RasterOps Multimedia bundles

$y + h + h + n + \epsilon + m + n + 1$	
Focus 105 MB Removable Dri Includes free car Lightening fas 1 access time.	ive ridge.
Drives & Storage	
88 MB Removable Drive	449
88/44 Removable Drive	499
128 MB Optical Drive	1099
650 MB Optical Drive	Call
Multisession CD-ROM	499
EtherLan Print Now connect 2 printers to Ethernetwork, introductory price.	
Networking	10.24
Nubus Thick/Thin/10BT	149
Nubus Thick/10BT	99
LC Thin only LC 10BT only LC Thin/10BT	99
LC Thin/10RT	149
EtherLan Print Plus (6 printers)	399
Tranceivers Thin or Thick	99
Tranceivers Thin & Thick	119
CPU Accelerators	
Classic (030) 40MHZ	479
LC (040) 25MHZ	799
SE/30 (040) 25 MHZ	700

### We Fix Macs

We can repair your new or used Mac. Call us for details: (312) 871-4095



### International Orders Welcomed - 24hr Fax 312-871-4556

- 220v Products In-stock
- · Low-cost International Shipping Rates
- · Resellers Welcomed

IIci (040) 25 MHZ

· International Orders Shipped Daily

# **Competition Seeing Red!**





GCC PLPII Printer 300 dpi laser printer with free ATM.



Avec Colour 2400 Scanner 600 dpicolor scanner, interpulses up to 2400 x 2400 dpi, w/ full Photoshop

# Macintosh



Apple Centris 610 4MBHD, 80MBHD. 610 with 14" color display & keyboard \$1999

### **Printers**







Image Enhancement Technology, 35 fonts Newgen Turbo PS/880p 800 dpi 2099 Newgen Turbo PS/1200B

### Modems



74

### Networking

Hayes ACCURA 24



Call for prices on complete line.



### Scanners



UMAX UC630 LE 889 with PhotoShop LE UMAX UC630 with full PhotoShop 1089 UMAX 1260 1200dpi Color Scanner with full PhotoShop



Avec Colour 4800 800dpi 1299 Interpulates up to 4800 x 4800 with full Photoshop 2,5



New RELI 9600 DPI Color Scanner The most advanced scanner technology available Cold Scan allows for encapsulated, dust-free, incredibly accurate scanning. Featuring:

- Free Transparency Adapter!
   Free Adobe Photoshop 2.5
- 24-bit Color
   1 Pass
   9600 x 9600 dpi
   Self Calibrating
   Fastest scanner available today!

### New RELI 2400 DPI Color Scanner

- · 2400 x 2400 dpi
- Free Adobe Photoshop 2.5
- Cold Scan Technology
- 24-bit Color
   1 Pass
   Blazing Speed

# **Macs**

Apple Centris 650 Color System 8 MB ŘAM/ 80HD, w/Etherner, FPU, 16" Trinitron Display, 24-bit accelerated color card, Apple Ergo ext. Keyboard & System 7. \$4099 Add 14.4 + FAX 14.4

modem only \$269. 660 AV Color System 3900

8 MB RAM/230HD, w/speech recognition, video input plus, 16" Trintron Display, 24-bit accelerated color card, Apple ext. Keyboard &System 7. Add GCC PLPII, 300 dpi Laser Printer for only

\$6699 Quadra 800 Color System 8 MB RAM/230HD, w/20" Trintron Display, Turbo XI. 24-bit accelerated color card, Apple ext. Keyboard &System 7. Add Newgen Turbo PS/660p 600 dpi, RISC PostScript, Image Enhancement Technology Laser Printer for only

Call for pricing on New Quadras and custom configurations.





MacNews Hours: M-TH 8am-7pm; Fri til 6pm (CT) Sat 10am-2pm



24hr Fax 312-871-4556 • International Orders Welcomed

Appler Mac are trademarks of Apple Computer. Prices subject to change without notice. All returned orders may be subject to a minimum15% restocking fee plus return shipping. Call for manufacturers' RMA before returning. All warranties on Macintosh or Apple brand products sold by MacNews will be honored by MacNews or its authorized agents only. All other manufacturers warranties still apply.

Circle 172 on reader service card

MACWORLD

December 1993



### **NEW! Laser Printers from GCC**

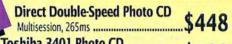






GCC WRITE MOVE II Portable, battery powered, 360 DPI	\$599
GCC PLP II Personal laser printer 300 DPI	
GCC BLP ELITE Affordable business laser printer, 300 DPI	\$879
GCC BLP ECLIPSE 4 High-performance laser printer, 300 DPI	\$1099
GCC BLP ECLIPSE 8 High-performance laser printer, 300 DPI	\$1799
GCC SELECT PRESS 600 11X17, High-performance, 600 DPI	\$4499
GCC SELECT PRESS 600 PRO 11X17, High-performance, 600 DPI	\$5699
GCC COLOR TONE, High-performance, 300 DPI Color Printer	\$8599

### CD ROM Drive Specials









MACWORLD'S

Looking for CD ROM Titles? Call us for great deals on bundled titles when you buy one of our CD ROM drives



## HARD DRIVE HEADQUARTERS!

Fujitsu Dri	ves Internal	External
520 MB 3.5*	\$598	\$678
1.1 Gig 3.5*	\$958	\$1018
2.4 Gig 5.25'	\$1698	\$1798

C340 MB	3.5*CallCall
C 540 MB	3.5*\$648\$708
C 1.3 Gia	3.5*\$1148\$1248

### **SyQuest Drives**

44 MB & free cartridge .....\$318 88C MB & free cartridge ......\$498 105 MB & free cartridge ......\$598

# Conner Drives Internal .... External

C 85 MB 3.5".....\$178.....\$238 C 170 MB 3.5".....\$198.....\$258

### Seagate Drives Internal. External 1.2 Gig 3.5' .....\$918.....\$978

1.9 Gig Barracuda 3.5" .\$1598.....\$1658 2.4 Gig 3.25" .....\$1748.....\$1798

2.4 Gig Barracuda 3.5" .\$2098.....\$2158

2.1 Gig Wren 9 5.25 \$1438 .....\$1538 1.6 Gig Elite 1 5.25" .\$1698.....\$1798

2.4 Gig Elite 2 5.25" .\$1768.....\$1868

3.4 Gig Elite 3 5.25" .\$2248.....\$2348

## or Fax us at: 312-664-9784 Hours: 8:30 - 8:00 CST, Saturdays 10:00 - 4:00 Technical Support (8:30-5:00) 800-759-21-33

## **DAT & Optical Solutions**

### Optical Drives from NuDesign

128 MB 3.5" Series II fast, 32ms access, FWB softw	rare, free cartridge	\$798
128 MB 3.5" Series V fast, 32ms access, FWB softwa		
128 MB 3.5" Series VII fast, 30ms access, FWB so		
128 MB 3.5" Fujitsu DynaMo free cartridge		\$928
256 MB 3.5" Series X fast, fast, 30ms access, read		
DAT Drives from NuDesign	w/Retrospect	w/Retrospect Remote
2.1 Gig Includes free 90m DAT		
5.0 Gig Includes free 90m DAT		

### Fujitsu DynaMo 128 Optical Drive

Fastest 3.5" re-writable optical. For reading and accessing your files pronto, Fujitsu drives deliver un rivaled 30 Msec data access and 1.09 MB/sec transfer times - this is the fastest 3.5" optical on the market today. We've done plenty of testing right here

Fujitsu DynaMo 128MB Optical Drive ....928.00



### Color & Greyscale Scanners from Nikon



UMAX UC-630 With PhotoShop LE 2.5	\$898.00
UMAX UC-630 With PhotoShop 2.5	
UMAX UC-840 With PhotoShop 2.5	\$1298.00
UMAX UC-1260 With PhotoShop 2.5	\$1898.00
UMAX UG-630LE Greyscale, upgradable to color	\$698.00
UMAX Scan Office Greyscale Scanner With Typereader OCR Software, Ofoto and Publish It, -An incredible OCR package with over \$1000 in software alone,	\$898.00
NIKON CoolScan Super compact, Fast, 35mm color scanner Ex	ternal \$2298.00

### **Introducing the NuDesign Color Printer!** An unprecedented low-cost, high quality color printer!

### **NuDesign Key Points**

- · Thermal Transfer printing
- · Print high-quality Color output at a low cost per page.
- · Brighter, richer, more vibrant colors than other color printing technologies.
- · Proofing quality output

NuDesign Color Printer (MAC) \$998

\$898 NuDesign Color Printer (PC)





60 East Chestnut - 145, Chicago, IL 60611

No fee for Visa or Mastercard, Amex accepted, COD, Telecheck Approved Checks, Gov., Corp., Univ., P.O.s welcome. All new drives, preformatted with latest stable system software. Factory warranty. Bracket, cables and software included. 30 Day Money back Guarantee covers drive products only. Return Authorization number required for returns. Prices, terms and availability subject to change without notice.

**Power Charger** Monitors Accelerators **Printers** 



# BTI's New PowerChargerPlus MC-SC100

## \$60.00 limited time upgrade Offer!

If you currently own a BTI PowerCharger, or a AE Battery Charger/Conditioner, a LED SBC-1, or a LED BC-4070 charger, you are eligible for an upgrade for only \$60.00.

### PowerCharger Plus / MC-SC 100

- Fast Charging CMOS controlled recharging in approximately 1.5 hrs.
- Deep Discharge Conditions both original Apple and BTI batteries
   Works with Apple original adaptor
- · Overcharge prevention safety circuits
- · Comes with AC adaptor and cigarette lighter adaptor
- compatible with all PowerBooks (except Duo&100)
- · Light weight, portable design

Call Toll Free 800 982 8284

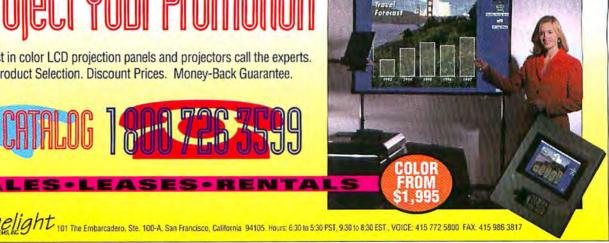
BATTERY TECHNOLOGY, INC. 5700 Bandini Blvd., Commerce, CA 90040 Tel: (213)728 7874 Fax: (213)728 7996



CIRCLE 509 ON READER SERVICE CARD

For the Latest in color LCD projection panels and projectors call the experts. Widest Product Selection. Discount Prices. Money-Back Guarantee.





CIRCLE 578 ON READER SERVICE CARD

### ECLIPSE ACCELERATE YOUR **POWERBOOK**

"Faster speed... for a suprisingly low price." - MacUser Magazine, August 1993



The F/25 speeds your PowerBook 140 to the performance of a 170! The F/25 upgrades the CPU from 16 MHz to 25 MHz. and includes installation of a 25 MHz math coprocessor.



The F/33 speeds your PowerBook 160 to the performance of a 180! The F/33 upgrades the CPU from 25 MHz to 33 MHz. and includes installation of a 33 MHz math coprocessor.

 Motorola 68882 Math Coprocessor
 MacWEEK magazine's studies (Feb. 22, 1993)
 show that a math coprocessor improves Exel

 FREE roundtrip 2-day air shipping show that a math coprocessor improves Excel by as much as as 300%

- One year warranty

5515 DOYLE STREET Nº 1 EMERYVILLE, CA 94608 510.547.6101 510.547.6104 FAX CIRCLE 576 ON READER SERVICE CARD



The Printer Works has been bringing you the best deals on PostScript printers for years—but this is our best deal ever!

- Fast 32-bit AMD 29000 RISC processor
- MicroSoft TrueImage PostScript inter-preter with 35 TrueType fonts
- Compatible with both Adobe Type 1 and TrueType fonts

CA PRINTER

WORKS

Since 1982

The Ideal Workhorse 6 ppm Laser Printer for Macs and PCs!



FREE UPS SHIPPING! (Continental US ground)

- PC and Macintosh compatible— it can connect to both simultaneously!
- AppleTalk, Centronics Parallel and RS-232 Serial Interfaces
- Reliable 6ppm engine; includes 8000-page toner cartridge!
- 1 Year Warranty, 30-Day Money-back Guarantee, Free Technical Support



800-225-6116



CIRCLE 483 ON READER SERVICE CARD



**Business Bar Code CD ROM** Educational

1-800-767-0035 1-703-273-5600 Fax: 1-703-273-386

> Your Competitive Edge in the New International Marketplace.

lobalink

9302 Lee Highway Fairfax, VA 22031

Professional Professional

Now Your Mac Can Speak Business in 5 Languages

Full Sentence Accuracy Word Processor Compatible Multi-User · Multiple Platform Options

**PC/MS Dos** Mac0s

Subject **Dictionaries** for Maximum Accuracy.

> Spanish French • German Russian • English

CIRCLE 503 ON READER SERVICE CARD

Change Text to Bar Code ..in Seconds!



 Creating precision bar codes is as easy as using a font!

- ► Choose: UPC/EAN/ISBN · Code 39 · Interleaved 2 of 5 · POSTNET/FIM
- Bar code fonts compatible with virtually any Macintosh®application.
- 90-day money-back guarantee.
- Discount when bundled with CodeScan bar code reader!

"This is the best product of its kind, and it's reasonably priced too."

-MacUser review 👯 🐧 🤱 🌿

It's FREE! Absolutely, positively, totally FREE! No strings! No commitment! No shipping! No handling! No nothing! FREE! FREE! FREE! FREE!

It's your FREE introductory issue of

The Multimedia Magazine on CD ROM

This is not a misprint. It's an honest-to-gosh offer for a FREE introductory issue of NautilusCD, The Multimedia Magazine on CD ROM.

NautilusCD is the premier showcase of multimedia creativity. Watch your screen flash to life with moving pictures...play music or sing for you...dazzle your eyes with 3-D graphics...and even talk to you! It's an experience not to be missed. So call for your

To order call toll-free 1-800-448-2323

One CD ROM per inoners: International callers 1 614 766-3165

NautilusCD The Multimedia Magazine • 7001 Discovery Boulevard, Dublin, Obio 43017

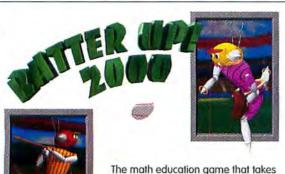
CIRCLE 590 ON READER SERVICE CARD

Call the Bar Code Experts

Bear Rock 800 232-7625

4140 Mother Lode Dr., Ste. 100 - Shingle Springs, CA 95682 916 672-0244 · Facsimile 916 672-1103

CIRCLE 589 ON READER SERVICE CARD



America's favorite pasttime into the future. Practice math skills while playing baseball against rocket armed robot pitchers and radar using robot outfielders. Ages 5-12

A collection of seven classic games with dinosaur twists for ages 5 and up:

**Brachiosaurus Brunch** HangCaveman Dino Wars Dino Rocks SoliDinoTaire Dino Capture Pick Up Bones





30 day money back guarantee • Requires color Macintosh

Discovery Entertainment Software • 10689 Maplewood Street, Suite D • Cupertino CA 95014 • 1-800-217-4066

**On-Line Services** Multimedia **Utilities/Electronic Books** Music System Upgrade



## **Explore the Internet-FREE!**

DELPHI, a leading international online service, now offers full access to the Internet. You can explore this incredible electronic network with no risk. You get 5 hours of evening/weekend access to try it out for free!

Use electronic mail to exchange messages with over 10 million people throughout the world. Download programs and files using "FTP," connect in real-time to other networks using "Telnet," and participate in "Usenet Newsgroups" the world's largest bulletin board with

over 3500 topics. If you're not familiar with these terms, don't worry; DELPHI has expert online assistants and a large collection of help files, books, and other resources to help you get started.

After the free trial you can choose from wo low-cost membership plans. With rates as low as S1 per hour, no other online service offers so much for so little.

Interpreter & Williles



### 5-Hour Free Trial!

Dal by modem, 1-800-365-4636\* Press Return once or twice At Username, enter JOINDELPHI At Password, enter MCW3X4

Questions? Call 1-800-695-4005 (voice)

\*Current Internet users can Telhet to delphi com instead.

CIRCLE 575 ON READER SERVICE CARD

Complete details are provided during the toll-free registration

## DIGITAL

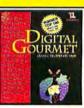




DeskWriter, Laser LS, StyleWriter II, Apple Color. Supports Quark, Illustrator, Freehand, PageMaker, EPS clip art, color PostScript & TrueType. Convert any file into PICT, TIFF or EPS.

T-Script \$145, Basic \$85, Deluxe \$495





Award winning electronic cookbook with 1000 recipes. Add as many recipes as you wish, scale serving size. Print recipe, shopping

lists, nutritional information and take it to the kitchen. Extensive search options. Deluxe includes additional 5000 recipes from around the world, also Digital Bartender with 500 alcoholic and nonalcoholic drinks. Bon Appétit! Digital Gourmet \$49, DG Deluxe \$145

Products available through major mail order companies.

TeleTypesetting 311 Harvard St., Brookline, MA 02146 (617) 734-9700, Fax: (617) 734-3974

CIRCLE 591 ON READER SERVICE CARD

CIRCLE 592 ON READER SERVICE CARD



**Product Shopping** made easy!

### ${\sf FlexCam}$

FlexCam is the first 'plug and use' integrated color video camera and microphone system for desktop video.

FlexCam is a 1/3", hi-resolution. color CCD camera and two microphones, mounted on a slender, 18-inch flexible wand, easily adjustable for precise camera positioning. Compatible with Apple AV Macs, and all major digitizing boards.

or more information. contact:

5270 West 84th Street Minneapolis, MN 55437 Phone: (612) 897-1995 Fax: (612) 897-3597

CIRCLE 499 ON READER SERVICE CARD



CIRCLE 595 ON READER SERVICE CARD

DOUBLE THE SIMM CAPACITY OF YOUR MAC II, IIx, IIcx, IIci, IIsi, IIvx OR PERFORMA 600 WITH THE MicroMac SIMMdoubler II

- Increase your memory up to 64MB Works with standard TMB or 4MB SIMMs.
- Reuse existing SIMMs The SIMMdoubler adds additional SIMM slots, sa you can use all the memory you currently have.
  Use standard SIMMs
- The circuitry on the SIMMdoubler eliminates the need for special PAL SIMMs for the Moc II and IIx.
- Costly ROM exchange not required
  Owners of the Moc II no longer need a ROM exchange to go beyond 8MB of memory.
- Customize your memory configuration The SIMMdoubler allows you to build 1.5MB, 2MB, 4MB, 5MB and 8MB SIMMs by combining 512KB, 1MB and 4MB SIMMs in various
- configurations.
   Easy 10 min. installation



27121 Aliso Creek Rd, Suite 125, Aliso Viejo, CA92656-3364 CIRCLE 579 ON READER SERVICE CARD



Each SIMMdoubler II board plugs into one SIMM socket of your Mac logic board and provides two SIMM sockets. This effectively doubles your SIMM capacity and is the most costeffective solution to add to your existing memory.

9

ঠ



**Hardware** 

**Bar Code** 

# **Macintosh Bar Code Headquarters**

### **BAR CODE READERS**

· Top rated by Independent review!



- 1 or 2 scanners per reader
- . For all Macintosh models.
- · European Keyboards Supported
- · Attaches through ADB as 2nd Keyboard
- · Wand, CCD or Laser input
- · 2of5, UPC/EAN, 128, MSI, Code 39
- · Complete with Laser Scanner \$1295
- · Complete with Steel Wand \$399

### Swiss Office:

Rutistrasse 6 9050 Appenzell, Switzerland 71 87 51 17 fax • 71 87 51 15

3004 Mission Street Santa Cruz, CA 95060 408-458-9964 fax

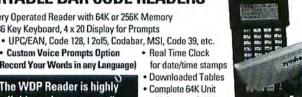
### **7**ORTHINGTON

DATA SOLUTIONS

### PORTABLE BAR CODE READERS

- Battery Operated Reader with 64K or 256K Memory · 36 Key Keyboard, 4 x 20 Display for Prompts
  - **Custom Voice Prompts Option** (Record Your Words in any Language)

The WDP Reader is highly reliable and easy to use." Brett Fifield, Bitstream Inc.



with Laser - \$1734 Complete 64K Unit with Wand – \$799

# Ordering is Easy!

- Made in the USA
- Free "800" Support
- Qualified P.O's Accepted
- 2 Year Warranty on Readers
- Same Day Shipping
- Free UPS Blue in US
- 30 Day Money Back Guarantee

In US or Canada Call Toll Free

Call for

Our Free

## 800-345-4220

In Europe call information for Toll Free numbers to our Swiss Office

**Bar Code Fonts Too!** 

### **BAR CODE & MAGNETIC** STRIPE READERS FOR ALL **MACINTOSH COMPUTERS**

- Connects through keyboard port (ADB)

- Connects through keyboard port (ADB)
- Requires no software drivers or power supply
- Does not affect performance of keyboard or mouse
- Industrial grade, heavy duty mils
- Lifetime Warranty\* (Uniscan 300 Series)
- Proven quality; in the industry since 1978!
Also Available:
Integrated ADB Laser Scanners
Integrated ADB CDD Scanners
Portable Bar Code Readers
Bar Code Label Printing Programs & Fonts
- AdAT Transport Street

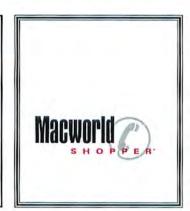
- AdAT Transport Street



4047 Transport Street Palo Alto, CA 94303 (800) 526-5920 or (415) 856-6833 Fax (415) 856-3843 Applelink: BARCODE

See factory for detail

CIRCLE 441 ON READER SERVICE CARD



### Communications

## Spectra

Modems Macintosh for

BAF

1414 Pocket or InternalPB V.32bis/V.42bis 14.4K bps Modem & 14.4K bps

Send/Rec Fax .

408-270-8070 • 408-270-0698 Fax

Visa / MC / Amex / Corp. P.O. Welcome

VECTO \$269.00 All Products include Cable & STF Fax and Micro Phone LT Software 30 day money back guarantee

Call Now: 1-800-4 PKT • FAX •

### Computer Leasing

NOW LEASING!

24 HR APPROVALS LOW AS 5% APR TAX WRITE OFF

We will custom configure any mac equipment to your needs. All systems include 2 year warranties, free freight and toll free tech support with low interest rate leasing for 1,2,3,4 or 5 year terms! WE ARE YOUR MAC LEASING SPECIALISTS!!!

· Mac 145b 8/80 \$84.00, 1 yr

·Centris 650 8/230, 1 yram, ed •20" color display •XKeybrd ·Umax Uc 840 seanner, 24 bit •800 dpi printer • 44mb dry ·Quark & Illustrator \$375.00, 36 mos

Apply! 800-532-7395

fax: 310-782-7902 CIRCLE 402 ON READER SERVICE CARD

### Computer Systems

Best Prices In Canada Since 1989 **No Customs Hassles** The Best Warranty In The Business Same Day Repair/Replace Satisfaction Or Money Refunded True Mac Experts On Staff All Major Hardware, Software Service Contracts

CIRCLE 426 ON READER SERVICE CARD

MACINTOSH LC III 4/80 122 1223 610 4/80

2452

2452

2077

69

885

1252

2895

1098

9677.

1022

2092

2552

788.

IIVX 5/80CD 1438. 650 8/230 QUADRA'S 650 8/230/CD 3328 660AV 8/230CD 840AV 16/500

4277. PowerBook's 3695 145B 4/40 800 8/500/CD Call. 160 4/80 3377. 165c 4/80 3695. 180 4/80

180c 4/80

BTI Batt+c

UCB40

Adesso keypad

UC630LE

Work Gro 95 32/1G

800 8/230

950 8/240

Call PRINTERS 328.

UC1260 Pro 630 2192. UC1200SE Select 300 Transparanci Select 310 MICROTEK ScanMaker II 826 Laser NTR DeskWriterC Call ScanMaker lixe

DeskWriter 550c 588. 35t slide scann, 1289 D.Writer 1200c 1885 1885. SHARP 1852 JX-325 Laser 4M

985. Laser 4ML Writermove II 488. JX-610 NEWGEN 440B 600dpl 3392. 16" E-Machine 995

660B 800dpl 17" Trinitron 1200B 4682 20" Dual Color 21" Color WACOM ART-Z 6 x B Thunder 24 Thunder Light

6 x 9 Standard 439. 12 x 12 Electr. 12 x 18 Electr. 989. 21" Color 18 x 25 Stand.

onter v 2.0 249. Prec, 24X 1152. ONY 19" Color Trinitron S1695. Please Call For Best Prices! Dealers & International Sales Welcome!

24XK

RADIUS 20S Color

Best Prices, Service, Delivery! No credit cards pl MICRO

COMPUTER

orger 800-345-1234 International & CA (310) 398-3300 24HR. Fax line (310) 391-3847 Grand View Blvd. Los Angeles, C

CIRCLE 508 ON READER SERVICE CARD





### NUGE INVENTORY-LOW PRICES!

(Apple CPU's, Parts, & Peripherals) CALL! (for latest pricing and availability)

### POWERBOOK 160

25-MHZ 68030, GRAYSCALE DISPLAY 4/80 - \$1,299.00\* 4/120 - \$1,399.00\*



### POWERBOOK 165c

33-MHZ 68030, COLOR DISPLAY 4/80 - \$1,399.00\* 4/120 - \$1,499,00\*

\*INCLUDES FREE POWERBOOK CARRYING CASE AND OVER \$600.00 OF MANUFACTURERS SUGGESTED RETAIL PRICE SOFTWARE!!

SPECIAL

Order a PowerBook 160 OR 165c and one of the two listed printers below, and get \$100.00 off the PowerBook!!

Plain Paper 360 dpi INKJET (W/ACCESSORY KIT) Supports: Letter, Legal 11 X 17, A4 and A3.



Like NEW, 300 dpi Postscript, Mac+IBM autoswitch, Factory Sealed/wrnty, (List \$1,995)

### NEW

### CPU's

IIvx 4/0 - \$1,099.00

Mac Classic II 2/40 - \$749.00 Mac LC 2/40 - \$599.00 Quadra 700 4/230 - \$2,299.00 Quadra 900 4/0 - \$2,499.00 \*Call for Latest Pricing on ALL Other Models!!

### Printer's

Personal LW NT - \$799.00 Personal LW LS - \$549.00

Apple One Scanner - \$629.00

### SPECIALS

Mac II 1/0 - \$429.00 Mac IIcx 1/0 - \$599.00 NEW EMAC DAT Drive - \$749.00 New Mac IIvx 4/230 - \$1,399.00 New Mac IIsi 5/160 - \$849.00

New Connor 543MB 3.5" Internal HD - \$549.00

### IJSED

### CPU's

Mac Plus - \$259.00 Mac SE 1/20 (800K) - \$399.00 Mac SE/30 1/0 \$749.00 Mac Ilcx 4/80 - \$869.00 Portable 2/40 - \$649.00 Quadra 900 - \$2,299.00 PowerBook 170 4/40 - \$1,699.00 Duo 210 & 230 - Call for Pricing

### Monitor/Video

Apple One Scanner - \$549.00

### Printers

Personal LW NT - \$699.00 Personal LW LS - \$429.00 Laser IInt - \$895.00 Laser IIntx - \$1,095.00

Returns at discretion of Mgmt./15% Restocking fee.

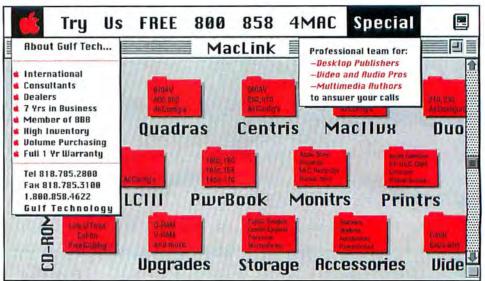
Prices represent '2% Cash Discount' - off Full Price. USED MAC EQUIPMENT WE WANT TO BUY





CIRCLE 493 ON READER SERVICE CARD

# I saw it in the



CIRCLE 430 ON READER SERVICE CARD





CIRCLE 467 ON READER SERVICE CARD

### BIG QUADRA'S 840AV 0/0 840AV 8/230 MAC Computers, Inc.

1395

Division of Wi	a N
POWER BO	oks
180C 8/80	2995
180C 8/160	3095
180C 14/300	3895
165C 4/80	1695
165C 10/120	2195
165C 14/213	2895
165 4/80	1895
165 4/160	2095
165 14/210	2995
180 8/80	2695
180 8/120	2995

160 4/80

3150 3395 840AV 16/500 4295 840AV 40/1.2 840AV 64/2.0 5695 7995 840AV 16/50CCD 4650 800 8/230 2695 800 8/500CD 3395 950 8/80 3295 095 950 16/525 4195 895 950 6895 64/1.2 595 900 & 700 CALL 195

D 730 1250 4/80 230 4/120 210 4/80 1395 1050 Duo Dock

Tel: (310) 470-7099 • Fax: (310) 470-8099

650 8/80 8/230 1895 8/230CD 2295 610 4/80 1195 EXCHANGE ANY OLD MAC TOANEWMAC 700/900 - 840AD 1995 FX to 840AD 1995 1995 Ci to 950 050 P.B. 160 to 180C 1895 650 P.B. 170 to 180C 1695

660AV 8/0 1995 660AV 8/230 2195

660AV 8/230CD 2495

40/80 Meg HD for Power Book \$99/189

Incredible Pricing on DUO's 10837 Santa Monica Blvd. Los Angeles, CA 90025

HP 4ML HP 4M HP550C SUPERMAC Digital Film Thunder 24 1850 20T/17T 2595/1039

SEIKO 20" Color Trinitron Monitor \$1395

650/900 CALL/1650

APPLEMONITOR

PRINTERS

895/1195

1395/950

2295

489/350

1395/2330

785/995

1095

1875

3295

1850

IIF/IIG

IIFX/Ci

950/800

16"Color

600/630

300/310

14" /Basic 4 14" AV Color

CENTRIS LOGIC BOARDS SPECIALS Apple Mouse NEW 49 20" Trinitron 1495 Newton Pro MAC IISi 3/40 Mini Aray Best Price Infinity 88/44 550 128MB Optical 1299 750 1230 4GB Dat Drive 1349

CD ROM DEMO 900 4/0 950 8/0 IIFX 4/80 IICI 5/80 IICX 4/40 800 8/230 P.B 160 4/40

Call for APPLE 3rd party products +16 iss, UC & Amer Welcome . Next Day Shipping for U.S.A. & International rices are subject to change w/o notice + All prices shown are C.O.D. Prices

CIRCLE 453 ON READER SERVICE CARD



# @COMDEX/Fall'93 BOOTH # S1679

# SUPERMAC.

Thunder 8/24	\$1019/1999
Spectrum 24 PDQ+	\$1199
Spectrum 24 Series IV	\$749
Thunder Upgrade	\$469
17T Trinitron	\$999
20" Plus Color	\$1499
20" Trinitron Dual	\$2249
20-TXL Multi-Mode	\$2379
20" Hi Resulution Trinitron	\$2549
21" Two-Page Color	\$2249
20" /21" Gray Scale	\$749/949
20" Trinitron Dual	\$2249
T-16 MR	\$1119
Photo Speed/Futura SX	\$2969/339
1	

### Printers & Monitors

Timesia ex inia	IIICOTO
LaserWriter Pro 600/630	\$1299/2199
LaserWriter Select 300/310	\$729/939
LaserWriter Select 300/310	\$729/939
StyleWriter II/Portable Printer	\$309/399
AudioVision 14" Color Monitor	\$399
16"/14" RGB Color Monitor	\$1199/499
14" Basic Color Monitor	\$229
IBM 17P/21P 1360X1024 RES.	CALL

ONLY

4.2 Lbs.

# Macintosh

Work Group Server	\$CALL
QUADRA 840 av 8/230, 500	\$3249/3595
QUADRA 840 av 16/500	\$4149
QUADRA 605 4/80	\$1349
QUADRA 606 8/230	\$1749
QUADRA 610 8/160, 500	\$1399/1899
QUADRA 650 8/230, 500	\$1999/2429
QUADRA 950 8/0, 525	\$2999/3599
QUADRA 950 8/3.4GB	\$5299
QUADRA 800 8/230, 500	\$2599/3099
CENTRIS 610 4/80, 230	\$1345/1545
CENTRIS 650 8/80, 230	\$1829/2045
CENTRIS 660 av 8/230, 500	\$2049/2449
CENTRIS 660 av 8/1.2GB	\$2999
MAC IIVX 4/80, 230	\$999/1249
MAC IISI 3/80, 160	\$695/895
MAC IICi 5/80, 240	\$1199/1399
MAC LCIII 4/80, 240	\$1099/1299

NEWTON/NEWTON Pro \$799/929 CD300i/CD300 External \$309/399 PowerCD/Multi-Media CD \$409/659

# SPECIALS



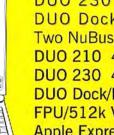
145B 4/40, 80	\$1249/1449
165 4/80, 160	\$1449/1699
165C 4/80, 160	\$1499/1749
180 4/80, 160	\$2199/2499
180C 4/80, 160	\$2599/2749
Express/Global Vill. Gold Modem	\$249/349
Best Price For PowerBook	Memory!
	100-113-110-1

### ARD DRIVES

40/80/160MB 3.5" 17msc	\$75/99/190
230/525MB 3.5" 17msc	\$289/595
20/40/80MB 2.5" For PB.	\$65/75/169
120/160MB 2.5"For PB.	\$219/329
212/320MB 2.5" For PB.	\$425/695
External Box For Above HD.'S	\$89

# PACKARD

\$1825/1895
\$1330/1395
\$4350/2650
\$975/665
\$299/389
\$575
\$665/1279



DUO 210 25MHZ, 68030 Processor, 4MB RAM Expandable to 24 DUO 230 33MHZ, 68030 Processor, 4MB RAM Expandable to 24 DUO Dock Optional 68882 Math Coprocessor, Internal Super Drive Two NuBus Slots, Two Serial Ports, SCSI Port, Video Output Port, etc.

All prices reflect cash order (C.O.D.) only & are subject to change without notice!



WE ACCEPT INTERNATIONAL ORDERS COMPU.D

Dealers Call For Updated Price List.

Sales (818)787-3282



Quantum<sup>\*</sup>

(800) 929-9333

FAX (818) 787-5555

TOSHIBA

SONY

NEC

COMPAG





# **Computer Design** & Graphic Systems\*

Specialists in Graphic System Configurations

**LOWEST Prices on GRAPHIC Software!** 

**OVER 20,700 products** for the serious... **GRAPHIC User!** 

COG CUSTOMERS.

THANK YOU!

FREE SHIPPING!. call for details



### CALL FOR UPDATED PRICING Macintosh 660 AV 8/230 MAC LC IV 4/80 Powerbook 165c or 180c CALL Quadra 840 AV 8/230 Centris 660 AV 8/230 CD \$2448 \$2800 CALL Quadra 840 AV 16/500 CALL Quadra 950 8/No HD werBook 145b,165,180 CALL MANY PACKAGES AVAILABLE. CALL FOR DETAILS

**NEW MACS ARE IN 111** 

1	15' Portrait Grey Scale \$39
,	E-Machines T16 Trinitron \$128
į	Apple 14" RGB\$51
į	Magnavox 2080 14" Color \$38
	NEC 3FGe \$629
	Sony 1730S 17" Calar \$107
ì	Sony 20' Trinitron \$219
Ì	SuperMac 17T \$108
ì	SuperMac 20" Color \$164
ì	SuperMac 21° Color \$239
1	SuperMac 20T XL \$255
ı	RasterOps Sweet 16 \$89
١	RasterOps 20/20 Color \$154
١	Radius 20' Precision 20 \$234

GCC BLP Elite \$749
GCC Eclipse \$899
GCC Colortone dye-sub \$6399
Kodak 450GL Color \$1359
NEW Primera Color Thermal . \$899
NewGen 1200B 11x17 \$4485
HP Laserjet 4m (600 dpi) \$1899
QMS 860 11x17 600dpl \$3899
New QMS 420 600x600 \$1599
NEC Silentwr. 95 or 97 CALI
Dataproducts LZR 1580 \$3099
HP Laserjet 4ml \$1049
NewGen PS 660 \$1799
All dye sub printers now available

### DISPLAY CARDS

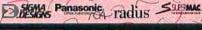
•
SuperMac 8 • 24 PDQ \$79
SuperMac Spectrum 24-IV \$789
SuperMac Digital Film \$469
SuperMac Thunder II \$309
SuperMac PhotoSpeed \$299
Radius PrecColor 24xk \$79
RasterOps Paintboard Li \$79
RasterOps ProColor 32 \$284
RasterOps Paintboard Turbo \$107
RasterOps MoviePak \$74
Lapis 8-16 Color Card \$36
Lapis Mac to TV card adapter CAL
E-Machines Futura SX 24 bit . \$48
E-Mach Futura MX 24 bit \$76

	650 Optical Media \$99
	128 Optical Media Special\$40
	Apple 80 meg HD \$129
	Toshiba 213 PBHD \$549
	CD-ROM drives/litles In Stock
ļ	PLI 128 Optical drive \$1299
	Pinnacle Tahoe Optical \$929
	Pinnacle PMO 650 Optical ., \$2699
	Seagate Baracuda II 2.4 gig \$2399
1	Quantum 240S int \$279
	Hammer FMFis 3.5" 1 gig \$1399
	Fujitsu 520 meg 3.5" int \$599
	Fujitsu 1.2 glg \$999
	Micronet 1030F Array \$2089

V
HIGH END SCANNERSCALL
UMAX UC840 (800 dpi)\$1299
UMAX UC630 W/LE \$899
UMAX true 1200 dpi\$1799
UMAX 1200SE \$2999
Microtek Scanmaker II \$879
Sharp JX-325 \$899
WAX















CIMED TORNOLOGES WEWB



Prices reliect cash discount. All prices subject to change. \$25 Charge on all cancelled orders. C.O.D. order refused willhout cancellation prior to shipping will be billed full shipping charges.

6225 Presidential Court, Suite F . Fort Myers, Florida 33919

LOCAL: 813-489-4338 • SUPPORT: 800-741-6221



Fortune 500, Schools, Government, and out of country orders are welcome.

FAX (310) 312-9041

12002 PICO BLVD. LA, C.A. 90064

145B 4/40 \$1249 145B 4/80 165 4/80 \$1449 \$1749 165 4/120 \$2099 \$2099 165 color 4/120 180 4/80 \$2399 180 4/120 \$2699 180C 4/80 \$2899 180C 4/160 \$3089 DUO 230 4/80 \$1549 DUO 230 4/120 \$1789

\$2895 800 8/230 800 8/500& CD \$3675 \$3895 800 8/1GIG 840AV 8/230 840AV 8/230 CD

\$3295 950 8/1GIG

\$3595

650 8/230 650 8/230CD 6104/80

660AV 8/230

\$2139 560AV 8/230 CD \$2399 LC III 4/160 \$2099 \$2399 \$1299

IISI 3/40 VX 4/80 VIVID VIEW 14

STOCK! \$1349 \$749 \$1095 \$299

\$899 NTR PRO 600 \$1899 PRO 630 \$2299 Select 300 \$769 Select 310 \$999 \$1589/\$1799

CIRCLE 497 ON READER SERVICE CARD



660 8/230/500 660 WITH CD 650 24/500 650 8/80/230/CD 610 8/230/CD CALL

FOR

Quadra 840 8-230 / CD 840 16-500/ CD

CALL

165 8/120 165 10/340 165c 4/80 165c 4/120 145b 4/40

4/80

Pro 630 Pro 600 Select 300 Select 310 Stylwriter II HP 4M/4ML HP 4SI NEC Silentw 2295 1499 749 959 325 Call Call 

950 64/1.2G LATEST PRIC SIDE CALIFORNI Tel: (818)385-0080- Fax: (818)385-0081

CIRCLE 442 ON READER SERVICE CARD



PU's Centris 610 4/230......\$ 1495 Centris 660AV 8/230.\$ 2265 Quadra 950 8/0......\$ 3395 Color Classic 4/80....\$1195 14" AV RGB Monitor,\$ 725 Centris 650 4/80......\$ 1595 Quadra 800 8/230.....\$ 3259 Quadra 840AV 8/230.\$ 3390 14" RGB Monitor....\$ 559 PB 145b,160,165c,180,180c and Duo's available call for prices.

We also carry Printers, Parts, and Drives from Quantum, Conner, and Apple .WE ALSO SELL <u>USED</u> MERCHANDISE

TEL: 1-800-622-4412 FAX: 1-201-224-6449

CIRCLE 457 ON READER SERVICE CARD



One Year Warranty !!

Many more models in stock!

260

470

635 S

\$ 1145

\$ 1085

\$ 1075

2320

649

5 365

S

S 2850

S 799

\$

Monitors

Apple Basic 14"

Sony 1320 14"

Sony 1430 14"

Sony 1730 17"

Thunder/24

NEC 3FGE

NEC 4FGE

NEC 5FG

SuperMatch 17T

Thunder II Light

Apple 14"

Apple 16"

## MacAttack

					111 -017
New Mac	s!!	Powerbook		Keyboard	ds
Color Classic LC III 4/80	\$1045 \$1180	145B 4/40 145B 4/80	\$ 1470	Keyboard II Ext Keyboard II	
LC III 4/160 IIvx 5/80/CD Ouadra 605	\$1299 \$1415 \$ Call	165 4/40 165 4/80 180c 4/80	\$ 1995 \$ 1725 \$ 2869	Adj. Keyboard We have Intl Key	S 159 boards!
Quadra 610/650 Cent 660av 8/230/CI Cent 660av 8/500/CI	\$Call \$2326	180c 4/160 180c 4/160mod Duo 210 4/80	\$ 3109 \$ 3329 \$ 1325	Other Stu Turbo Mouse Apple CD 300	\$105 \$375
Q800 8/230 Q840av 8/230/CD Q950 8/0	\$2878 \$3358 \$3060	Duo 230 4/120n  Prices subject to o  please call for lates and availabilit	hange- t pricing	Memor SIMMS PB Memory	SCALL SCALL

and availability Q840av 8/1G/CD \$4770

We carry thousands of items call for availability. Your satisfaction is our goal.

Prices are C.O.D. and subject to change.
International Orders and Fax Orders
Welsome!
We ship Airborna Express
international shipments handled by DHL.
COD and Mastercard/VISA accepted.

	nners
Color OneS	canner \$ 940
AFGA	canner \$ 940 \$ CALL
	atore

Printers Stylewriter II \$315 LW Select 300 \$ 735 LW Select 310 \$ 965

LW Pro 600 8m \$1725 LW Pro 630 \$ 2210

Seagate 500 Ext \$699 \$CALL Many more SyQuest 44 Meg Ext SCALL 44/88 Meg Ext SCALL

105 Meg Ext \$CALL

Link Resources usa

PB Memory \$CALL

Duo Memory \$CALL

Math Coproc. \$CALL

Other Memory \$CALL

Powerport Gold \$359

Maxtor 240m Ext \$335

Quantum 80 Ext S149

Hard Drives

Supra Fax

Modems

\$285

SCALL

Cartridges 1399 CIRCLE 438 ON READER SERVICE CARD

### ow Price Macintosh Sale

- **Ouadras Powerbooks**
- Centris
- Monitors
- Laserwriters
- Stylewriters
- All Mac Products 'ublishing & Music Systems xperts. Lots of Inventory. Call for 'rices. Open 7 days a week. ill new, 1 yr. warranty

'isa/MC COD UPS/FED EX ₹.H.M. os Angeles, CA USA

213/680-1453

Mac LC III 4/160 Centris 610 8/230/CD Centris 650 8/230/CD Centris 660AV 8/230/CD Quadra 840AV 8/230/CD \$1349 \$1899 \$2299 \$3299 \* Lowest Prices on all PowerBooks (800) 622-5265 FREE SHIPPING Great prices on Mac Quadras , PowerBooks 14-20" Monitors, Laser Printers, Scanners.... 6201 Middle Fskville Rd = 3 102, Tx 78752, Int Tel: (512)323-0040 Fax: (512)323-5 Fax: (512)323-5465 CIRCLE 481 ON READER SERVICE CARD

Everything Macintosh

We only sell brand new products. No tax cutside CA. One year warranty.
19801 Ventura Blvd., Woodland Hills, CA 91364 Dealers & international orders welcome.

(818) 719-920	0 We guaran best prici		118) 719-9115
QUADRA	CENTRIS	PRINTERS	MONITORS
840 8/230 \$3297	660 8/230 \$2177	HP DJ 1200 C/PS \$1877	14"/16" \$497/1197
840 16/500-CD \$4377	660 8/500-CD \$2797	HP DW 550C \$ 617	14"AV\$ 697
840 8/230-CD \$3677	8/230-CD \$2387	HP 4ML \$1047	SuperMac 17T \$1049
800 8/230 \$2977	650 8/80 \$1877	HP 4M Laser . \$1847	Sony 1430 \$ 597
800 8/500-CD \$3677	650 8/230 \$2097	Stylewriter II . \$ 317	Sony 1730 \$1037
950 Call	650 8/230-CD \$2477	Port. Stylewriter \$ 398	NEC 4FGE \$ 717
POWER BOOKS	610 4/80 \$1397	Brother Ink Jet \$ 297	Mitsubishi Pro17 \$1067
165 Call	610 8/230 \$1777	IBM/MAC 2 Year Warranty	Radius Color Pivol \$ 917
165C 4/80 \$1597	610 8/230-CD Call	NEW TOYS	PLI
165C 4/120 \$1697	LC III	Newton Pro S 937	44 MB \$ 349
180 4/80 \$2427	4/80 \$1247	Newton \$ 797	88/44 C \$ 529
180 4/120 \$2527	4/160 \$1367	Ext 300 CD \$ 397	105 MB \$ 629
180 4/160 \$2597	8/160 \$1547	Power CD Call	128 Optical . S 977
180C 4/80 \$2799	II VX	SCANNERS	Mini Array Call
180C 4/120 \$2899	4/80 \$1087	UMAX 840 \$1277	600 MB Optical \$2277
180C 4/160 \$2999	5/80-CD \$1497	Sharp Call	4 GB Dal \$1377
Memory Call	8/240 \$1397	MicroTek IIXE \$1097	10 GB Dat \$1577
	DIE DY BOYER BINGS		

CIRCLE 495 ON READER SERVICE CARD

### LOWEST PRICES GUARANT

Entry Mac DUO 230 4/120 \$CALL DUO DUCK \$879 NEWTON MESSAGE PAD APPLE POWER CD \$429 NEW NEWTON PRO Monitors \$1099 COLOR CLASSIC 4/80 LC III 4/80

\$1149 APPLE 14" COLOR \$489 APPLE 14"AV MONITOR Mid & High Ends \$679 SUPERMAC, RADIUS CALL IIVX 4/80 \$1059 Printers/Scanners CENTRIS 610 8/230/CD \$CALL

STYLE WRITER II \$325 CENTRIS 650 8/80 \$1889 CENTRIS 650 8/230 Y \$2439 HP DESKWRITER \$299 ASERWRITER PRO 600 CENTRIS 660AV 8/230 \$1864 CENTRIS 660AV 8/230 W/CD \$2439 LASERWRITER PRO 650 \$2299 \$2879 PORTABLE STYLEWRITER \$385 Q800 8/230 O800 8/500 W/ CD \$3609

UMax 630 color scanner \$799 UMax 840 color Scanner \$1279 Q950 8/FDD \$2995 61275 \$3829 PowerBooks Q950 8/230 W/CD Q840AV 8/230 \$3339

POWERBOOK 145B 4/4 Q840AV 8/230 W/CD \$3699 POWERBOOK 165 4/80 POWERBOOK 1650 4/80 Q840AV 16/1GB W/CD \$4995 PB DUOs POWERBOOK 180 4/80

DUO 210 4/80 \$1199 POWERBOOK 180C 4/80 \$2799 DUO 230 4/80 \$CALL POWERBOOK 180C 4/160 \$3095

**CIARISWORKS** 22

MacExpress u.s.a

Tel : (310)421-5899 Prices reflect cash discounts and safect to change without notice Fax: (310) 421-2919 Since 1988

CIRCLE 443 ON READER SERVICE CARD

\$1269

SCALL

\$1799

\$2399



# **BEHIND EVERY MAC** THERE'S A MARTY.

MARTY'S MAC-MART<sup>™</sup> 1-800-262-6227 GREAT PRICES AND MARTY, TOO.

CIRCLE 486 ON READER SERVICE CARD

Buy • Sell • Trade Macintosh Computers

Preowned Macs with Warranty Cash For Your Mac or Peripheral Low & High End Custom Setups FAX 310-317-1583

800-432-BYTE Open Monday - Saturday 22775 PCH, Malibu, CA 90265

CIRCLE 428 ON READER SERVICE CARD

### **NuBus Expansion Chassis**

- External chassis add 4 or 8 more NuBus slots to your Macintosh
- Compatible with Mac II, Centris, & Quadra models, SE/30, LC III
- More cost effective than another Macintosh for slot expansion
  - Provides application flexibility on smaller Macintosh platforms fo
    - Data acquisition.
    - Multi-media
    - Signal processing
    - Multi-processors

Expanse NB8 and Expanse NB4 come complete with NuBus slots, power supply, SCSI support, interface card, and cable. Priced from \$795 to \$1795.



Second Wave Inc.

The Expansion Chassis Company 2525 Wallingwood Dr. Bldg. 13, Austin, TX 78746

Phone: 512-329-928 FAX: 512-329-929

CIRCLE 445 ON READER SERVICE CARD



FAX HOTLINE: 516.997.7452

LC III

4/80.....1259

4/160.....1379

CIRCLE 410 ON READER SERVICE CARD



### MAC-TOUCH 800-494-6666

WE SELL ONLY NEW SYSTEMS WITH ONE YEAR WARRANTY

TEL: (310) 268-5544 FAX: (310) 473-0057

### 180 Power Book 180 C

4/80	2469	4/80	2939
4/120	.2699	4/160	3159

165 Power Book 165C

....1799 4/80. 4/160.....2159 4/160... ..2099

> Newton Call for quotes

### Quadra 840 AV

4099

Quadra 950 8/500......4199 8/0......3199 8/1Gb......5199 8/230....3699

### SuperMac

Classic II

4/80.....1049

4/80Clr....1189

Super M1......7999 Thunder 24...2145 Super M 20T...2399 Spectrum......785

Centris 650

8/230......2159 8/500......2699

### Centris 660 AV

8/2302159	8/5002699
8/230/CD2399	8/500/CD.2959

8/230/CD...2359 8/500/CD..2959

Dealers & linternational ORDERS WELCOME! All prices reflect cash orders only & are subject to change without notice

CIRCLE 487 ON READER SERVICE CARD



Trunder 24.



We Carry New Products Only!

All products have one year warranty Shipping in U.S. for all CPU Repairs

Shipping in California

Free Simpling of Canada Free Technical support with purchase Free shipping in U.S. for back order products Free FWB ToolK1 with every Mac, system You are not charged until your order is ready Vsa, MC & Discover add 2%

Prices are subject to change without notice

TEL:818-708-6388 FAX:818-708-6399 6924 Canby Ave. # 104 Reseda CA. 91335

Fly the market with MACMARKET	FASTFACTS: For updated	prices & additional information
on all products available Through	MACMARKET call our FAST	FACTS LINE AT 818 • 609 • 1042
For APPLE'S latest	SuperMac	Microtek

For APPLE'S latest (PowerBooks, color Duos, LCIV Newton & Printers) please call our Fastfacts line: 818-609-1042 Quadra 950 64Mb/1Gb 12022 Quadra 840AV 8Mt/230Mo 4399 4CVb/2.1EB/88 Quadra 800 2795 20Mb/800Mb Syquest/SuperVac 20TXL BINDESTAN 3999 .8222 Centris 650 2111 24Mb/ECCMb Sycuest/Supermac 17T 8Mt/230Mb ... 40Mb/1Gb/88c .5555 Centris 660AV 8Vb/230Mb/14" Color Monitor/Standard KB 8Vb/80Vb/14" Mone, Wonter/Srt. KB 2665 0000 8Mb/230Mb/Supermac 17T Cctr.Ext. KB/CD

Centris 610 8Mb/230Mb/14\* Color Monitor/Ext. KB 8Mb/8CMb/14\* Mono, Monitor/Standard KB

PowerBooks(Any Configuration) Call For Best Price

SuperMatch 17 ....... SuperMatch 17T ....... 20T XL Color ......... 1045 20° Color Plus Platnum 21 Spec 8 LC SmartTouch 17 Coor Page 116 Funza SX ...... Futura LX .... Radius intellicator Dispaly/20 . Procision Color 20V . .. Full Page Display 15\*. Precison Color Pivot ..... 945 Pivot Mone, Disply 15" . 589 Two Page Mono. 19" ... 689 24XK Viceo Brd ..... 839 Two Page Mono. 21\* .... 859 549 Optical 128M 999
688 CD Rom MS 599 DAT 10GB/Retrospect 1555 DAT 4 GB/Retrospect . 1333 FWB Hammer2800FMF .... Hammer1600FMF .. 00/4 average seek 35 .... Exertal Optical hammer 1000 aser 4ML PLP II.....B.P Etta 2VB

Microtek ScanMaker II UMAX 749 UC 1200SE DC 637 LE 2005 249 UC 1260 Sony 1095 NewGen 3895 Daystar 33MH7 Power Carbo 369/449 33MHZ Power Cache/w/FPU 40MHZ Power Cache/w/FPU 50MHZ Power Cache/w/FPU 649/749 Fastcache C40 for Cuadra 7, 9 950 New Turbo O40i Accelerators 33MHz **Pinnacle Micro** PAND SSAMR Defect 3444 Color Di-Sub Printers
Kodek Color Fase 300PH, 16MB, 120 MB HD
RisslerCos Consciput 33/16 RISC Manab ( RasterOps Correctorint 33/36 FISC Texas Instruments
Morotaser Pro 600, Bippin, 23Fonts, 500 sheet, 20Miz/1395
Morotaser Pro 600, Bippin, 65Fonts, 500 sheet, 20Miz/1569

NIKON COOLSOAN (Scars 35mm Sides)

CIRCLE 420 ON READER SERVICE CARD

# New-Used Macs/Parts/Upgrade

Classic II 2/40





Ilcx to Ilci..... II to IIfx..... 1299

Ilx to Ilfx 999 Ilci to Quadra 700 ..... .....Call PRINTERS Imagewriter II ..... Stylewriter. Imagewriter LQ .. 399 Laserwriter IInt .....

Personal L'writer NT ......649. if it used or demo unless otherwise stated. Equipment day warrarty. Returns subject to a 15% restocking subject to change. Prices represent cash discount.

.....499

Laserwriter IIntx

Personal L'writer LS...

Personal L'writer NTR



**PowerBooks** 

100 2/20	799.
100 4/40	999.
140 2/20	999.
140 4/40	1199.
170 4/40	1799.
170 4/120	2099.



PowerBook 160 4/40 (NEW).....\$1399. PowerBook 165c 4/80 (NEW)...\$1699.

### Parts Parts Parts Parts

Turio Turio I	unto runto runto
Mac Plus ROMS\$129.	LC logic board349.
800k floppy mech99.	L'writer IInt logic bd299.
1.44 floppy mech269.	Mac II logic board199.
Plus power supply119.	Portable 40-meg int. HD199.
Appletalk PC card49.	Personal SC board39.
SE analog board119.	Video boardsCall.
Plus logic board149.	Personal NT logic bd249.
SE logic board149.	Laserwriter IIntx Lb499.
	Classic logic board149.
PowerBook Parts In-stock!!	Classic nower supply 99

SYSTEMS SF 1/20 Classic 4/40 ..... Mac II 0/0 ......499. Ilcx 0/0..... IIx 0/0 ..... 999 Portable 1/40..... Ilci 0/0..... 1299. Call Quadras ... Mac Ilfx 0/0 (NEW)......1999. Cases Mac IIfx..... Mac SE..... .....39. Mac Classic.....39.

Mac LC.....

Mac Ilcx.....

1200 Marshall St Shreveport LA 71101 FAX 318-424-9771 Tech 318-424-7987 10-227-3

CIRCLE 425 ON READER SERVICE CARD

99 ....199



INTERNATIONAL ORDERS WELCOME

Computer Systems

### C III 8/160 1499 MAC IIVX 5/80CD\_\_1599 MAC II CI 5/80 ... 1085 MAC IISI 5/105 1995 160 8/120 8/1 2 Gin-CD 4445 610 8/230-CD 1875 2075 165 4/80. 840 AV 8/230-CD... .3655 650 8/230... .1795 STYLEWRT.II... 329 840 AV 16/500-CD.. 4379 650 8/230-CD .2399 HP LJ4M .2450 .2139 180 4/80... 840 AV 16/1.2 Gig-CD...4995 660 AV 8/230... 3279 660 AV 8/230-CD.2435 180 4/120. 2525 APPLE 12" RGB COLOR.....\$235 3895 660 AV 24/500CD...3659 180C 4/160. 2875

TEL: (310) 314-7372 DAYSTAR, WORKGROUP SERVER 95 CALL FAX: (310) 314-7512 UMAX, E-MACHINE 800-847-4622

CIRCLE 470 ON READER SERVICE CARD

### Computer Axis Fax. (818) 591-8888 Fax. (818) 591-8858

.. Best prices on NEW Apple w/one year warranty

Call us regarding other Apple products.

POWERBOOKS

145B 4/40	\$1,352	165C 4/80	\$2,787	800 8/500	\$3,681	950 8/230	\$5,001	
160 4/120	\$2,582	180 4/80	\$3,033	800 8/100	\$4,337	950 8/500	\$5,616	
165C 4/120	\$3,082	180C 4/160	\$3,706	800 8/230	\$3,091	950	\$4,599	
	CEN	TRIS			WAC	II CPU		
610 4/80	\$1,451	650 8/230	\$2,041	COLOR CLAS	SSIC		\$1,139	
610 4/80	\$1,360	650 8/50	\$2,574	LCII 4/80			\$1,106	
610 8/230	\$1,902	650 8/80	\$1,754	MAC IIVX 8	230		\$1,820	

International Inquiries Welcome!

Prices subject to change without notice.

23621 Park Sorranto, Suite 107, Calabasas, CA 91302

CIRCLE 463 ON READER SERVICE CARD

### YOUR DESKTOP PUBLISHING MULTI-MEDIA VIDEO-CD PRODUCTION SOURCE

MACINTO	SH	MULTIMED	A	PRODUCTIO	2
QUADRA 950	\$3175	THUNDER 24	\$1875	PHILLIPS CD-ROM RECORDER	\$6275
QUADRA 800-8/230	\$2050	SPECTRUM PDQ/24	\$1455	TOSHIBA 3401B CD-ROM	\$325
QUADRA 840AV-8/230	\$3275	NUVISTA VIDEO GRAPHIC ENGINE	\$2696	KODAK COLOR SENSE MANAGER	\$399
CENTRIS 660AV-8-230	\$2150	DIGITAL FILM	\$3399	UMAX 630LE SCANNER	\$895
CENTRIS 660-8/80	\$1876	SONY V-DECK	\$1695	UC 1260 SCANNER	\$1899
POWR BOOK 180C-4/16	0 \$3660	SUPERMAC HDTV	\$8175	DIGITIZERS ANY SIZE	CALL
CALL FOR PRICING C	YNA NO	RADIUS VIDEOVISION	\$1795	SHARP JX 320 SCANNER	\$675
MACINTOSH COMPI	JTERSI	TELEVIDEO CONFERENCING NETWOR	K CALL!	PRINT PRODUCTIO	IN
MONITOR	8	-		IMAGE SETTERS	CALL
SUPERMAC 17-T	\$975	COOPER		OMS COLOR SCRIPT	\$4995
NEC 16	\$625			LASERMASTER 1000dpl	\$3275
Epson 17*	\$950	-		KODAK COLOR EASE	\$7275
Sony 35*	CALL	Mag Con	• •	KODAK 450GL	\$1595
Radius Pivot	\$1066	Macacai	e	CMS HAMERHEAD 15:17 X-RITE DENITOMETER	\$4175 CALL
ON ANY MONIT		1166171111	1.0	PLOTTERS	CALL
				Liniting	Popular.

CIRCLE 437 ON READER SERVICE CARD

# WANTED: USED MAC'S

WE BUY YOUR USED MAC EQUIPMENT FOR TOP DOLLAR, CASH! WE SELL REFURBISHED MAC'S AT DISCOUNT! CALL FOR QUOTE. **RENTEX INC.** (800) 545-2313, (617) 423-556'

CIRCLE 521 ON READER SERVICE CARD

# 1-800-334-KIW

# Call for lowest prices on NEW Mac systems.

Color Classic, Mac LC III Centris 610, 650 & 660AV Quadra: All models Powerbook: All models Apple & HP printers

Visa and Mastercard no surcharge.

All items are new. 1 year warranty. Most items in stock. Returns are subject to a 15% restocking fee. Established 1988. Better Business Bureau member. Kiwi Computers is not affiliated with Kiwi Software, Inc.

Kiwi Computers, P.O. Box 67381, L.A., CA 90067 US & Canada (800) 334-5494 Fax (310) 286-9667 In California and Overseas (310) 553-4507 Hours: Mon-Fri 7.30am-5pm, Sat 9am-2pm PST

CIRCLE 404 ON READER SERVICE CARD



### COMPUTER REVELATIONS..."Best Selection... Best Service!" 1-800-275-9924



BBS 516-737-0947

660 AV . 840AV CALL FOR PRICE!

Mac LC III 4MB/40HD 4MB/80HD

Try us for sofware! ALDUS PAGEMAKER VER 5.0 \$535

Centris 610 V 4MB80 \$1399 MR230 CD\$2199 OR Centris 650 4MB90 \$3299 S1250 CD \$2299 SMB230 CD \$2299 SMB230 CD \$3292 CUAdra 800 6MB230MB \$3499 \$1175 6MB925MB \$4099 \$1275 GMB925MB \$4099 \$1275 GMB925MB \$4099

Quadra 950 8MB/0HD \$3550 8MB/230HD \$3750

CRI Extended Keyboards \$99.00

\$3749 \$4049 Call Call

Apple 16 Color Microtek Nec

Umax 630

Umax 630 Umax 840 Umax 1200s

MICROTEK Quantum SONY

COMPAG TRM USHIBA **ООРТІМА** SSUFFMAC

NEC PACKARD Microsoft radius

New and Used, Bought and Sold! HNOVELL OUR EXTENDED WARRANTY

CIRCLE 474 ON READER SERVICE CARD

The Macworld Shopper® puts your company's name in front of the largest Macintosh Audience—when they're ready to buy!

> Great Prices on Used Macs

> > Super Savings

Conting higher than neverther the

Only \$395

Savings

CPUS

Drives

Monitor

Modem

Much

More



Free Catalog **Used Macintosh Computers** 

While all the others come and go, we keep doing what we do best. We've been refurbishing and selling used computers for ten years. Our quality control department assures you the best machine available for the money-or your money-back-guaranteed.

Call Anytime 1-800-821-3221

PO Box 4059 Logan, UT 84323-4059 Fax: (801) 755-3311 Remarketing, Inc.

-800-821-3221 CIRCLE 424 ON READER SERVICE CARD



**Disk Drives** 

Quantum, Maxtor, Conner & Syquest

120... \$214 245...\$290 170...\$230 44mb....\$349 170... \$240 345...\$385 340...\$370 44/88....\$499 240..\$295 1240..\$1175 1370...\$999 105mb..\$549

Two year warranty on cases, Quantum and Maxtor drives. Conner & Syquest are 1 year, Syquest come with cartridge.

External Drives in Premium quality cases

Shipped with premium SCSI cable, preformatted and ready to use! MEMORY-1x8x70 ns- \$51 Call for Sizes



CIRCLE 491 ON READER SERVICE CARD



Memory Upgrade

## MAC MEMORY 1x8 - 80NS 1x8 - 70NS 2x8 - 70NS 4x8 - 80NS 4x8 - 70NS 4x8 - 80 FX Call Call Call Call Call Call Call 4×8 - 80 II/II× 8×8 - 80NS 16×8 - 80

П	72PIN MODULE	Centris/LC III Qu	
	4MEG	Call	Call
>	8MEG	Call	Call
	16MEG	Call	Call
		No. of the last of	

# BOOK NEW Mo ă

\$2519

	PowerBook Memory for the 1650	& 1800
	4mg memory module	Call
	8mg memory module	Call
	10mg memory module	Call
	PowerBook Memory	
4	2mg 140/170 memory module	Call
	4mg 140/170 memory module	Call
ж	6mg 140/170 memory module	Call
	4mg 160/180 memory module	Call
П	6mg 160/180 memory module	Call
	8mg 160/180 memory module	Call
п	10mg 160/180 memory module	Call
1	4mg DUO 210/230 memory module	Call
1	8mg DUO 210/230 memory module	Call

Global Village PowerPort Moderns Bronze (24/96 S/R fox/ndm) Silver (94/96 S/R fox/mdm) Gold (14,400 S/R fox/mdm)

PSI PowerModems
PSI PowerModem I (24/96/48 S/R lax moder)
PSI PowerModem III (96/96 S/R lax moder)
PSI PowerModem IV(14 4/14,45/8ba moder)

### Syquest Cartridges 44MB-\$62 88MB-\$96 88MB-\$96

### **Memory Direct Removable Drives**

Memory Direct 44mb External (SQ555)	\$395
Memory Direct 44mb Internal	\$355
Memory Direct 88mb External (SQ5110)	\$499
Memory Direct 88mb Internal	\$479
Memory Direct 88c External (SQ5110C)* Memory Direct 88c Internal*	\$599 \$569

S	Old Dille Gal as
-	RasterOps 24XTV
0	RasterOps 24XLi
•	Darter One 24

KasterOps 24ALI	\$2059
RasterOps 24	\$1649
RasterOps paintboard Li	5849
RasterOps BXLi	\$999
Displays	

### 51024 21\* Color 20\* Color Multiscan Trinitran \$2375 \$2675

	Displays	
_	Super Match 21 Two-Page (9771)	\$2459
	SuperMatch 20 New Trinkron (9751)	\$2459
•	SuperMatch 20+T Muhimode Trinitron(9752)	\$2459
	SuperMatch 20 TXL New Trinitron	\$2459
	SuperMatch 17 Multimode (9730)	51159
-	SuperMatch 17+T Trinitron (9735)	\$1059
	Platinum 21 Two-Page Display (9761)	5999

ThunderStorm	\$825
Spectrum/24 Series IV	5825
Spectrum/24 PDQ Plus	\$1525
Spectrum/8+24 PDQ NuBus or Ilsi	\$825
Spectrum B/Series IV	\$415

### Quicktime Movie Making

VideoSpigot NuBus* / Int* / IC	\$379/339/25
Spigot & Sound NuBus*	\$489
VideoSpigot Pro NuBus* / Ilsi**	\$1079/1239
Spigot & Sound Pro NuBus**	\$1079
FREE Adobe Preview 2.0 LE	

### **External Drive Housings**

Full Height \$145 Half Height

## **UMAX Scanners**

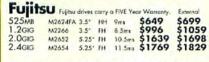
UC-840 with Adobe PhotoShop v2.0.1 \$1:	099 299 989
---	-------------------

(800) 989-MD4U

339/259

YOUR ORDER (714) 842-9437

7921 Professional Circle, Huntington Beach,



### Quantum ELS, LPS, PRO drives have a TWO Year Warranty

85ms EIS85 17ms \$185 \$24: 105ms EIS127 17ms \$198 \$24: 120ms EIS127 17ms \$209 \$26: 170ms 195240 10ms \$229 \$27: 240ms PRO425 9ms \$229 \$33: 425ms UP\$525 10ms \$529 \$57:	
120MB ELS170 17ms \$209 \$266 170MB LPS240 10ms \$229 \$275 240MB PRO425 9ms \$289 \$339	5
170mb LPS240 10ms \$229 \$279 240mb PRO425 9ms \$289 \$339	9
240ml PRO425 9ms \$289 \$33	7
	5
425wa IPS525 10ms \$520 \$576	•
	•
525Ma PRO700 10ms 5669 5729	•
1.0gig PRO1050 10ms \$959 \$999	9
1.2GIG PRO1225 10ms \$1039 \$103	79
PowerBook Hard Drives	
80MB Go Quantum Hard Drive 17ms 5229 529	8
120m8 Go • Quantum Hard Drive 17ms 5285 533	9
160Ms Go • Quantum Hard Drive 17ms \$298 \$36	9

### **NEC CD-ROMS**

NEC MultiSpin (CDR-38)	405 298 469
------------------------	-------------------



# **Daystar Digital**

Power Cache .	33	\$386	\$461
Power Cache	10	\$549	\$629
Power Cache S	50	\$719	\$849
25 Mhz Turbo	040		\$1129
33 Mhz Turbo	040		\$1349
Universal FastC	ache		\$169
ComboCache:	SI w/o math d	nip	\$219
	with moth ch	qip	\$309
Equalizer IC	w/o math c	hip	\$179
	with math d	hip	\$249
Charger			\$815

### PSI - ComStations

ComStation   (24/96/48 5/8 fax modern)	\$139
ComStation IV(24/96/96 5/R fax modern)	\$359
ComStation V (14.4/14.4 5/R fax modern	15419

MODEMS

### Global Village

TelePort (External Desktop Fax/Ma	devs)
Bronze (24/96 S/R fax modern)	\$199
Silver (96/96 S/R for modern)	\$369
Gold (14.400 S/E for modern)	\$429

Mac SE MEDOD POST		
MC3SE Thet/This/108amt.326	\$209	-
MC+SEET The L/103cm F, 32K	\$209 \$159	
SCSI Products		O
EN/SCIOT 10toral trobdes SCSI Cobia	\$249	
EN/SCPBscs Cobb w/HPDi30 & D8-25 For FB	555	
FriendlyNet Adapters (All models)	589	
10Base T Hubs	100	
10THUB/12 1011 HA =/12 ICT, TA/The For	5489	
AH170112 pr See Hub w/SMP# H/W Models	5909	$\sim$
EtherTalk to LocalTalk	4.4	
AP1002 Assembling Tolk/This	\$329	•
AP 101 Assets First Thick/10Equit	5329	
Mac II Family & Performa 600	(rubus)	•
MC3NB Track/Thes/100 court, 645	5209	
MC+IIE64 THATTHE SEE	\$159	
Mac Ilsi & SE/30 (58033 PDS)	7270	
MC 311Shad/har/108cmf, sax, Pru Socker	\$209	
MC+30/E64 thick/Thin/sex, FPU Socker	\$159	
LC/LCII/Performa 400 (68020, 680)	00 PD6)	~
MC+LCII They 100 am 1, FPU Socket	\$209	
5 Year Warranty	Accept	

Visa • American Express • Discover

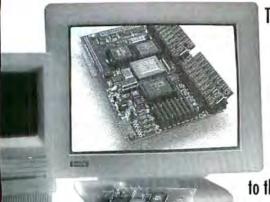
Carporate P.O.'s • Government P.O.'s • Educational P.O.' Installation instructions & tools available for most products. Prices subject to change.

CIRCLE 516 ON READER SERVICE CARD

370



# PERIPHERAL 800 256-6581



The ImagePro is a 68030 based accelerator and video combo board including a math coprocessor. It can be used with your 15" or 19" monitor or ours! The Quik30 is identical to the ImagePro but without the video options.

see pricing at right

### 68882 FPU Boards

20 MHz for Macintosh LC	59.00
20 MHz w/2 slots for Mac Ilsi	119.00
20 MHz for Mac Classic II	59.00

### Cache Cards, Etc.

128K Lache Lard for LUIII	
and Performa 430	159.00
w/25 MHz FPU	239.00
Ilsi 64K Cache Card	159.00
Ilci 64K Cache Card	125.00
llsi 2-slot Card and 68882	119.00

### **Math Coprocessors**

68882 16 MHz FPU	55.00
68882 20 MHz FPU	59.00
68882 25 MHz FPU	79.00
68882 33 MHz FPU	85.00
68882 50 MHz FPU	119.00
68881 16 MHz FPU	45.00

iviisceiianeou	S
T.I. MicroLaser 1 MB	49.00
Virtual 3.0	69.00
Mac Classic 1 MB Board	75.00
68851 16MHz PMMU	89.00
if requested, MODE 32 software inclu	ded free wPMNU
Mac Portable 3 MB Card	425.00
Mac Portable 4 MB Card	479.00
Due to volatility in the market	all prices and

availability are subject to change without notice.

### Memory for the new Macs!

LCIII, CENTRIS 610 & 650	D, 660AV, QUADRA 800 & 840A
4 Megabyte	CALL FOR
8 Megabyte	CURRENT
16 Megabyte	PRICING ON
32 Megabyte	ALL MODELS

### 2MMI2 hashnst2

Ottailian a c	HAHAHA
1 Megabyte	CALL FOR
2 Megabyte	CURRENT
4 Megabyte	PRICING
8 Megabyte	ON ALL
16 Megabyte	SPEEDS

### Video RAM

4 Bit to 8 Bit Upgrade	
(Mac II/IIx cards)	24.00
256K Quadra 700/900 VRAM	27.00
256K Quadra 950/Q800 VRAM	29.00
256K Centris/LC III VRAM	29.00
512K VRAM for LC, LCII, Ilvx, Ilvi,	
DuoDock, and Performas	49.00

### PowerRook Memory

I OTTOL DOOK INCHIOL J					
	100	140/170	160/180	165c/180c	210/230
2 MB	CALL	CALL			
4 MB	CALL	CALL	CALL	CALL	CALL
				CALL	
8 MB			CALL	CALL	CALL
10 MB			CALL	CALL	



LIFETIME WARRANTY ON ALL MEMORY **PRODUCTS** 

# **ImagePro and Quik30**

ImagePro	TOT PIAC 3E	System	System
25 MHz	505.00	795.00	935.00
33 MHz	635.00	925.00	1,065.00
50 MHz	695.00	985.00	1,125.00
Quik30			
25 MHz	355.00	N/A	N/A
33 MHz	485.00	N/A	N/A
*ImanePros and	no? hha smalsys	OO to ahove prices to	r Mar Plucif laccie

### DiiMOCache 50 MHz Accelerator

"Quik30s, add \$40.00 to above prices for Plus, \$95.00 for Classic

Speed up everything you do by up to 400% MacUser with the DiiMOCache 50MHz 68030 Accelerator. Awarded 4 1/2 Mice from MacUser's April 1993 Accelerator Review, the DiiMOCache Accelerator outperforms not only DayStar's PowerCache 50MHz but also most 68040 25MHz accelerators and costs less! The DiiMOCache runs on the Ilci, Ilvx. Ilvi. Ilsi, SE/30, II, Ilx, Ilcx, and Performa 600. Call for adapter prices.

w/FPU w/o FPU DiiMOCache 50 MHz Accelerator 589.00 699.00

68040 **PROCESSOR** WITH FPU FOR CENTRIS 610 AND 650

# **DayStar**

w/o FPU w/FPU PowerCache 33MHz 345.00 420.00 PowerCache 50MHz 635.00 749.00 Turbo '040 25MHz 785.00 955.00 Turbo '040 33MHz 875.00 1129.00 Turbo '040 40MHz 1649.00 799.00

"Charger" for Photoshop FastCache 128K Quadra CALL

ORDER BY 6:30 PM CST FOR SAME DAY SHIPPING\* OVERNIGHT DELIVERY FROM \$8.00 \*some restrictions apply

327 East 14th, PO Box 2329 • Ada, Oklahoma 74820 International 405/332-6581 FAX 405/436-2245





**Memory Upgrade** 

# MAC Xtra is STILL Beating Those High Costs!



1x8x80	50
1x8x70	57
2x8x80	78
2x8x70	
4x8x80	146
4x8x70	148
4x8x80 II/IIx	180
4x8x70 II/IIx	182
16x8x80 (High profile)	639
16x8x70 (Low profile)	705
1x8x80fx	57
1x8x70fx	59
4x8x80fx	151
4x8x70fx	153
16x8x80fx	579
4MB (70 NS/60 NS)	.167/199
8MB (70 NS/60 NS)	.339/399
16MB (70 NS/60 NS)	
32MB (60 NS)	

### POWERBOOK M E M O R Y

PB100-6MB	425
PB140/170-4MB	195
PB140/170-6MB	
PB160/180-4MB	209
PB160/180-6MB	
PB160/180-8MB	505
PB160/180-10MB	
PB165C/180C-4MB	235
PB165C/180C-6MB	
PB165C/180C-8MB	
PB165C/180C-10MB	625
PBDUO 210/230-4MB	215
PBDUO210/230-6MB	284
PBDUO210/230-8MB	
PBDUO210/230-10MB	515
PBDUO210/230-12MB	905
PBDUO210/230-20MB	1,649



DAYSTAR Universal P	owercache
030 33/33 w/fpu	345/435
030 40/40 w/fpu	519/605
030 50/50 w/fpu	649/759
Turbo 040 25/33	
APPLIEDENGINEERING	

SE 25 mhz/ 25 w-FPU ....189/289 Classic 25 mhz/25 FPU ...189/289



Supra 5014LC 14.4 S/R Fax165
Supra 240059
Supra V.32bis Powerbook Fax279
Supra 14.4 S/R Fax
(w/o cable/software)239
Zoom AMX 2400 bps68
Zoom FXV 2400/9600 S/R Fax135
Zoom VFXV 14.4 v.32bis S/R 275



256/512K VRAM27/49
TI Microlaser Upgrade43
Tool Kit (Simms Inst.Kit)
Tool Kit (PowerBook)6.50
LC I/II FPU55
LC III FPU69
Classic II FPU55
Duo Dock/Performa 600 FPU 69
Color Classic FPU48
Centris FPU367

# SYQUEST

SyQuest	44MB	Cartrio	ige		51
SyQuest	44/Pr	eforma	itted		58
SyQuest	88MB	Cartrio	lge		3
SyQuest	88/Pr	eforma	itted	10	00
SyQuest	105MI	B Cartr	idge		79





OPTICAL C	ARTRIDGES	
128 MB (San	nsung)3	5
650 MB (San HOPTICALD	nsung)9 <b>NSKS</b>	9
	CARTRIDGES 2	2
40 MB (3 Pack	28	4
90 MB (3 Pag	k)39	0
150 MB (5 Pa	ick)49	5

SHIP	PING
Overnight Deliver	y:57
UPS:	\$6
Internati Phone:	onal Orders (206) 455-0786
Fax:	(206) 455-3448

CALL: 1-800-553-4230

We accept MasterCard, VISA & Discover
Prices subject to change • Returns subject to approval and restocking fee

1075 Bellevue Way N.E., Suite 114 Bellevue, WA 98004 Phone: (206) 455-0786 Fax: (206) 455-3448

To enhance our identity and avoid confusion, MacEXPRESS is now MacXtra. We will honor all warranties given under our previous name.

Mac Xtra



### **Memory Upgrade**

### Peripherals

### Dynamic Engineering

435 Park Dr., Ben Lomond, Ca. 95005 (P)408-336-8891 (F)408-336-3840

≡PowerBook ≡ Speed Upgrades From \$299

Portable Memory Upgrade 1-8 Mb for your Portable

Speed up your Portable 40-206 Mb Internal HDD

Ext & Int Hard Drives & Cases 2.5", 3.5", and Portable HDD

M/C Visa COD P.O.

(800) 487-4655

CIRCLE 555 ON READER SERVICE CARD



page ad in the

HacWorld Shopper!

We Have Memory for the **Hew Macs!** 

160

MIC

1.2gb

2.0gb 2.1gb

2.0gb

1.2gb

2.4gb

2.4gb

1.6gb

2.1gb

2.4gb

**SEAGATE** 

3.5"

3.5"

3.5"

5.25"

5.25

CIRCLE 432 ON READER SERVICE CARD

### Monitors



CIRCLE 412 ON READER SERVICE CARD

# - Pacific Mac 800-546-4622

We have sales specials every week Call for latest pricing

### SUPRA Fax 14.4 v.32bis S/A \$230.-

UA	NT	UM	Internal External	<b>FUJIT</b>	SU		Internal Externa
dmt	2.5"	17ms					\$665/\$725
0mb	3.5"	17ms	\$194/\$254	1.2gb	3.5"	8.5ms	\$990/\$1050
dmt	3.5"	10ms	\$255/\$315	2.1gb	5.25"	11ms	\$1810/\$1910
5mb	3.5"	10ms	\$630/\$690	2.4gb	5.25"	11ms	\$1830/\$1930
gb	3.5"	10ms	\$985\$1045				

### 3.5" 10ms \$1070\$1130 OPTICALS 1.2gb

\$1380/\$1490

Internal External

\$950/\$1010

\$1979/\$2049

\$2240/\$2300

\$1269/\$1369

\$1515/\$1615

\$1790/\$1890

11ms

11ms

9ms

8ms

13ms

11ms

5.25" 14ms

5.25" 15ms

5.25" 11ms

ROP	OLIS.	Internal	External	Fujitsu Olympus	128mb 128mb	35ms 35ms	\$929,- \$979
3.5"	10ms	\$980/	51069	Sony	128mb	45ms	\$909
3,5"	10ms	\$1399/	\$1459	Ontical o	vtornale	come in the	ne original

manufacturer's case + 128mb disk.

### **SYOUEST**

44mb Cartidges Only >>>> \$60.00 88mb Cartridges Only >>>> 590,00 88C Drive reads and writes 44 &88 cartridges, external complete \$509.-

All drives carry a 30-day money-back guarantee. No refunds on shipping. Prices are subject to change. Visa/MC

\$2290/\$2390 CIRCLE 490 ON READER SERVICE CARD

### **PowerBook**



Ong Engineering 2305 Cherrystone Drive San Jose CA 95128

Phone: (800) 995-9121 (408) 249-3647

CIRCLE 471 ON READER SERVICE CARD

# CIRCLE 524 ON READER SERVICE CARD EMORY

MEMORY DIRECT. 1(800)989-MD4U (989-6348)

CALL US LAST FOR LOWEST PRICES ON ALL MAC MEMORY, IMB - 32 MB. ALL POWER BOOKS, DUO'S & PRINTERS ACCELERATOR BOARDS, FPU CARDS, FPU CHIPS, PMMU CHIPS & VRAM

### LIFE TIME WARRANTY

M.C., VISA & DISCOVER P.O.'S WELCOMED

1-800-662-SIMM (7466) SERVING THE INDUSTRY SINCE 1963

DATA MEMORY SYSTEMS CIRCLE 447 ON READER SERVICE CARD



### Software

Astrology

### Graphic Astrology-

Professional quality software for all your astrology needs. Charting programs, atlases, interpreters, fonts! State-of-the-art features, superior accuracy, high-resolution output. For astrologers and students of astrology. Call or write for FREE catalog.

Time Cycles Research Dimmock Road Waterford CT 06385 Voice (203) 444 -6641 Fax (203) 442 -0625

CIRCLE 411 ON READER SERVICE CARD

**Bar Code** 

### For those wanting BAR CODES THAT SCAN!

For Barcode Generation

### **MacBARCODA** Contains all the vital features

for safe, quality bar code production and is compatible with all major page-makeup and graphics software.



For Label Printing

### label designer

An easy-to-use, complete Post-Script label design & print package. Any label size and sheet layout including text, bar codes, PICT & EPS graphics.



Give us a call. You will find our Computalabel staff both informative and helpful!

Computalabel Inc. 28 Green Street, Newbury MA 01951 Tel 800-289-0993 Fax 508-462-0993

CIRCLE 544 ON READER SERVICE CARD

### **Bar Code**

### BAR CODE

- 60 PostScript Type 1 Bar Code Fonts Just like using Times or Helvetica
- Use in any program with a font menu Cade 39, UPC/EAN, 128, I 2015, PostNet
- Not HyperCard Dependent
- Simple, Easy-to-Use, Plug & Play

WORTHINGTON

TA SOLUTIONS

- Create 1,000 incremented bar codes in 5 seconds using Sequencer™ DA
- Generate film masters in Quark, etc.

- S199 includes our DA & All Fonts
   Oday money back guarantee
   Call Toll Free in the USA or Canada

800-345-4220 or 408-458-9938

**Precision** 

90 Day Money Back Guarantee

## deScan" Bar Code Readers 30 Day Money Back Guarantee 5 Year Warranty

See our display ad in the Billboard section.

Bear Rock 800 232-7625

### BBS

**Bulletin Boar** GROUP EDITION BBS System

The leading Macintosh BBS for business ar education. First in quality and performance.

· 'The best BBS available on any platform,

- any price." MacUser (UK).

   "Best Communications Software 1992"
- MacWorld Australia
- Multi-user chat, E-mail, ZMODEM filtransfer, conferences, find file, and graphic use
- Supports Mac and PC users.
   TeleFinder is \$425 for unlimited users, include host and user communication software.

Call for free eval disk!

Spider Island Software 4790 Irvine Blyd #105-347 Irvine, CA 92720 tel (714)669-9260 fax (714)669-1383 bbs (714)730-5785

CIRCLE 597 ON READER SERVICE CARD

**Business** 

# SYNEX BAR CODE PRO

Desk accessory, Quark™XTension or PageMaker™ Addition creates color PostScript™ graphics. An easyto-use solution, Bar Code Pro™ can be used for packaging design, labeling, libraries, inventory, or publishing. Versions: UPC, 39, EAN, ISSN, ISBN, 128, POSTNET/FIM, Codabar, MSI/Plessey, ITF

(800) 447-9639 FAX: (718) 768-3997



But Code Pro\*\* minutes to mester" MacWorld

CIRCLE 450 ON READER SERVICE CARD

Save \$\$\$. Now you • MICR TrueType Font can laserprint any

style check on plain . 500 Check sheets paper. CheckPrint kit includes:

MICR toner cartridge

· MICR alignment guide CheckPrint Software

Aatrix Software 800-426-0854

List Price \$399

CIRCLE 409 ON READER SERVICE CARD



CIRCLE 466 ON READER SERVICE CARD

### CREDIT AUTHORIZATION & ELECTRONIC DEPOSIT

- Eliminate credit terminals / reduce costs / shorten float
- · Handles all major credit cards plus check guarantee.
- Works with all major bank credit card networks.
  Database options, plus much more!!

POS Credit Developers since 1981

800-4-TELLAN • 408/274-1110 • Tellan Software, Inc.



### **Business**

**Career Development** 

Clip Art

### FREE 11,000 quotes,

jokes and anecdotes in The Write File Library with one-year subscription to The Write File Quarterly. For anyone who speaks, writes or edits, the Library offers the most useful collection of wit and wisdom, current and classical on 3.5-inch disks. Separate price, \$89, but free with The Quarterly. The Write File Quarterly cans books, newspapers, periodicals for oday's most incisive quotes. Just \$169 a year. For free demo disk of 1,000 quotes, while limited supply lasts, phone:

705/439-2580 705/439-2646 fax

XI, III

### CAD/CAM

CAD SYMBOL LIBRARIES

Mechanical Design Residential Architectural Electrical/Electronic Commercial Architectural

1000 + symbols in each library. Follows ANSI

and industry standards. High-quality symbols compatible with MacDraw III\*, MacDrawFiot\* ClarisCAD\*\*, and Pict for most other drawing programs on the MacIntosh.

Berol RAPIDESIGN

DRAWING SYMBOLS LIBRARYIM CIRCLE 598 ON READER SERVICE CARD

800-323-2454 ext. 76 Of

Mo

818-365-8661

### FREE CD-ROM

The Easiest Way to Purchase Mainstream Software

100+ major software programs on CD-ROM. (Not shareware)

### \$200 software value FREE!



For more information: Phone 805-492-7558

Modem 714-573-3873

Supplies limited. To reserve your copy send \$5.00 shipping and handling to:

DISC SHOP

365 Ave. De Los Arboles, Suite 105 Thousand Oaks, CA 91360

CIRCLE 427 ON READER SERVICE CARD

of the World Famous Cross Country Ski machine is looking for new health and fitness products and ideas. If you have a new, exciting, unique, patented or patentable idea for a health or fitness related product call or write us and we'll send you out an inventor information and submission packet.

Call us today or write to NordicTrack,

800/967-2113.

Call us today! Our next great new

### **Career Opportunity**

### NORDICTRACK, the maker

104 Peavey Road A220MW, Chaska MN 55318

### NordicTrack Inventors Hotline

product could be yours!



Sketch in live 3D perspective with 3D crosslair Dynamic 4D viewing, fast shading, pochéd sections M) direct manipulation means for fewer commands ·Create, move & resize openings as easily to rectangles Impurt/export Claris CAD, DXF, Architring 3D · 32 bit color. QuickTime ou studies, walkthrough Work in multiple documents & multiple windows Only \$895, with 90 day satisfaction gustantee Call 503-345-7421, or fax 503-346-3626

Artifice, Inc. How 1588, Fagene, OR 97450

CIRCLE 408 ON READER SERVICE CARD



CIRCLE 600 ON READER SERVICE CARD





MAPS FOR GRAPHIC DESIGN!



Each low, area, and name is an object that can

to every lakes in Historica format. Disk or CD HOM

For FREE Information by Mail or FAX Please Call: 800-334-4291

CARTESIA

to insividually selected and modified

CIRCLE 417 ON READER SERVICE CARD

# <u>Pertect</u>

MediClip... the first complete medical anatomy and art library for your MAC or IBM.

· Available in high quality EPS and all major formats • 3 volumes of 100 images

IF for only \$99 each 1-800-998-8705

This offer not yalld through retail oralets

CIRCLE 431 ON READER SERVICE CARD

### Logo Design Software



Logo SuperPower!\* is a large graphic database. You use one or more 'design elements' and modify them to create world-class logos like those shown here in minutes. There are over 2,000 design elements in 4 modules.

SuperPower (660+ design elements)....\$119 Upgrade 500 (500 new design elements)...\$59 Upgrade 450 (450 more new elements)...\$59 Upgrade 400 (400 more new elements)...\$79

Buy any portion, or buy them all for just \$279.00. Buy 1 now - buy the rest within 30 days - get all for \$279 For the Mac: Requires Illustrator or FreeHand. To order, or for information, call

(800) 648-5646 hlon Corp. • 4100 Executive P: Cincinnati, OH 45241 Phone (513) 421-1938

CIRCLE 533 ON READER SERVICE CARD



CIRCLE 440 ON READER SERVICE CARD



Clip Art

### **Databases**

### Educational

### An Introductory Offer From NETWORK WORLD

### Because In Your Job. A **Picture Is Worth Much** More than 1.000 Words.

- The first clip-art library created for networking and computer professionals
- Over 170 professionally drawn symbols for Computing, WANs, LANs, Telephony, Personal Computing and Patching and Cabling
- · Works with many drawing programs for the MAC including MacDraw®, Canvas® and SuperPaint\*
- PICT symbols can be pasted into a variety of word processing, page layout and presentation documents
- Also available for DOS and Windows
- Offered at the low, introductory price of \$99.95



Call 800-643-4668 To **Order Today!** 

CIRCLE 461 ON READER SERVICE CARD



 9 vols. available \*\*\*\* Each 3-disk volume is \$89.95
 For Macintosh or IBM • All volumes on CD for \$349.95 800-266-9525 Fax: 818-888-5405

DUBI-CITIEN Dubi-Click Software Call us for a free catalog

CIRCLE 599 ON READER SERVICE CARD

### **Custom Development**



### Inside 4DTM v1.0.1 New!

The Ultimate On-line Reference Guide to the 4th DIMENSION® programming language. Example code, description, syntax for all 4D commands. Find commands in an instant, Copy example code to 4D procedures. Ascii tables, etc. For all 4D users, beginners/pros. Increase your productivity NOW! ONLY \$129.95 + shipping. Distributors required worldwide. Mackenzie Associates

U.S. Sales: 800-774-6743 Rest of World: +44-642-634-600 +44-642-769-977 FAX

Memorize • ItTM Students around the country are using Memorize It to study every subject imaginable. Anatomy, Art History, Aviation, Biology, Calculus, Chemistry, Computer Science, CPA. English, French, Geography, German, GRE, Japanese, Law, Morse Code, Math, Medical School, Russian, SAT, Sign Language, Spanish, Spelling, Sports, & many more. Create your own or use our information to study. Memorize It \$39 +\$2 s&h. Visa/MC Side∞Eight | P.O. Box 5004 Garden Grove, CA 92645 714/952-4114

### Educational

### **EDUCATOR/TRAINER SOFTWARE 800-669-6574**

MAKETEST® organizes questions & prints tests quickly. FIREFIGHTING ESSENTIALS QUESTIONS in MakeTest. MATHMAKER FONTS type equations & number lines. CLASSMASTER makes grading and attendance easy. SCHOOL FONT looks like printed handwriting. PLAN TO TEACH eases lesson planning; also CLIP ART.



298 FOURTH AVE. No 401, SAN FRANCISCO, CA 94118 • FAX: 415-752-6506 • FREE DEMOS

CIRCLE 478 ON READER SERVICE CARD



Take the work out of GRADING!
Save time and energy with MacGrade, the powerful grade manager that's fast, fun and exceptionally easy to use. And it's the only grading program available that makes full use of the power of your Macintosh. 30 Day Money Back Guarantee.

CIRCLE 406 ON READER SERVICE CARD

Highest-rated software for every testing environment: classroom, school, district, governmental, industrial and certification.

Logic eXtension Resources 9651-C Business Center Drive

- ogic eXtension Resources
  51-C Business Center Drive
  —Test Scoring w6froup Comparison
  —Test Scoring w6froup Comparison
  —Weighted & Multi-Response Greek
  —Very Scoring and Analysis
  —Interactive Testing with Moves
  —Weighted & Multi-Response Greek
  —Accommodates All Question Types
  —Integrated Design (Mac & Windows)

CIRCLE 407 ON READER SERVICE CARD

CIRCLE 513 ON READER SERVICE CARD



### Rated \*\* \* in Macworld, December 1992 (p.263) GRADING MADE EASY!

Use Grade Machine. It's fast, flexible and easy to learn with weighted assignment categories, custom reports, narrative comments, student graphs and much more. Not copy protected. System 7 and networkable Affordable site ficenses and multi-leacher packs available.

Rated #1 Productivity Program by teachers

- Electronic Learning Supplement, April 1993, p.7 Still only \$79 +\$5 S&H (\$99 bundled with Attendance/Senting Chart Option Call (800) 795-0049 to order yours today! 30 DAY MONEY-BACK GUARANTEE!



### Educational

### Qualitas is your Japanese Resource! Macの日本語はクォリタスにお任せ下さい。

### Japanese Language Kit!

WorldScript Extension for System 7.1 \$249

Aldus PageMaker 4.0-J EGWord 5.0 Aldus Freehand 3.1-1 Adobe Illustrator 32-J Excel 4 0-J Adobe Photoshop 2.0-1 ATM - J

MacWORD 20

**Qualitas Trading Company** 2029 Durant Avenue, Berkeley, CA 94704 / Phone: (510) 848-8080 / Fax: (510) 848-8009

CIRCLE 582 ON READER SERVICE CARD

### oftware up to 80% off

For Students and teachers). ageMaker 5.0=\$299, Photoshop 2.5=\$269, Illustrator 5.0=\$199, Lotus 1-2-3=\$149, Canvas \$199 xcel/Word=\$179, Wordperfect=\$149, rame Maker=\$249, Fractal Design ainter \$199, Clarisworks=\$149, MS Vorks=\$99, Norton Utilities=\$70,

Much more.Free Catalog.Dealers welcome. oftware Plus 140 West Street ort Lee, NJ 07024

100-377-9943 (Orders) 201/585-0662 (Info) 201/585-0226 (Fax)

### **Entertainment**

### Sailing Master TM

A Regatta on your Macintosh



Race against your Mac. Learn sailing concepts. If you like flight simulators or golf games, you'll enjoy Salling Master. \$59.99 + \$5 v/h. 313/662-4393. FAX: 313/662-0425. Starboard Software Box 130014 • Ann Arbor, M1 • 48113

CIRCLE 476 ON READER SERVICE CARD

### I saw it in the



### **Entertainment**

### rossPro™ Crosswords!

he definitive crossword solving program esigned for the Mac! Easy/hard clues, ints, timer, scoring, peeking, font conols, colors, preferences & more add the fun. Comes with 250 puzzles or nter puzzles from magazines and ewspapers. \$38 check, money order Colorado residents, add applicable sales 3x) + 53 S/H.

Ispen Gold software .O. Box 370486 Denver, CO 80237-0486 103/745-5448

### **Fonts**

### **Font**Software

ADOBE · AGFA · BITSTREAM FONT BUREAU · LETRASET LINOTYPE-HELL · MONOTYPE TREACYFACES · URW...

and over 30 other type foundries & font software manufacturers

### LOW DISCOUNT PRICES

264-page catalogue available for \$6.95 plus \$2.50 shipping (call for shipping costs outside USA)

### 800.248.3668



47 Mall Drive Commack NY 11725 TELEPHONE: 516.864.0167

FACSIMILE: 516.543.5721 1454

CIRCLE 485 ON READER SERVICE CARD

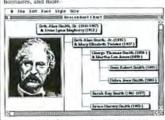
### Genealogy

\*\*\*

### REUNION

the family tree software

Reunion quickly organizes your family information and images, links and displays color and grayscale pictures, identifies relationships, creates large graphic tree charts, family group records, family histories, mailing lists, ques-



To order, call MacConnection @ 1-800-334-4444, For a free brochure & sample printouts, contact...

### Leister Productions

P.O. Box 289, Mechanishun, PA 17055
Phone 717-697-1378 — Fax 717-697-4373
CompaServe 71201,1105 — America Orline LeisterPro

New available for Maciatush and Windows.

### Family Heritage File™

New Version 3.3! Most powerful and easy genealogy program on Mac. Rated "BEST" by Macworld. Designed by genealogy professionals. •Enhanced •Fully Relational · Graphic Pedigree, Family Group, Individual, Marriage, Surname •Unlimited History Sorted Lists •Export to WP/data base/modem • lewish features, \$149 + 5 s/h. Ask about Family Heritage Bundle. Visa/MC. Trade up \$75. Demo \$7. Free Lit Pak. Star•Com Microsystems Windsor Park East 25 West 1480 North Orem, UT 84057 801/225-1480

### Family Roots™

Do it YOUR way! Huge variety and capacity for your family history. Make pedigree charts, descendants charts, person sheets, group sheets, indexes and much more. Customize to your own preferences. Standard Mac interface. Call for FREE information. Satisfaction quaranteed. MC/Visa/AE. Quinsept Box 216

Lexington MA 02173 617/641-2930 800/637-ROOT

### Graphics

### Presto3D™ \$59.95!

plus \$7.50 s/n CA add \$4.65 tax overseas add \$10 normally \$99.95 3D Text Virtual trackball

Flat color shade DXF in/out Extrude, revolve, sweep Draw & render in 3D If you ever wanted to draw Up to ten lightsources XYZ and PICT export in 3D on your

MacII and up plus PB humanOs technologies 11956 Bernardo Plaza Dr. #510 m2 San Diego, CA. 92128 ph# 619-451-7892/619-485-9521 fax

Mac, now you

CIRCLE 475 ON READER SERVICE CARD

### **Graphics Translators**

### CADMOVER® - Release 3.5

New Formats, New Features, & More User Control

- · New Claris Cad Reader
- Read MicroStation, Schema & Pro Engineer via EPSF
- DXF reader is faster & reads larger files than ever
- · Check your drawings with the new Pan & Zoom Feature

So many improvements...so little space... so call for more information.



Now With Free ViewPICTTM Utility Call 703. 532. 0213



CIRCLE 477 ON READER SERVICE CARD



### Languages

### **MACTRAN PLUS Ver. 4.5**

Sys. 7 Compatible INTEGRATED Made-For-Mac Development System. Incl: Editor, Optimizing Compiler, Source level Debugger, Linker, Library Manager, Profiler and Build facility. Supports 68020/030/040 & 68881/2 native code. Significant Vax Fortran & ANSI 8x ext. Hi & Low level tool box interface. Unltd. code segment size. "I believe you easily have the best FORTRAN compiler for Macintosh," Bill White, Texas A&M University. "You have made a number of major improvements that are significant, and it becomes the best FORTRAN Compiler for the Mac." Byron Palmer, Los Alamos Natl. Lab. **DCM Data Products** 

BASIC COMPILER

1200 Quail Street, Suite 280

Newport Beach, CA 92660

714/724-0802 714/724-0803 FAX

- FutureBASIC\*
   Editor, Compiler, Source-level debugger
- zantar, Computer, Solrice-fevel debugger System 7.x compatible 32-bit clean Writes double-clickable Mac applications Creates INTES, CDEVs, XCMDs, DAs, ... Comparable in speed to C and Pascal Light-years ahead of QuickBASIC<sup>28</sup> Includes QuickBASIC conversion utility

For more information or a brochure call

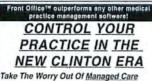
800.482.4567 602.881.8101 - FAX 602.881.1841

CIRCLE 473 ON READER SERVICE CARD

### FORTRAN 77 • System 7

LS FORTRAN is an ANSI/ISO standard FOR-TRAN 77 compiler for the Macintosh. Supports extensions from VAX and Cray FOR-TRAN, built-in debugging, background execution, software or hardware floating point, optimized code generation, and 2D or 3D graphics support. The complete solution to your FORTRAN programming needs. Language Systems Corp. 441 Carlisle Dr. Herndon, VA 22070-4802 703/478-0181 703/689-9593 Fax 800/252-6479

### Medical



And use The Front Office™ Practice Management Software For The Macintosh™ Computer

- Accintosn \*\*\* Configurer

   Electronic Claims processing

   Paper Claims, Monthly Statements

   Cycle Billing, Insurance Follow-Up

   Accounts Receivable Aging

   Toll Free & Modern Customer Support

   Statems Customer Support

   Statems Customer Support

- Software Customization Available
  Upgrades to comply with New Federal regula

havey practice management will be the key to separating the "buses" from to "assented" with the NEW HEALTH ALLIANTES —Lawy Womash M.D. C.

1-800-622-1700



CIRCLE 433 ON READER SERVICE CARD

### Lottery



CIRCLE 460 ON READER SERVICE CARD

### Manufacturing

### Manufacturing Tools

- Inventory Control Purchasing
- · Bill of Materials Custom Reporting
  - OnBase Technology, Inc.

InQuire/Mac is a full featured material management system for the small manufacturing company. Designed to work with your existing accounting software. MRP features without headachest

14 Hughes, #B105 Irvine, CA 92718 714/830-5682 OK

Call for free Demo 800/782-5682 714/830-5691 Fax

CIRCLE 479 ON READER SERVICE CARE

### Music Midi

# Music For The Mac

The full scale of Products

- ☐ From instructional music software, like our own Compose Yourself; to the intricacies of Hard Disk recording.
- Authorized dealer for Coda, Digidesign, E-MU, Mark of the Unicorn, Opcode, Panasonic, Ramsa, Roland, Steinberg-Jones and more. Expert advice before you buy, and full tech support after you purchase!



Call the Experts at: 1-800-MAC-BEAT or

505-473-4929 fax: 505-473-4647

Free Catalog Available!

### **Programming Tools**

### SoftPolish™ ver. 1.1

Quality Assurance for Macintosh developers

- · avoid embarrassing errors
- · spell check resources
- detect interface problems

This stand-alone application works with any programming language. It is a tool for anyone who cares about software quality. 1993 Eddy Finalist. Language Systems Corp. 441 Carlisle Dr. Herndon, VA 22070-4802 800/252-6479

Property Management

703/689-9593 Fax

### Religion

### Bible Master v3.0

NASB, NIV, KJV Greek/Hebrew transliterated Dictionaries. The best computer Bible software available. Uses a standard MAC interface. Fast, flexible and sophisticated but easy to use. Easily transfer verses to your favorite word processor. Great discount prices! Free information! 30 Day money-back guarantee! American Bible Sales 870 S. Anaheim Blvd. Anaheim, CA 92805 800/535-5131

### Scientific

### Mac Landlord \$399

Upgraded version 2.2 now available. Still the Easiest-to-use property management program for multiple properties & unlimited units. Includes tenant and unit records, recurring income and expense, check writing, checkbook balancing, printing tenant notices, income and expense ledgers, and much more. Free telephone support. Demo for \$25, credited to purchase. Labana Management Company P.O. Box 2037 Dearborn, MI 48123 313/562-6247

### RockWare

For over a decade RockWare has developed and distributed quality earth science software at affordable prices. Our 1993 Scientific Software Catalog contains over 350 applications for the Mac, DOS, Windows, Amiga, and UNIX operating environments. Call for your free catalog. RockWare, Inc. 4251 Kipling Street, Suite 595 Wheat Ridge, CO 80033 800/775-6745 303/423-5645 303/423-6171 FAX



Shareware

# MAC & IBM SOFTWARE CATALOG 32 Pages! ASP Member

SOFTSHOPPE, INC.

P. O. Box 247 Artesia, CA 90701 Tel. (310) 802-1333 FAX. (310) 802-1494



Toll-Free-24 Hrs. 1-800-851-8089

CIRCLE 422 ON READER SERVICE CARD





M A

The Amish Outlaw

Shareware Company 3705 Richmond Ave. Staten Island NY 10312

For Free Catalog Call: 1-800-947-4346

CIRCLE 484 ON READER SERVICE CARD

### Stationery

### 不得不聽不聽不顧不過入 COMPUTER STATIONERY FOR **EVERYDAY AND HOLIDAYS** THAT YOU WANT TO PRINT ON ...

and on, and on, ....from
COMPUTER SENSATIONS, INC.,

where every design is a work of art!

Decorative computer stationery brightens correspondence on all tractor-led and laser printers. Christmas Dog and Cat and year 'round Bears with Hearts are just two of the whimsical designs. Perfect for letters, invitations, greeting cards, awards, bulletins, newsletters, banners, signs, etc.

For FREE catalog, call (800) 848-9001

共務や職大権大

CIRCLE 462 ON READER SERVICE CARD

### Services

CAD/CAM

### ENVISION Los Angeles

### COMPUTER-**DRIVEN LASER** CUTTING

Turn your drawings or computer files into precision laser cut parts for models. signage, and graphics!



24 hr. Turn-around Available

For more information call (800) 466-8811

CIRCLE 451 ON READER SERVICE CARD

### Computer Insurance

### **COMPUTERINSURANCE**

- ♣ Replacement with no depreciation
- + Covers computer hardware in home or office
- + Easy to read policy
- ♣ Bonus 20% for software coverage
- + Low \$50 deductible
- + Covers theft, fire, power surges, accidents, natural disasters, even earthquakes and flood
- + Policy backed by an A+ company

### **ECOMPUTERINSURANCE**

6150 Old Millersport Road, NE Pleasantville, OH 43148

1-800-722-0385

CIRCLE 523 ON READER SERVICE CARD



# SAFEWARE

**INSURES YOUR** COMPUTERS

Full replacement of hardware, media, purchased software. As low as \$49 yearly. Covers fire, theft, power surges, other accidents. Blanket coverage; no list of equipment needed. Call for information or immediate coverage.

1-800-848-3469 Local (614) 262-0559

SAFEWARE, The Insurance Agency Inc. 2929 N. High Street. P.O. Box 02211 Columbus, OH 43202

CIRCLE 522 ON READER SERVICE CARD

### Computer Repair



### MAC REPAIR Mac Shop Northwest

- Apple™ Certified Technicians
- One-Day Service Turnaround\*
- Hard Disk Repair & Data Recovery
- Up to 75% below Dealer Rates Component-Level Repairs
- Expert Advice and Prices by Phone
- Power Supplies & Logic Boards

Lifetime Repair Warranty\*

Tel: 1-503-642-3456 on many repairs. Visa/MC/AX. Fast overnight shipping available. We use genuine Apple™ parts

### 1-800-MAC-SHOP

CIRCLE 515 ON READER SERVICE CARD

### !!REPAIR BY MAIL

Real low cost, super fast turn-around. Mac Plus, Mac logic boards \$95+ parts; 1 yr. warranty. Plus and SE power sweep swap as low as \$59+ s/h; 1 yr. warranty. Drive repairs as low as \$35. Keyboard repairs as low as \$12.50+ s/h. New and used hardware for sale. School orders welcome. Open 12 noon-5, 6:30-10pm eastern M-Sat. We buy dead Apples, Macs, PCs. Arminius Pubs. & Prods. Inc. 8519 Orchard Ave. Merchantville, NJ 08109 609/662-3420 609/662-6460 Fax

### **MicroDoc Macintosh Computer Repair**

- · Component level repair in less than 48 hours.
- · We stock hard to find & custom parts.
- Same day parts shipping & most repairs.
- Telephone tech support on repair kits.
- · Complete price list available upon request.
- · School and corporate P.O. accepted.
- · Dealers/Servicers only.

Serving the service industry since 1983—with great prices on parts and repairs.

### CHECK OUT OUR PRICES

REPAIR PARTS
Exact replacement CRT:3 @\$50
Exact replacement mouse cables Complete analog repair kit with docs Hard drive power supply from \$49 Circuit board ICs, fuses & filters Pr LOGIC BOARD REPAIRS

LaserWriterII NTX - \$199
MacII, SE, Classic, & Plus - \$99
MacIIX, CX, SI, & ClassicII - \$119
MacIICI, FX, & Quadra 700 - \$179

Powerbooks from \$119 Floppy drive repairs 800/1.4 - \$69/\$99

1040 Tyinn #7/Eugene, OR 97402/(503) 344-5335/FAX (503) 344-5020

CIRCLE 482 ON READER SERVICE CARD

### **Data Recovery**

- Class 100 Clean Room
   Friendly Technicians
- 1-4 Day Turnaround
   No Recovery, No Fee
   Syquest, Bernoulli, Optical

318 Reese St. Ridgecrest, CA 93555 • (619) 384-4500 THE DATA RECOVERY EXPERTS".



### **Data Recovery**

- ON-SITE, weekend, & priority service backed by 24-hour worldwide support!
- · EXPERTISE in Macintosh & virtually every operating system & media storage device - including removable medial
- FOR FAST, SUCCESSFUL RESULTS call Ontrack. we can recover your data!

Recommended by Conner, Hewlett Packard, Iomega, Maxtor, Micropolis, Quantum, Rodime, Seagate, Western Digital & others

MN: 1-800-872-2599 • CA: 1-800-752-7557 London: 44-81-974 5522 • Germany: 0130-815-198 6321 Bury Drive, Eden Praine, MN 55346

CIRCLE 459 ON READER SERVICE CARD

CPR has been recognized in national magazines for its data recovery techniques and the ability to repair SCSI drives. Computer Peripheral Repair & Recovery Services, Inc.

'Data Crash! ... We're Going In !!"

7570 S. U.S. Hwy. 1, Ste.8 800-765-9292 Hypoluxo, FL 33462

407-586-0011 Ph

**Even veterans** in our industry occasionally

need help.

I'm glad that

Ontrack came

to my rescue."

Victoria Bernardini

Apple Computer, Inc.

CIRCLE 452 ON READER SERVICE CARD

407-582-7921 Fax

'By the next day we had both the restored data and the repaired drive. Now that's service!".....

As the only all-Mac data recovery company, we've saved more megabytes of Mac data than anyone else in the world. We're certified by every Mac drive manufacturer and even have U.S. Govt. security clea ance. Our proprietary techniques are so advanced we can rescue data others might simply abandon.

DriveSavers: 415-883-4232

Restoring data—and peace of mind–since 1989 \* Novato, CA 94949 \* Fax: 415-883-0780

CIRCLE 510 ON READER SERVICE CARD

### Education

### B.S. & M.S. In Computer Sci.

The American Institute for Computer Science offers an in-depth home study program to earn your Bachelor of Science and Master of Science degrees in Computer Science at home\*. B.S. subjects covered are: MS/DOS, BASIC, PASCAL, C, File Processing, Data Structures & Operating systems. M.S. Program includes subjects in Software Engineering and Artificial Intelligence. Amer. Institute for Computer Sciences 2101-MW Magnolia Ave # 200 Birmingham, AL 35205 800-767-2427

205-323-6191

requires IBM compatible computer

### **Printer Supplies**

Remanufactured cartridges for HP, Apple, etc. Exchange Price

CIRCLE 421 ON READER SERVICE CARD

### aser

ENDURO CARTRIDGE The Original Long-Life Toner Cartridge

Prints 80% more than a standard cartridge. Available for: Apple, HP, NEC, Canon, QMS, NewGen, Brother and most laser printers.

Next day delivery available. Only \$99 with cartridge return! 800-432-16

COASTAL LASER PRODUCTS

A full line of toner cartridges, font cartridges, printer RAM and other printer supplies.

CIRCLE 413 ON READER SERVICE CARD

### LASER & INKJET SUPPLIES

Premium remanufactured & Genuine HP toner & inkjet cartridges available!

800-GEN-1994 Genesis Technologies

Call for FREE laser preventive maintenance & recycling guides!

CIRCLE 492 ON READER SERVICE CARD





The JetInk" is the only economical and reliable cartridge refill solution for inkjet printers.

\$15.99 Win Port Technologies 612) 476-9855 (512) 476-6399

119 W. 6th Street Ste. 205 ustin, TX 78703 1-800-235-9748

CIRCLE 593 ON READER SERVICE CARD

**Printer Supplies** 

# TONER!

New & Remanufactured toner cartridges & other supplies for laser printers!

**New and Reloaded** 

impact printers!

ribbon cartridges for

RECO

ink jet refills !

 RECYCLE & SAVE up to 70% on printer supplies! Friendly service & great products for over 20 years.

CALL FOR FREE SUPPLIES CATALOG

800-426-8196

WILLOW

### Slides

# SlideImag

Slides/Overheads 800-232-5411

Dye-Sub Output Overnight

Slide Duplication •4x5 Neg/Pos/B&W Large Color Posters

Digital Output Canon Fiery Lasers

\$.90 IM Per Scar

Free Return FEDERAL EXPRESS Call For Details 22-7th St. • Atlanta GA 30308 • 404-873-5353

CIRCLE 456 ON READER SERVICE CARD



Scanning and production services

\*On All Service Bureau Projects ≥\$100 with Airborne's Next Business Day "Select" Service CIRCLE 584 ON READER SERVICE CARD CIRCLE 488 ON READER SERVICE CARD



### Accessories

Cases



55-Year Tradition • Complete Selection from \$299.95
ARILINE CHECK-IN OR LOCAL USE.
ZERO HALLIBURTON AL UMINIUM MAC CASES:
LIGHTVEIGHT, DURABLE, DISTINICTIVE STYLING
1-800-542-4591 /1-310-474-7152
TCC 13101 WASHINGTON BLVD.

CIRCLE 446 ON READER SERVICE CARD

### Diskettes

### FORMATTED DISKETTES BASF, VERBATIM, SONY

WITH	U1Y 250	WITHOUT	
ORMAT	MIX & MATCH	FORMAT	
\$.38	5.25" DS/DD	\$.33	
\$.52	5.25" DS/HD	\$.42	
\$.59	3.50" DS/DD	\$.49	
\$.89	3.50" DS/HD	\$.79	

- FREE FORMATTING on First Order TYVEC SLEEVES Included (5.25")
  COLORED MEDIA Please Add \$.05
  VOLUME DISCOUNTS Available SAME DAY Shipping MONEY BACK GUARANTEE

### 800-255-3142

Diversified Systems Group, Inc. PO Box 1114, Issaquah WA 98027

CIRCLE 496 ON READER SERVICE CARD

### Covers

### YOUR MAC

B Color

Choices!

100% Satisfaction Guisrateed

Outstanding service since 1963

Choices!

Choose Manogramming or Heal Transfer of your Favorite Photo

Choices!

Choose Manogramming or Heal Transfer of your Favorite Photo

100 Consolid A Jona (200 St 46 St 100 Act April 200 St 10 St 10 Act April 200 Act April 2

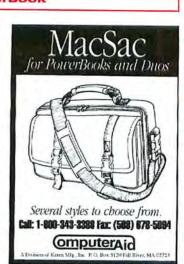
CIRCLE 455 ON READER SERVICE CARD

### **PowerBook**



POWERBOOK ATTACHES
ZERO HALLIBURTON ALUMINUM MAC CASES:
LIGHTWEIGHT, DURABLE, DISTINCTIVE STYLING 1-800-542-4591 / 1-310-474-7152 TCC 13101 WASHINGTON BLVD., L.A., CA 90066

CIRCLE 403 ON READER SERVICE CARD



CIRCLE 448 ON READER SERVICE CARD

### Recruitment

**Career Opportunities** 

### **Gartner Group**

Gartner Group is the leading provider of technical and strategic analysis of data for the information technology industry. These two positions are located at our world headquarters in Stamford, CT.

### End User Services Specialist

This position provides first tier support to internal clients for Macintosh applications and systems issues by either helping to resolve the problem over the phone, or through on-site dispatch. Three plus years experience working with microcomputers and networks, as well as two plus years providing technical support to Macintosh end users, together with varied and diverse experience with communications and network products is needed. You must be able to support skills in the following Macintosh applications and utilities: Microsoft Word, Excel, PowerPoint, Claris Filemaker, Hypercard, MacDraw, System 7, Now Utilities, Up-to-Date, Anti-Virus, and Quickmail.

### Manager, Technical Support

You will manage and direct end user services worldwide which will include training, installation, and technical support. Responsibilities include: directing the daily activities of a staff of five, coordinating projects, talking to internal customers, purchasing software and equipment for the department, and prioritizing work load. The following experience is a must: a Bachelor's Degree (preferably in the field of Computer Science), two years plus managing MIS functions and supervising staff, experience working in a help desk environment, and experience providing training and documentation. In addition, you must have excellent managerial, customer service, oral/written communication skills, as well as the ability to be extremely decisive.

We are offering competitive salaries and excellent benefits packages. If you consider yourself one of a kind, come join the best. Mail or fax (203) 975-6555 your resume, stating the position you are applying for, to: Lisa O'Neill, Human Resources, at the address below. No phone calls please.

# Gartner Group, Inc. 56 Top Gallant Road, Stamford, CT 06904

CIRCLE 435 ON READER SERVICE CARD

EOE M/F/D/V

### DUST COV

### PROTECT your SYSTEM

100% Cotton Canvas is BEST Against static, heat buildup, dust, pet hairs

Reduce Repairs & Downtime

ViziFlex Keyboard "skins" \$21.95

CALL TODAY (800)826-5761 Contemporary ComputerWear
VISAMIC, COD Dealer and Institutional Pricing Available
from (415)567-3002 FAX (415)587-2229

SECURITY with a CUSTOM FIT

CIRCLE 507 ON READER SERVICE CARD

### Computer Jewelry

# 14 KT GOLD COMPUTERS.



Perfect for the computer junkie in you, or as a gift for one that you know. It's hardware with a flare.

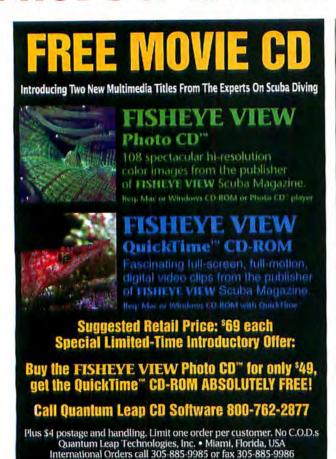
Call 1-800-FUN-JEWL for our free brochure.

COMjewel Inc

Call 1-800-386-5395 or 1-800-FUN-JEWL

CIRCLE 418 ON READER SERVICE CARD

# PRODUCT LAUNCH



Circle 101 on reader service card



Would you leave \$2500 in cash on your desk and go to lunch?

Then why leave your computer?

Secure your equipment with the . . .

### MacKāblit™ Security System

Kablit products are known for their quality and reliability. Our customers can testify to the security effectiveness of our products and they still have their computers to prove it.

· Master Lock<sup>TM</sup> included with each security system.

· Lifetime warranty on all parts.

Security packages for all types of office equipment:

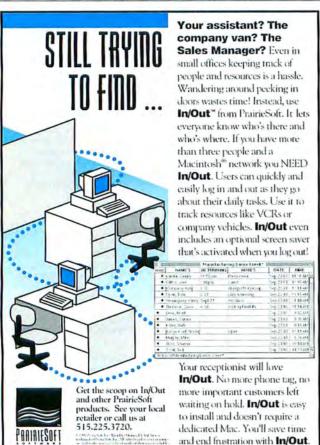
- · COMPUTERS
- SCANNERS
- PRINTERS · LASER PRINTERS
- · HARD DRIVES · FAX MACHINES
- · MONITORS
- · OTHERS

Call for your free catalog:



18 Maple Court East Longmendow, MA 01028 413-525-7039 800-451-7592

Circle 4 on reader service card



million ways increase productivity 1-800-949-5555

MicroFrontier Inc., will give awayone million copies of its award-winning program, COLOR ITI, for the Macintosh. To receive yours, simply call... 1-800-949-5555

> KALS POWER TOOLS Gradient Designer included with COLOR IT!

You can't afford not to take advantage of this once-in-a-lifetime offer!

To make the free software offer even better we've included special offers, rebates or discounts on products from: LaCie, Thunderware, Lizard Tech, Digital Vision, Expert Software and Photone International

**COLOR IT! version 2.3** is Brand New and it's really two programs in one... A 32-bit, 16 million color paint program. A professional image editing program.

Call TODAY for your FREE\* copy. All you need is a color capable Macintosh. Once the free copies are gone, the price is \$149.95. Don't wait. Even if you already have another paint, creative or editing program.

OR send \$8.37 check or money order (for order processing, shipping & handling) to: MicroFrontier™, Inc. P.O. Box 71190 Des Moines, IA 50325

Address

City State/Zip

Phone



Son-retundable manimal fee of \$4.37 charged for order processing, shipping and handling. Offer Offers subject to change. Certain restrictions may apply. Il product and company masses referenced herein are trademarks of their respective owners. sing, shipping and handling. Offer said in U.S.A. unb. MC-VISA



# PRINTER CONNECTION

# CHECK OUT OUR LOW-PRICE MENU

### Mac Centris Call Mac LC III - 4/80 1295 Mac LC III - 4/160 1439 Extended Keyboard 159 Mac Quadra 800 - 8/230 3095 Mac Quadra 800 - 8/500 3695 Mac Quadra 800 - 8/500 w/ CD ROM 3895 Mac Quadra 840AV - 8/230 w/ CD ROM 3659 Mac Quadra 840AV - 16/1000 w/ CD ROM 5195 Mac Centris 660AV 8/230 w/ CD ROM 2559 Mac Centris 660AV 8/500 w/ CD ROM 2559 Mac Powerbook 145 4/80 Call Mac Powerbook 160 4/40 Call Mac Powerbook 165C 4/80 Call Mac Powerbook 180 Call Macintosh VX Systems Call Powerbook Duo Systems Call

DRI	VES	
	Int.	Ext.
Quantum 127 MB	195	265
Quantum 240 LPS	295	375
Quantum 1 GB	1048	1109
Toshiba 1 GB	895	995
Toshiba 877 MB	775	865
Syquest 44 MB		395
Syquest 88 C		669
Syquest 44MB cartridge		69
Road Runner 80 meg fo	r Powerbook	369
Fujitsu 425 meg 5-year	warranty	1095

CD-ROM	5
NEC CDR-74	639
NEC CDR-37	459
PLI Multisession Photo CD Comp.	629
2007 文·大阪市 山流海 1884 1982 1877	العبالة الم

MULTIME	DIA
Radius Videovision	1875
NEC CDR-74 Gallery	895
SuperMac Digitalfilm	4859
SuperMac Videospigot	395

# Supra Modem v.32bis



### UMAX LOWEST PRICE

CONTRACTOR OF THE PROPERTY OF



UMAX 630 LE AND 630 \$795 AND \$959

Radius Precision Color Pivot 2499 Radius Intelecolor Display 20 Radius Two Page Display 21" 1769 Radius 33 Mhz Accelertor 1375 Precision 24x Card 1469 Precision 24xp Card 429 Radius two page int, card



Supermatch Hi res 20T	2659
Supermatch 17 T color	1039
Supermatch 20-TXL	2495
Spectrum 24/ Series IV	775
Spectrum 24 PDQ+	1429
SuperMac Thunder II	3259
SuperMac Thunderstorm Pro	2595
SuperMac Thunder 24	2159
SuperMatch 20 color display	1459
RasterOps 20/20 Multiscan	1559
RasterOps 20 Trinitron	2259
RasterOps 24 XI.TV	2529
Apple 14" RGB Color	495
E-Machine T16II	1175
Sony 14" Trinitron	589
NEC Multisync 4FGE	759
NEC Multisync 5FGE	1159
Shamrock 14" Color	359

U.S. Robotics 14.4K Ext. Fax Modem-v.32	259
v32 Turbo w/v.42 bis w/MNP Software	329
Supra Fax Modem 14.4 V.32 bis (ext.)	269
Supra Fax Modem 96/96 (ext.)	249
PSI Comstation Four	339
PSI Comstation Five	409
Global Village Bronze 96/24 for Powerbook	159
Global Village Silver 96/96 for Powerbook	305
Global Village Gold 14.4/96 for Powerbook	369

Umax 630 LE	795
Umax 630	959
Umax 840	1269
Umax 1260	1795
Umax Transparency	759
Microtek II XE (1200 dpi)	1059
Microtek II	859
Logitech Scanman	259

Daystar 40 Mhz Powercache	495
Daystar 40 Mhz Powercache w/68882	575
Daystar 50 Mhz Powercache	639
Daystar 50 Mhz Powercache w/68882	765
Radius Rocketshare	389



TEXAS

-
1389
1199
1009
729
3995
1395
899
329

Apple Laserwriter Select 300/310	759/975
HP IV for Mac	1869
HP IV ML	1059
HP Deskwriter	329
Appletalk Connectors	25
HP Deskwriter 550C	609
HP 1200 CP Color Printer	1975
Newgen Turbo PS 880 (800x800 dpi)	3195
Newgen Turbo PS 440B (400 dpi 11x17)	3495

в	HP 1200 CP Color Printer	19
ř	Newgen Turbo PS 880 (800x800 dpi)	31
ą	Newgen Turbo PS 440B (400 dpi 11x17)	349
r,	Newgen Turbo PS 660B	
п	/600-600 de: 11-17)	20

3895 (600x600 dpi 11x17) Color Printers

NEC PS 40 4295

Cards



MAKE THE CONNECTION TODAY!



Overnight and Federal Express



### 10 Years Experience Selling Macintosh Peripherals

### Scanners

### UMAX®

WAX UC 630LE \$869



UMAX UC-840...... 800 dpi color scanner with Photoshop

UMAX UC-1260. ..... \$1799 1200 dpi color scanner with Photoshop

### Memory

4MB SIMMs for LCIII, Centris	SCALL
8MB SIMMs for LCIII, Centris	<b>\$CALL</b>
8MB SIMMs for Quadra 800/840AV	\$CALL
16MB SIMMs for Q800/840AV	SCALL
6MB for PowerBook 160/180	\$CALL
8MB for PowerBook 165c	\$CALL

### Toner

### ← Dataproducts

960 Toner	\$49
1560 Toner	249
<b>DataProducts Remanufactured</b>	
Toner Cartridge for Apple LW II &	
HP II & III printers	\$65
<b>NEC Long Life EP toner cartridg</b>	
for NEC Model 95, 97, & 1097 printers	3.00

### Accelerators

### DAYSTAR

25MHz 040 i	\$689
33MHz Turbo 040	\$1073
40MHz Turbo 040	\$1579
Universal PowerCach	es
33MHz/ w/68882	\$333/\$419
50MHz/ w/68882	\$623/\$749
FastCache Turbo	\$165
Quad 040	\$1579
FastCache Quadra	
700 000 0E0 (128K)	\$330

radus Rocket 33™\$1439

### Corporate POs Accepted







1030 Wirt Rd. Suite #400 Houston, Tx 77055

# 'Tis the Season to Save

# radus

Radius™ PrecisionColor™ Pivot® Display

15°, dual-orientation, full-page color display 'Price after \$100 mail-in rebate



## NEC

Silentwriter® Model 1097



600 dpi, 10 ppm, 7MB RAM, PhotoMatch™ gray scaling, Adobe PostScript Level 2, 35 Adobe Type 1 fonts, high-speed RISC processor

### Monitors and Graphics Cards

## radus

Radius IntelliColor™ Display/20

20" Trinitron®, 1600x1200, ideal for high-end color publishin-& design, Macintosh AV compatil.



Radius Two Page Display/21 . \$799 21" monochrome display

Radius 20GS Display ...... \$799 20" monochrome display, Mac AV compatible

Radius PrecisionColor Display/20v. \$1799 20", 1152 x 870 "on-the-fly" resolution switching

### **Radius Graphics Cards**

PrecisionColor Pro 24XP Card	\$479
PrecisionColor Pro 24X	\$1899
VideoVision™ Studio Upgrade	\$1549
VideoVision Presentation System	
VideoVision Studio	\$3489

### SONY

Sony CPD-1320	\$345
14" Trinitron; 640 x 480 resolution,	incl. cable & stand
Sony CPD-1304S 14" Trinitron® color monitor; .25 n	
Sony CPD-1730	\$1075 ble usable area
Sony CPD-2038 20° Multiscan Trinitron; Expanda	\$2099

### **SUPERMAC**

### SuperMatch™ 17•T Trinitron® Color Display

Multiple modes, 1024x768 full-page, 832x624 WYSIWYG. Compatible w/Quadra on-board video



SuperMatch 20•T XL Multimode Trinitron® Color Display...... \$2499 Large screen 20° Trinitron® color with unmatched versatility

### SuperMac Graphics Cards

Spectrum/24™ Series IV	\$789
Spectrum/24 PDQ™ plus	1435
SuperMac™ Thunder/24™	52149

### NEC

New FGes Series Monitors meet EPA EnergyStar standards for reduced power consumption

MultiSync® 4FGes™	\$719
MultiSync 5FGes™	\$1095
MultiSync 5FGp™	\$1399



• Discover, MasterCard and VISA only. • Prices and product availability subject to change without notice. All specials and promotions are limited to available stock. • Manufacturer's warranties are honored by SYEX Express as well as the original manufacturer. • We ship via Airborne Express Overnight service. (Some rural areas require an extra day for delivery.) UPS rates are available upon request. • Orders placed by 4 p.m. CST weekdays for "in stock" items will ship that day for overnight delivery • APO/FPO box orders are shipped first class U.S. Maii. P.O. Boxes shipped via US Maii. • We are not responsible for typographical errors. • All trademarks or registered trademarks are property of their respective owners. • Defective software will be replaced immediately, and hardware will be repaired or replaced at our discretion. • A Return Authorization Number is required for any product returned. • SYEX Express does not guarantee product compatibility.

# with SYEX Express -1-800-289-7939



PhoneNET<sup>®</sup> Connectors



The industry standard for connecting Macintosh computers and peripherals to AppleTalk networks.

### Networking

### : Farallon

Ethernet Cards.....

Complete line of Farallon products available



FastPath 5R Router/Gateway	\$1649
NetModem® V.32	
NetModem/E Thick, Thin or 10BaseT	\$1399
LanRover®/L	. \$579
LanRover/E 4-port	\$1649
LanRover/E 8-port	\$2449
Complete line of Shiva products av	ailable

### MASANIÉ

FriendlyNet <sup>™</sup> Adapters	\$65
MacCon+TMLC Thin or 10BaseT	\$139
MacCon+IIE64 Thin or 10BaseT	\$139
MacCon3TM NuBus or Ilsi	\$189
Mini EN/SCT 10BaseT	\$239
Mini EN/SC	\$299
AsantéPrint	\$325
10T Hub/8/ 10/T Hub/12 . \$229 Complete line of Asanté products av	



DaynaPORTTM E/II-T, E/II, E/LC, E/si	\$139
SCSI/Link™	\$239
EtherPrint™ or EtherPrint-T	\$319
EtherPrint Plus	\$379
Complete line of Dayna products av	ailable

### FREE ExpressNet

Fax your network needs & a list of your systems, including hosts, to SYEX Express (713) 956-5741, and we'll fax back a networking solution that fits your needs-all at no charge



NEC

CDR-74-1 CD-ROM Drive

External CD-ROM reader features MultiSpin™ & an access time of 280 ms; Kodak Multisession PhotoCD™ ready. Requires interface kit

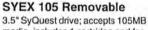
### Storage Devices





### SYEX 88C Removable

SyQuest 5110C; compatible with both 44MB & 88MB media. External drive, includes 1 cartridge.



media, includes 1 cartridge and formatting utility.



### Removable Drives

Infinity 40 Ext 20 ms access time, 2 year warranty	\$349
Infinity 88/RW44 Ext20 ms access time, 2 year warranty	\$499
Infinity 105 3.5" Removable External	\$599

### Mini-Arrays

1 GIG External	\$2149
Sustained transfer rates of up to 8.4MB/	sec.
2 GIG External	\$2899

### Magneto Optical

3.5" Magneto Optical Fujitsu. 30 ms access time, 1 year warranty



### Removable Cartridges

	The second secon	
45MB		\$65
88MB.		\$95
105ME		\$59



TelePort/Gold™ 14,400 bps data; 14,400 bps

### send/receive fax. External Modems





PowerPort/Bronze™	\$95
2400 bps data; 9600/4800 bps send/red	ceive fax
PowerPort/Silver™	
9600 bps data; 9600 bps send/receive	
PowerPort/Gold™	
14,400 bps data; 14,400 bps send/rece	ive fax
TelePort/Bronze™ II (External) 2400 bps data; 9600/4800 bps send/red	\$99 ceive fax

Prometheus 144e	\$169
14,400 bps data & send/receive fax	
ProModem® 144i for PowerBooks	\$239
Ultima Home Office PB	\$279

### Supra Corporation<sup>®</sup>

SupraFAXModem™ 144LC .... \$165 14,400 bps data & send/rec. fax; Incl. FAXstf™, Microphone™ 1.6 software & cable.

SupraFAXModem 144PB ...... \$279 For PowerBooks; 14,400 bps data & send/rec. fax

### Kevhoards

Suntouch Extended Keyboard



Suntouch MacPad Extended Numeric Pad for PowerBooks ..... \$39

### FREE CATALOG

To order, call

1-800-289-7939

or fax name & address to (713) 956-5741

Happy Holidays rom the staff at SYEX Express

**1-800-289** 

International & Canadian Orders fax to (713) 956-5741 or call (713) 957-1999

Mon-Thur: 8 a.m. to 7 p.m. Friday: 9 a.m. to 7 p.m. (Central Standard Time)

# edrate with CD-ROM this Holiday

Free Express (2-day) Shipping only on products in this ad marked with \*. We'll BEAT any advertised price on CD-ROM! (some restrictions apply)

All drives are ready to run and are Kodak multisession compatible. You'll get driver software and your choice of cable. Specify#981 MAC to SCSI or #982 SCSI to SCSI. EDUCORP CD Sampler FREE with every drive.

1- Uses the Toshiba XM-3401 mechanism.

2-more FREE multimedia titles w/purchase of CD Tech CD-T3401.
 1- Comes w/QuickTime 1.5, Apple Photo CD Access Software, Musical S

\$50 off the EDUCORP Shareware CD (#1300) w/drive purchase from EDUCORP.

CD Tech-T3401\*1 \$579

Texel DM5024 \$439

#1815 -AT-265ms/DTR-300k/sec

View From Earth.

PROCOM Bundle \$759 #K1833

Includes everything listed above (titles #1-13), Blazing

speed. Transform your Macintosh into an interactive

speed. Fransform your Macintosn into an interactive reference, entertainment and learning system. Free Procont Technology Musical Sampler CD with every procont Technology Musical Sampler CD with every procont drives or bundle nurchase. Also contact unit

#5028-AT-240ms/DTR-335k/sec

Pioneer DRM604X \$1299

#978-AT-300ms/DTR-612k/sec

Procom CD-MX<sup>1†</sup> \$549 #1833-AT-200ms/DTR-327k/sec

#1824 -- AT-200ms/DTR-327k/sec

CD-ROM drive from us, and add a bundle up to

A TORY WAS LABOR CO.

= Get a CD-ROM drive, 13 titles, speakers, stereo headphones, cable, power supply, as low as \$659!

All bundles below include a drive, Labtec speakers with A/C adapter,

۲.	N stereo headphones, cable, d	river s	of	ware, power supply & these 13 titles:
C	D-ROM Title Retail V	alue '	7.	Dictionary/Living World 3.0149.00
1.	Grolier's M/M Encyclopedia39	5.00	8.	Mayo Clinic Family Health Bk 99.95
				Shakespeare29.99
3.	U.S. Atlas	59.95	10.	Sherlock Holmes29,99
4.	U.S. History39	95.00	11.	Audubon's Birds of America49.99
5.	Think for Yourself24	19.00	12.	Audubon's Mammals49.99

..79.95

Texel 5024 Bundle \$659 #E1815

13. EDUCORP CD Sampler...

Texel 5028 Bundle \$699 #E5028

CD Tech-T3401 Bundle \$769 #E1824

2 FREE multimedia titles below w/CD Tech T3401 bundle.

14. Multimedia HANDisc....99.00

15. America Alive. ..99.00

Recordable CD-ROM drive available, call.

# You must purchase a CD-ROM drive or drive bundle from EDUCORP.

Reference Bundle-3 CDs \$79.95 #SBI

Save \$494.95 (Total retail value \$574.90)

1. Grolier's Multimedia Encyclopedia..RETAIL5395.00 2. World Atlas.

3. Mayo Clinic Family Health Book

Learning Bundle-3 CDs \$59.95 #SB2

Save \$140 (Total retail value \$199.85)

Amazing Space Shuttle.....
 Multimedia CIA World Fact Book

3. The Animals!.

3 CDs for \$39.95

Choose from 7 CDs including: B36. Survey of Western Art

B37. 12 Roads to Gettysburg B49. Animal Alphabet B50. Whales & Dolphins

3 CDs for \$49.95

Choose from 10 CDs including:

B1. World Atlas B4. Desert Storm

B7. World Fact Book

**B26. The Orchestra** 

3 CDs for \$69.95 Choose from 16 CDs including:

B6. Beethoven's String Qt. B27. Sports Illust. Almanac

B28. Word Tales

B29. View from Earth B30. The Animals!

B35. Dict. of the Living World

B41. SpaceShuttle

B43. Encyclopedia of Life

B42. LOOPS: Music for M/M

B44. Pro. Photo Coll.-MR B45. Lunicus

3 CDs for \$124.95

Choose from 9 CDs including: B2. Grolier M/M Encyc. **B31.** Guinness Disc of Rrds

B32. Mayo Clinic Health Bk Call or FAX for the complete list of titles

available for each bundle. You must purchase a CD-ROM drive or drive

bundle from EDUCORP.

# Procom drive or bundle purchase. Also comes with QuickTime 1.5 and Apple Photo CD Access Software. Manufactured by Procom Technology, Inc. OCD-ROM Title

2078 Animal Alphabet ...........39.95

Select an animation, QuickTime video, or narrated sentence based on the chosen letter.



these captivating creatures ruled the earth. 100's of illustrations, animated diagrams and full motion video will entertain and educate the whole family.

### The ZooGuides Series Brings the Animal World to Life!

Each volume spotlights an animal group in depth through interactive multimedia. 2081 Butterflies of the World. 1210 Whales/Dolphins (MacUser Top 50).39.95 1275 Mammals of Africa.

### 1280 Encyclopedia of ......99.95

An exciting reference to life on our planet! A quarter million words, over 130 QuickTime videos, 3,700 entries and 600 award-winning photos

1919 ClipTime v.2 \$199.00 American Media, 350 QT movie

clips, photos, sounds, stingers. WraptureReels One

..179.95

Broadcast quality digital video with animated textures and video clips in QuickTime.

2080 Faces Plus ......99.95 Use these anti-aliased screen fonts for screen and video presentations. They're smooth!

1582 Sound F/X\*\*......79.95 225 sounds expertly recorded.

...79.95 100 music



tracks, each supplied in 3 formats. You'll find a highly

original and imaginative blend for non-commercial or broadcast use.

Both stock photography titles below are in Kodak Photo CD format and have 100 photos

A potpourri of people, places and things. 1444 Pro. Photo. Collection IIR.\*\$54.95

50048 Best of People in Business\*......79.95
From men and women in office settings, to office equipment and business graphics.

1680 GraphTec Graphic Designs



Over 800 color & b/w professional EPS images on a variety of subjects.

Du

1408 Design Toolkit\* 64.95

Over 1500 b/w EPS design elements; tiles, fonts, drop caps, borders, back grounds, more!

# Shareware (

1300 EDUCORP Shareware CD 8.0\* (2-CD Set) ......\$149.00

New-2 CD set! 100's of new & updated programs. Over 1 gigabyte of the best PD/Shareware software. \$50 off w/CD-ROM drive purchase from EDUCORP. System 7 optimized.

Get the Lucas Game Pack FREE when you buy the World Atlas and U.S.

Atlas, Access detailed color maps and then play 3 animated color games. 84 Allas Fun Pack ... \$59.9

1818 EDUCORP (D Sampler 3.0 \* \$9.95 Shop the multimedia way! View over 90 demos of the newest titles, plus Aldus Fetch thumbnails from over 50 desktop publishing CDs, Try before you buy!

Published by Presto Studios

2068 The Journeyman Project......\$49.95

The world's first photorealistic adventure game. "Forget about the director's cut of Blade Runner!... New Media Magazine

Winner of the '93 Invision Multimedia Award of Excellence

### 2084 Iron Helix .**\$**59.95

.more than just a game, it's sci-fi space opera and film noir at its best." New Media Magazine

A deadly wargame gone awry. Experience the fastest photorealistic adventure game on CD. Never a click and wait. Just pure adrenaline! Published by Drew Pictures



1385 Right Images \$159.95
"The best and most comprehensive commercial collection. Publish Magazine

STARS - PLANETS ASTRONAUTS + NEBULAE · SHUTTLES ·

People naturally react to these dramatic images. Unlimited reproduction rights on over 160 os saved in 24 and 8-bit color ICT, and 8-bit grayscale PICT.

Published by Tsunami Press

### 50014 The Oregon Trail



Challenge the unpredictable frontier with this award-winning best-seller! Original art blazes across vour computer screen with images of pioneering triumph and peril. A narrated guidebook features

facts about more than 70 sites along the way. And fascinating new characters share their exciting trail stories with you. The Oregon Trail takes you on an adventure through the Old West as you've never before imagined. Published by MECC

Rated WILL "-perfect backdrop for that next car ad...

Rated WILL "-perfect backdrop for that next car ad...

"photographs of sufficient quality for the high-end publishing market."

Market Magazine The reviews are in and the skies have it! Enhance multimedia

The reviews are in and the skies have it enhance multimedia productions, create ads, backgrounds and more with one of the best sellers of 92. Call up any of the 100, 2,000 DPI drumble best sellers of 92. Call up any of the 100, 2,000 DPI drumble between the control of the production of the control of the production of the control of t Cloud control that fits any

We'll BEAT any advertised price on CD-ROM products!

1835 The Macintosh Product Registry 4.0 ... New version! A valuable sales and New version: A valuable sales and research tool that contains more than 6,400 following categories: tonowing categories: business & professional, personal/home, peripherals and hardware, accessories. Each entry includes the product name, system

requirements, complete description, pricing, company address telephone and far numbers Fastives are disconnected. requirements, complete description, pricing, company address, telephone and fax numbers. Features product augress, resepnone and tax numbers, demos, global search, three indexes. Published by Redgate Communications

### QuickToons Classic Cartoons \$34.95



Now for the first time, enjoy Cartoon Classics in QuickTime! Featuring public domain cartoons including: Betty in Blunderland starring Betty Boop (b/w), Porky's Cafe and Ali Baba Bound, both featuring Porky Pig (color), The Henpecked Duck and A Coy Decoy starring Daffy Duck (b/w), and Bimbo's Auto

featuring Bimbo (color). Add some fun to your multimedia presentations or just sit back and enjoy them for pure entertainment. You'll also learn about the history of these cartoons and about the characters within them. Each cartoon is complete with audio. The artwork design printed on the jewel sleeve is reproduced as an example of the type of quality of QuickTime movies

Published by Wayzata Technology, Inc.

1990 Wraptures Two..... 1653 Wraptures One..... Wraptures One & Two.....\$159.95

"Wraptures is a great investment." Macworld Magazine Wraptures are seamless, title-able, 32-bit textures in PICT format. Map to 3D objects, create backgrounds.

50050 Pace Overtures One..\$95 100 exquisite high-resolution photographic background textures for color printing, multimedia, or slide production.

Published by Form & Function

If you don't see the CD-ROM title you want, chances are, we have if Call for your free color catalog. (Foreign customers send \$4 postage & handling

2089 Lunicus de de MacHome Journal

Red hot 3D arcade action! you're likely to play...you'll love the fluid the fastest CD-ROM game you re nkery to pray you n tove the runn motion and the adrenaline rush you get as you fight your way out of buildings... "New Media Mag.

1467 Better Dead...

Enter a strange, photorealistic 3D world where you seek out humankind's last hope for survival. Arcade style action. Optimized for CD playback.

Published by ARTSector One, Inc.

tech materials, then skillfully lit to add new dimensions of quality and distinction.

Published by REMedia



Kodak Photo CD

Format. 100 color photos of beautiful nature scenes; mountains, coastlines, waterfalls, deserts, National Parks, more!

Published by Gazelle Technologies, Inc.

### 

THE FASTEST WAY TO COMPETENCE IN SPOKEN JAPANESE.



...the hands-down winner...certainly the best of the Japanese language learning CD-ROM programs available." Mangajin Magazine, Oct. 1992

"...light years ahead in its Japanese language learning software...highly recommended."

Pride's Guide to Educational Software '92

JapaneseForEveryone will have you up and running in speaking Japanese in much less time—and at less expense than you'd spend in formal language classes.

 Digitized sound • Interactive dialogues • "Talking faces" Total "mouse-click" operation • System 7 compatible.

Published by Butler Consulting, Inc.

### 2090 Small Blue Planet..... **\$**59 95 Rated \$\$\$\$ 1/2



Brush up on geography while you browse its series of maps showing vital physical and political data.

MacUser Magazine This interactive exploration is a global geographic voyage so fun and engaging you'll be surprised how much you learn

along the way. The Maps that Move interface is your conduit to our Small Blue Planet, Cruise and zoom over The Real Picture Atlas' spectacular imagery-These are real pictures!

Published by Now What Software?

EDUC CORP 1-800-843-9497



### BY GUY KAWASAKI

# Defying Gravity

How to succeed by really trying

NE THING THAT MAKES MY blood boil about the Macintosh software market today is that big companies like Claris, Symantec, and Central Point Software are telling the proverbial two guys in a garage that it's too late to start a company. This drives me crazy because it stifles the creative, can-do spirit of Macintosh. I know from recent experience that two people in a garage can still make history.

### **Getting into the Market**

On October 30, 1989, Terry Morse and a few fellow employees from Mansfield Systems went out to lunch to celebrate his birthday. Unfortunately, he had to pay for his own lunch because that morning the company announced that it would be closing down. Its venture capitalists had grown tired of pouring money into the company. (Lesson 1: Never eat out on the day your company goes broke.)

Lloyd Chambers, a fellow employee, and Morse found themselves unemployed and out of money. Between the two of them, they had \$12,000 from Morse's 401K plan, \$5000 from Morse's parents, and a short stack of Chambers's credit cards. So it made perfect (Macintosh)

sense to start a company.

Morse and Chambers's first product was Partner, a precursor to the publishand-subscribe technology that you still never see anyone using. Morse and Chambers shipped version 1.0 of Partner six weeks after Mansfield went under. (Lesson 2: Ship something quickly and get into the marketplace.)

In the past, Chambers had created a freeware product called MacCompress that compressed and expanded Macintosh files on Unix computers. While completing Partner, he worked on another file-compression utility that would become DiskDoubler. Chambers intended to distribute this as a shareware product or to use it as a gift with the purchase of Partner. (Lesson 3: Let programmers work on whatever they want to.)

Morse and Chambers started showing

off Partner and beta versions of Disk-Doubler at Computerware, an all-Macintosh software and peripherals store in Palo Alto, California. They noticed that Disk-Doubler—not Partner—was getting the oohs and aahs. Luck, or Macworld Expo impresario Mitch Hall's mistake, stepped in: the San Francisco Macworld Expo was in April that year, not January. Morse and Chambers had three extra months to finish DiskDoubler.

In four days at the show, Computerware sold 500 copies of DiskDoubler. By the summer of 1990, Morse and Chambers were selling 1000 copies a month. They knew they needed outside, experienced advice, so they contacted Marty Mazner, the former publisher of *MacUser* and former executive vice president of Computerware.



### Seeking Outside Help

Mazner understood the potential of Disk-Doubler, but he also knew that if an established company entered the market, Morse and Chambers might be snuffed out. So he arranged to show DiskDoubler to Symantec, and asked me to come along. The suit (he's subsequently "left" Symantec) who ran the meeting had worked at Ashton-Tate, he had Symantec's clout, and he was going to walk all over Morse and Chambers and bestow upon them the honor of adding DiskDoubler to Symantec Utilities for Macintosh (SUM) for a pittance in royalties. I wanted to puke.

In Symantec's parking lot, Morse told me he needed \$25,000 to get a company going, and yours truly promised it to him. Salient Software incorporated in June 1990 with \$50,000 of capital from myself, Marty, and Salient's law firm. (Lesson 4: Ask and you shall receive—if you have a great product.)

With Mazner's help, Morse and Chambers bootstrapped DiskDoubler by trading copies of it for ad space in leading mail-order catalogs. Morse and Chambers didn't take any salary for four months, until Salient's monthly sales were about \$50,000. (Lesson 5: You don't need millions to start a software company.)

### **Cashing Out**

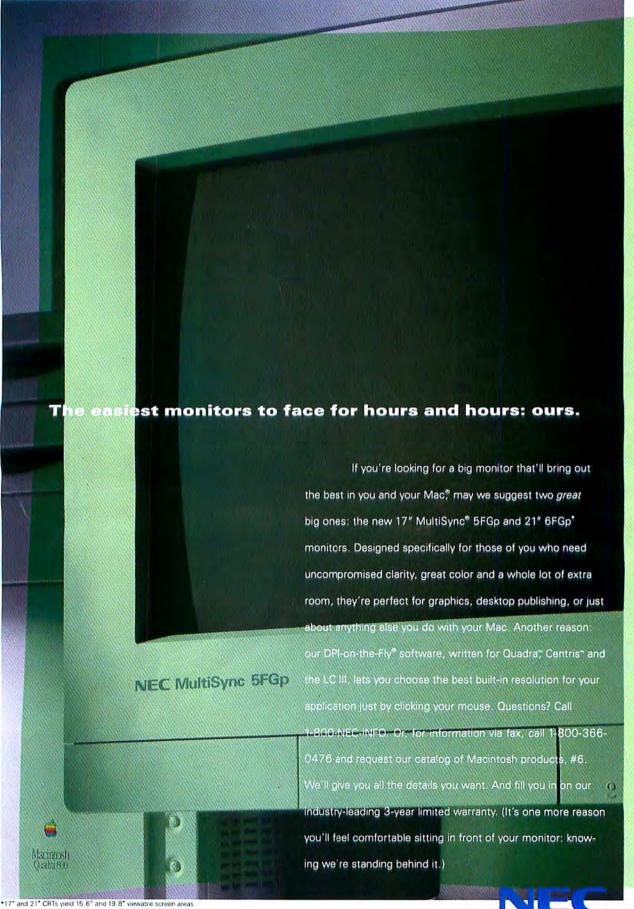
Salient's sales kept increasing by 10 to 15 percent a month until June 1991, when System 7 shipped, and sales exploded. DiskDoubler had become a successful product in a seemingly infinite number of small upgrades. (Lesson 6: Constantly enhance your product—don't believe the quantum-leap upgrade theories.)

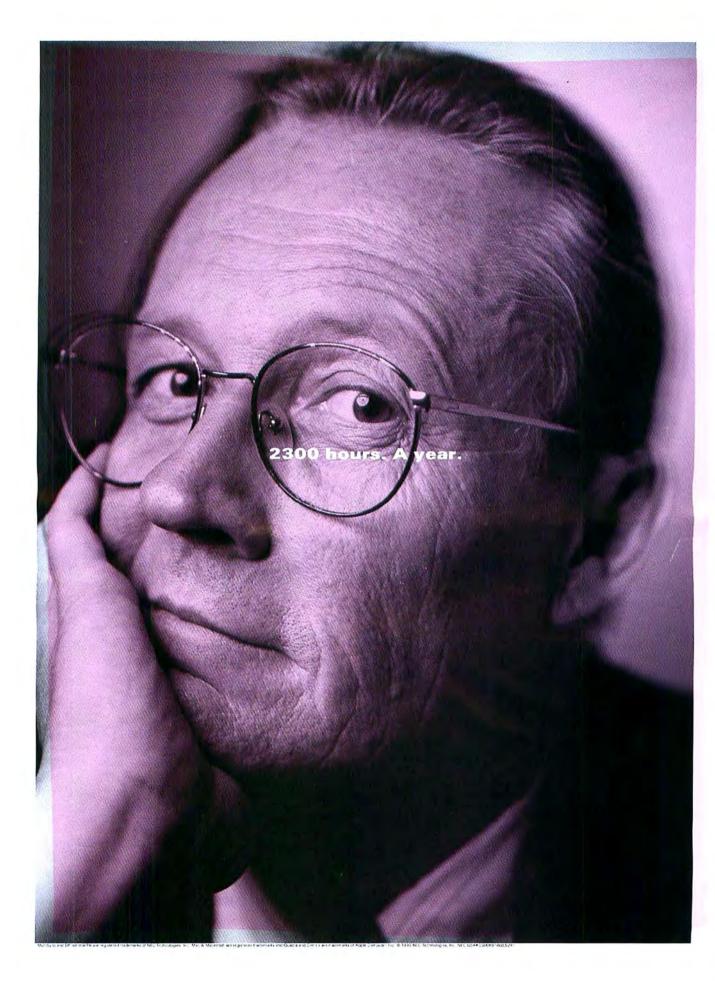
By the end of 1991, Salient was selling \$2 million of product a year. In June 1992, Salient had amassed year-to-date sales of \$3.5 million, and Mazner worked out a deal to sell Salient to Fifth Generation Systems for a price I cannot disclose. Suffice it to say that Morse and Chambers consider never working another day in their lives to be a viable option. (Lesson 7: You can still make a lot of money with Macintosh software.)

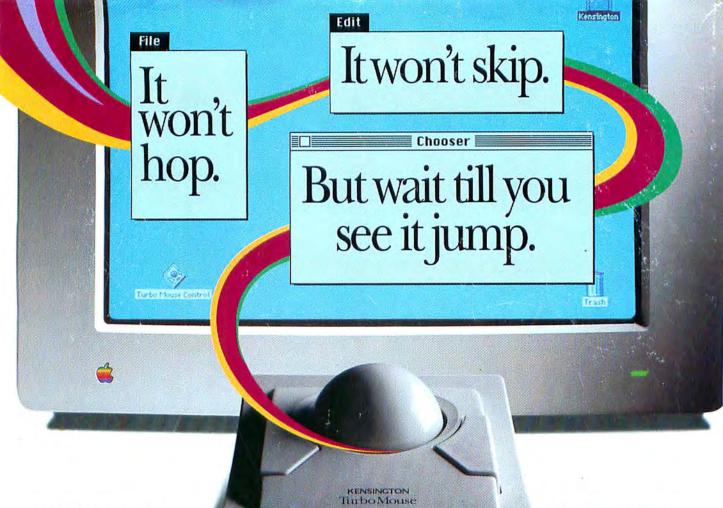
Getting out of the Garage

Two guys in a garage can still succeed. It took Morse and Chambers only three years. They weren't intimidated by bozos who work for large companies, and who have never started a company but are willing to tell you why you can't. They created a product that was simple, easy to explain, and did a few things well. If you believe in yourself and work your ass off, you can defy gravity, too. And you can take this to the bank. **m** 

GUY KAWASAKI's views are his own and only sporadically represent those of Macworld. His current book, Hindsights, will be published by Beyond Words Publishing in January. He has investments in Bit Jugglers, Global Village Communication, Bookmaker Corporation, and others. He can be reached at Kawasaki@radiomail.net. Forty hours last week. Fifty hours this week.







While the cursor may hop or skip with some trackballs, Turbo Mouse® has always been known for its ultrasmooth movement.

Now, the latest version of Turbo Mouse is known for something else—jumping. Our new Brilliant Cursor technology makes it possible.

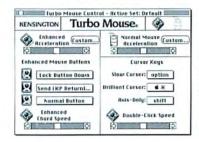
With it, you can move the cursor instantly to predefined HotSpots on the screen, such as the File and Edit menus and the Trash icon.

First, you define your HotSpots. Then, click a button and move the ball in the direction you want to go. The cursor automatically jumps to the predefined HotSpot. You can even program in different HotSpots for different applications and for different users.

And Brilliant Cursor technology is not all that's new with Turbo Mouse 4.0. Also new is advanced acceleration with three levels of control and Enhanced Mouse Buttons that let

# Introducing Turbo Mouse 4.0

With the all new Brilliant Cursor™technology, you can actually make the cursor jump to any spot on the screen.



you execute one of seven programmable commands. For example, send a Print command with just one click using Send String. Or move the cursor with ultra precision using Slow Cursor. Even save different combinations of commands for each of your favorite programs.

Then there's the award winning Turbo Mouse hardware. Hardware that has won more awards than any other input device. Hardware that has consistently been voted "Best Input Device" by Macintosh

users worldwide. Features include a large comfortable ball, "easy-click" buttons, long-lasting precision stainless steel bearings, and two ADB ports for chaining other devices.

Turbo Mouse 4.0 is fully System 7.0 compatible. To receive information by fax, call 800-535-4242, dial 82 and request document 320. For general information, call 800-535-4242. Outside the US, 415-572-2700.

### KENSINGTON