

PC WORLD

WWW.PCWORLD.COM

SEPTEMBER 1999 \$5.99



Pentium III Killers?

First 600-MHz K7 Chips From AMD Beat Intel's Best



Top Microsoft Office Tips

Timesaving Tricks for Word, Excel, PowerPoint & More



Get Ready for Y2K

We Test 15 Utilities That Claim to Protect Your PC



Super

PC Deals

Online

WHERE TO FIND

- ☒ Best Web Stores
- ☒ Service You Can Trust
- ☒ Lowest Prices





Model Name	Millennia C400		TransPort® NX 400		Millennia MAX 550	
Processor	Intel Celeron processor 400MHz		Intel Pentium® II processor 400MHz		Intel Pentium III processor 550MHz	
RAM	64MB SDRAM		64MB SDRAM		128MB SDRAM	
Hard Drive	8.4GB hard drive*		6.4GB Ultra ATA hard drive*		13GB Ultra ATA hard drive*	
DVD/CD-ROM	40X var. speed CD-ROM drive*		24X var. speed CD-ROM drive*		40X var. speed CD-ROM drive*	
Graphics	8MB nVidia AGP graphics		8MB AGP graphics accelerator		16MB nVidia AGP graphics	
Sound System	Wavetable sound and stereo speakers				Wavetable sound and stereo speakers	
Monitor	17" Micron 500Cx (15.9" display)		15" XGA TFT display		17" Micron 700Cx (15.9" display)	
Network	3Com® 3C905 network card				3Com 3C905 network card	
Micron University	1-year Free ^a training at Micron U. online		1-year Free ^a training at Micron U. online		1-year Free ^a training at Micron U. online	
On-site Warranty	5-yr./3-yr. Micron Power limited warranty		5-yr./1-yr. limited warranty		5-yr./3-yr. Micron Power limited warranty	
Operating System	Microsoft Windows 98 Microsoft Office SBE		Microsoft Windows 98		Microsoft Windows 98 Microsoft Office SBE	
Factory Direct Price	\$38/mo. Business Lease 48 mos.**	\$1229	\$94/mo. Business Lease 48 mos.**	\$3099	\$62/mo. Business Lease 48 mos.**	\$2039
Upgrade to	128MB SDRAM 13GB hard drive		128MB SDRAM LS-120 SuperDisk Leather case		17" Trinitron® (15.9" display) 15GB hard drive	
Factory Direct Price With Upgrade	\$42/mo. Business Lease 48 mos.**	\$1389	\$109/mo. Business Lease 48 mos.**	\$3589	\$67/mo. Business Lease 48 mos.**	\$2189

New Rules.



New Tools.™

plus a \$49 activation fee, applicable taxes and shipping charges. The \$49 activation fee is waived for orders placed online. Payment plan available. Call for details. Availability. Prices and specifications may be changed without notice; prices do not include shipping and handling and any applicable taxes. Seller's return policy does not include return freight and upon the return of a product. All sales are controlled by Seller's current terms and conditions of sale. On-site service is provided at sole discretion of Micron Computer Services, Inc. A diagnostic provider under a separate contract between you and the service provider. Intel, the Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft is a registered trademark of Microsoft Corporation. Other product names used in this publication are for identification purposes only and may be trademarks of their respective companies. Note: Advertised configurations may differ from award-winning or all Micron PCs configured with 56Kbps modems. Capable of receiving downloads at up to 56Kbps and sending at up to 31.2Kbps. Due to FCC regulations on power output receiving speeds are limited. **24x7 telephone technical support is for hardware only. The subscription to Micron FreeWare may be canceled within the time period described in Seller's Money Back Policy, a copy of which is available upon request. †Credit card required for sign-up for Internet access. ††Credit card information must be provided to Internet Service Provider to activate account. †††Some Micron U courses require the purchase of course materials. Such course materials are the responsibility of customer and are not covered under this offer. ††††Some Micron U courses require the purchase of course materials. Such course materials are the responsibility of customer and are not covered under this offer.

SHOP ONLINE **WWW.MICRONPC.COM**



**You'll Never Ever, Ever, Ever, Ever, Ever, Ever
Have to Buy a New PC Again.**



**Micron™
Millennia® Vx 400**

\$FREE™
(\$999 Value)

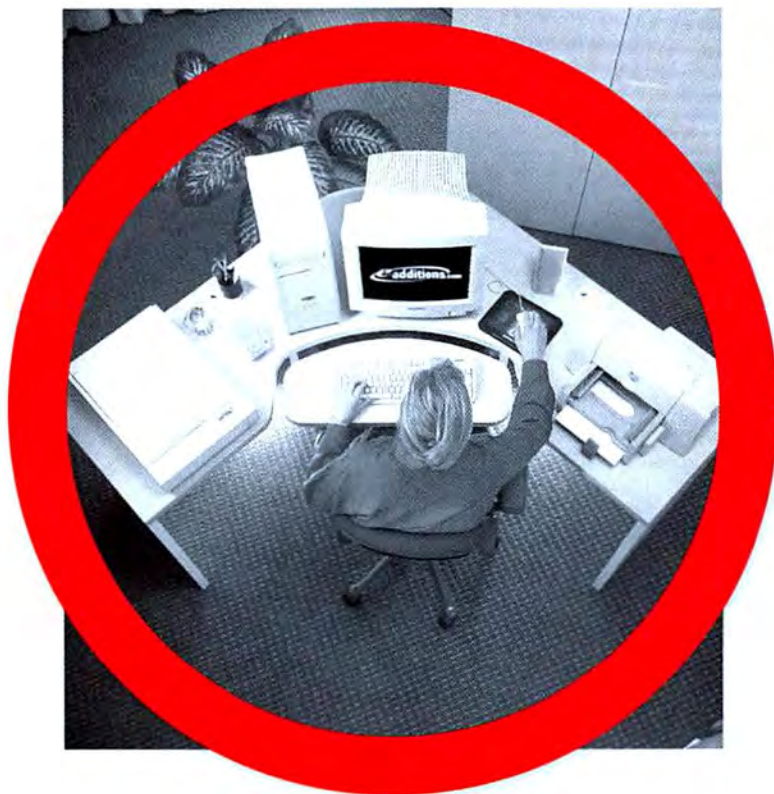
- Intel® Celeron™ processor 400MHz
- 32MB SDRAM
- 4.3GB hard drive*
- 15" Micron 500Cx (13.9" display)
- 40X var. speed CD-ROM drive*
- 56K V.90 Data/Fax modem†
- Wavetable sound and stereo speakers
- 1-year FREE‡ Micron University online
- 5-year/3-year Micron Power™ limited warranty
- Microsoft® Windows® 98
- Norton AntiVirus software

Not only are we going to give you a free PC for life, we're going to give you a quality Micron Millennia PC. Which is no stripped-down version or a no-name, low-powered paperweight. It comes with an Intel Celeron processor at 400MHz, 32MB memory, a 4.3GB hard drive* and a monitor. But it gets better. Subscribe to three years of our Micron FreeWare services program* (less than a buck a day when you order online) and the Micron PC is yours, free.** And we'll ship you a new, free PC every three years when you renew your subscription. You will receive three years of unlimited Internet access; a three-year, on-site warranty, 24x7 telephone technical support†† and a renewable, three-year membership to e-additions @Club — where you can purchase peripherals and software at deeply discounted prices. And so you get the most out of your PC, we've also included one year of unlimited online training at Micron University‡. So you just keep living and we'll keep sending you free PCs. Order online and you will save even more. Go to www.micronfreeware.com.



****Prepayment for Micron FreeWare is required prior to the initiation of the services and shipment of the Micron PC. Prepayment amount is \$1087.**
©1999 Micron Electronics, Inc. All rights reserved. Micron PC, Inc. is not responsible for omissions or errors in typography or photography. All purchases are subject to original shipping/handling charges, and all return and warranty periods begin from the date a product is shipped, not when it arrived. A restocking fee may be charged. Determination for on-site service must be made by a Micron service technician prior to the provision of on-site service. On-site service is provided by a third party service. Windows are registered trademarks of Microsoft Corporation. Product names of Micron products are trademarks or registered trademarks of Micron Electronics, Inc. All hard drive sizes calculated with 1GB equal to 1 billion bytes. *CD-ROM speeds: 40X Max/17X Min; 32X Max/17X Min; 24X Max/12X Min. †† limited to 53Kbps. Actual speeds may vary. ‡One year free with purchase of new Micron desktop or notebook system. Free subscription does not include books or software available at Seller's website or from Seller's sales representatives. In addition, the conditions of Seller's Money Back Policy must be satisfied with regard to the PC. Some Customer will not be charged for usage under this plan. Offer is available in the Continental U.S. and Hawaii; any applicable ISDN or long distance charges required materials are not included in this program and must be purchased by customer.

ORDER DIRECT 1-888-224-4138



Micron™ Millennia®

New Rules. New Tools.™





FREE PC FOR LIFE.

R E S U M E



NAME	Canon MultiPASS™ C5500 multifunction printer
OBJECTIVE	Secure a full-time position in a home or small office
SKILLS	State-of-the-art, photo-realistic color Bubble Jet™ printing Exclusive photo-quality printing (with optional Photo Ink) Brilliant color copies without using your PC High-quality color scanning up to 600 dpi Crisp, plain-paper Bubble Jet fax Comprehensive, easy-to-use business software suite
EXPERIENCE	More than 60 years of imaging heritage Member of the Canon multifunction printer family—one of the first in the world
HOBBIES	Printing, copying, scanning, faxing. And yodeling.
CONTACT	1-800-OK-CANON or www.ccsi.canon.com/resume

In business,
you're only as
good as
your support
staff.



\$269*

After \$100 mail-in
rebate

MultiPASS C5500

Seeks position in home or small office.

A Bubble Jet printer that can print, copy and scan in brilliant color, the C5500 is no stranger to hard work. It's even a plain-paper fax machine.



\$229*

After \$50 mail-in
rebate

MultiPASS C3500

Looking for offer from home office.

The C3500 is also a versatile color Bubble Jet printer. When it's not printing in stunning color, it's faxing, copying and scanning, with detailed grayscale images and crisp black text.



MultiPASS L6000

Seeks job in business environment.

A high-powered laser printer for only \$599, the L6000 wears lots of hats.*

Using high-resolution grayscale and sharp black text, it's a plain-paper fax machine, copier, scanner and printer all in one.

Canon

Print Copy Scan Fax

*All prices are estimated street prices after applicable mail-in rebate. Dealer prices may vary. Mail-in rebate offer good for a limited time. See in-store coupon for details. "Flower World" is a fictitious company. Any resemblance to other organizations is coincidental. ©1999 Canon Computer Systems, Inc. Canon is a registered trademark and MultiPASS and Bubble Jet are trademarks of Canon Inc. In Canada, call 1-800-263-1121.



Where do you want to go today? **Microsoft**

Now you won't cringe when you hear:

**"We need your team's
collective input
by noon."**

With new Microsoft® Office 2000, getting everyone on the same page has never been easier. Just by clicking "Save as Web Page" you can save files to your intranet for others to contribute to or just view, eliminating the need for multiple versions. And by having in-line discussions within a document on your intranet, you can consolidate everyone's comments in one place. Plus, anytime a team member updates a document, you can be automatically notified by e-mail.

To see how Office 2000 enables teams to work as one using an intranet, view the Office 2000 multimedia demo at www.microsoft.com/office/2000



Microsoft
Office 2000
What Productivity Means Today

Now with Microsoft Office 2000 you can:

- Save files to a Web server as easily as you save them to your hard drive
- Keep your team's ideas in one place via in-line discussions within a document
- Be automatically notified by e-mail of changes to team documents and projects

COVER STORY

106 WHERE TO GET THE BEST
PC DEALS ONLINE

REVIEW You still end up with a beige box and a dent in your savings, but buying a PC online has unique advantages and pitfalls. We searched direct and third-party sites for the best places to find the computer you want. Plus: the lowdown on shopping options, tips on bagging a bargain, price-comparison services, after-sale service, and the arcana of online ordering.

FEATURES

120 MICROSOFT OFFICE SURVIVAL GUIDE

HOW-TO Mastering Microsoft's business suite was never a walk in the park—and Office 2000 introduces a wilderness of new features. Before you explore, read our experts' tips on installing and using Word, Excel, PowerPoint, and Outlook. And don't miss our side trip through the uncharted regions of Office 97.

148 ARE WIRED SCHOOLS
FAILING OUR KIDS?

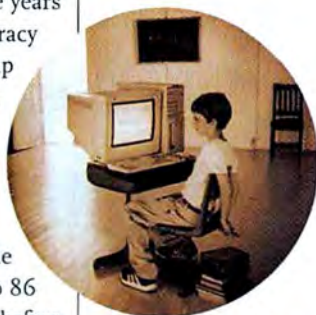
CONSUMER ISSUES High-tech schools sounded great to parents, educators, and politicians. But three years into the ambitious Technology Literacy Challenge, some schools barely tap their PCs' potential. What's going on, and what can we do about it?

165 GET SMART!
CONTROL YOUR Y2K CHAOS

REVIEW You still have time to safeguard your system—so 86 your lurking millennium bugs before '99 is history. We check out 15 free and low-cost utilities and spot a few that do a bang-up job of protecting your PC to the max.



106



148



Additional material
available on PC World
Online: www.pcworld.com

SPECIAL REPORT

THE WEB AND YOUR BUSINESS

181 XEON SERVERS:

THEY'RE A GAS, GAS, GAS

Have you spent too much on your low-performance, high-maintenance server? Maybe it's time to upgrade to a Xeon- or Pentium III-based powerhouse. With faster cache and more of it, plus built-in redundancy and reliability features, the seven workgroup servers we tested are no flash in the pan.

COVER Photography by Robert Cardin

TOP OF THE NEWS

56 AMD GRABS THE CROWN: 600-MHz ATHLON BESTS THE PIII

AMD is banking on its new Athlon K7 processor to dethrone Intel's Pentium III as sovereign of the silicon. The gamble seems to be paying off: In *PC World* tests, rebel Athlon emerges as the new speed king.

62 NEW FLAVOR OF DSL BRINGS FASTER, CHEAPER WEB ACCESS TO YOUR DOOR

G.Lite makes Net surfing 11 times faster than the fleetest dial-up connection.

66 FEATURE-PACKED SUPERSLIMS FROM IBM AND COMPAQ

The case may be as thin as a college student's wallet, but the keyboard is nearly as big as a full-size portable's, and the built-in ports lighten the lug-along load.

72 INTERNET CALL WAITING TURNS ONE PHONE LINE INTO TWO

New hardware and services let you screen phone calls at your PC and answer calls without interrupting a download.

NEW PRODUCTS

- 88 Gateway Profile, NEC Z1 flat-panel PCs
- 89 Peachtree Complete Accounting 7
- 90 Apple Macintosh PowerBook G3/333 notebook, Adobe Photoshop 5.5
- 92 Psion Series 5mx palmtop PC, Palm IIIe personal digital assistant
- 94 Plexor PlexWriter 8/2/20 CD-RW drive, Sharp VN-EZ1 Internet ViewCam
- 96 McAfee Office 2000 business utility support software, Microsoft Vizact 2000 Web site design software
- 100 Micrografx IGrafX Professional graphics software, Animax Dr. Mouse joystick
- 102 Rand McNally GPS Receiver and StreetFinder Deluxe 1999 Software mapping package, Xerox ClearFax software
- 104 NDC CableFree Home Desktop Starter Kit, Compaq 2-mbps Wireless LAN networking kit; ScanSoft PaginePro 3 Scanning Suite; Qualcomm Eudora Pro Email 4.2



66



181



120

TOP 100

201 THE CHEAP GET CHEAPER, THE FAST GET FASTER

TOP 100 This month's big story: great values from vendors on Celeron-based systems. Consumers must decide whether the PIII's 10 percent performance boost justifies the \$500 premium.

204 POWER DESKTOPS

TOP 20 Dell's Dimension XPS T550 holds on to first place, while a Midwest Micro machine debuts as the power chart's least expensive Pentium III-550 PC.

210 BUDGET DESKTOPS

TOP 20 Looking for a budget PIII-500? Check out the new \$1599 Micro Express MicroFlex-5B. For an even cheaper PC, try Quantex's \$1249 Celeron-based M466c.

216 NOTEBOOKS

TOP 10 A Celeron-400 notebook, Micron's \$2299 TransPort Trek2, makes the budget chart this month, while a too-pricey PII-400 model misses the power list.

220 HOME PCs

TOP 10 Three Celeron-466 PCs from Gateway, HP, and Micron—all selling for under \$1500—overrun the budget chart.

231 COLOR PRINTERS

TOP 10 HP's \$199 ink jet tops the SOHO list; a new driver sparks QMS's DeskLaser. Also, we trash disposable printers.

235 19-INCH MONITORS

TOP 10 Four displays now feature Diamondtron's state-of-the-art NF flat CRT. One of them, ViewSonic's PT795, nabs top honors, thanks to a \$300 price cut.

237 GRAPHICS BOARDS

TOP 10 Matrox's new Millennium G400 outpaces the other AGP boards in our business tests—and it can run applications on two displays at once.

239 MODEMS

TOP 10 New internal models from Zoom and 3Com U.S. Robotics skyrocket to success with swift 56-kbps downloads, leaving the competition puttering in their wake.

HERE'S HOW

250 WINDOWS TIPS



Distinguish folders by sight or sound, shift into overdrive, hide your unprofessional desktop theme as quick as a bunny, replace dull desktop icons.

254 WINDOWS NT

Take the fear out of using NT on your laptop, configure PC Cards the easy way.

255 ANSWER LINE

Clean up Windows without reformatting your hard drive, get the picture on Display Settings, upgrade to Internet Explorer 5.

257 INTERNET TIPS

Troubleshoot browser crashes, time your ISP, change Outlook Express's default font.

263 WORD PROCESSING

Extend blocks of text without using a mouse, calculate numbers quickly in Word, crop and scale imported graphics.

264 SPREADSHEETS



Forget Y2K—Excel has a pre-1900 problem. Our free add-in solves it.

266 HARDWARE TIPS



Optimize your system for flawless CD-ROM video playback, the pros and cons of flat panels, hardware hard copy.



270 UPGRADE GUIDE

Install a DVD-ROM drive in your system, step by step.

RESOURCES

- 14 HOW TO CONTACT PC WORLD
- 14 COMING UP
- 273 MAIL-ORDER SHOPPING GUIDE
- 279 PC WORLD MARKETPLACE
- 299 PRODUCT INFORMATION CARD
- 302 ADVERTISER INDEX
- 303 EDITORIAL PRODUCT INDEX

33



255



41



47



DEPARTMENTS

- 19 **UP FRONT** PC World joins a nationwide effort to help high schools use computers.
- 23 **LETTERS** Readers sound off on multilevel marketing schemes and CPU ID numbers.
- 33 **CONSUMER WATCH** Congress has lots of online privacy bills pending, but how well do any of them protect consumers?
- 37 **ON YOUR SIDE** Microworkz malaise, the latest kaput companies, a reader's apology.
- 41 **GOT A PROBLEM?** Easy safeguards for foiling the most virulent PC viruses.
- 47 **HOME OFFICE** Steve Bass explains how you can ascend from the deepest circle of DLL hell.
- 49 **BUGS AND FIXES** Outlook still isn't rosy after a new patch, steps to help Win 98's File Checker keep its balance.
- 308 **FULL DISCLOSURE** Looking for a straight answer on the Web? Accurate, intelligible information remains hard to get.



37

PCW ONLINE

KEEP STRANGERS OUT OF YOUR PC

HOW-TO You're exposed to viruses, snoops, and hackers whenever you surf the Net. Here's how to keep your personal information and your hardware safe.

www.pcworld.com/sep99/security

SHAPE UP YOUR HARD DRIVE

HOW-TO We've found lots of painless ways to fight file bloat. Try these quick and easy tips for restoring megabytes of free space to your hard drive.

www.pcworld.com/sep99/reduce

DAILY DIGEST

NEWS No time to read all the day's high-tech news? Get the highlights of PC World Today here, plus Digestibles—news tidbits from around the Net.

www.pcworld.com/news/digest



PC WORLD ONLINE

www.pcworld.com



SMALL-BIZ MARY



Was running her own store. Web came along. Seemed like clearest path to triple-digit growth. Now runs a chunk of her business online. (And makes a tidy profit doing it.) NetObjects Fusion 4.0 helped her master e-commerce, interactivity, and even site maintenance. It's the fastest, easiest way to build business Web sites. Aspiring tycoons: Get your free trial software today at www.netobjects.com/free



NETobjects®

©1999 NetObjects, Inc. All rights reserved. NetObjects is a registered trademark, and NetObjects Fusion is a trademark of NetObjects, Inc. The e-business logo is a trademark of International Business Machines Corporation.

Circle 205 on card or go to www.pcworld.com/productinfo



TYCOON MARY

The 5 largest PC companies worldwide use our memory.

Quality is Crucial

Crucial is recognized worldwide for its quality and performance. Our memory is used by Apple, Gateway, HP, IBM, Micron Electronics and more, because we offer more. Higher quality standards, factory-direct low pricing and fast online memory selection. Crucial's online Memory Selector lets you quickly find the exact memory you need from over 30,000 upgrades for over 7,000 systems – and gives

IBM Gateway
Micron Electronics
Apple HP
and more . . .

you immediate discounts for online orders and 100% guaranteed compatibility. Go to www.crucial.com/pcwd for the added power and performance of Crucial Memory delivered to your door. Crucial is the memory upgrade division of Micron®, the #1 memory producer in America (and most likely a major source of your PC manufacturer's memory).

The memory experts.

"Your memory is the only memory I've been able to get to work correctly."

Tyson Bryner, Computer Technician



Buying Direct is Crucial

Buying memory direct from the manufacturer has significant advantages. The prices are lower. The quality is higher. Crucial Technology delivers 100% guaranteed compatibility at low factory-direct pricing.

Support is Crucial

With over 1,500 engineers and technicians, only Crucial can give you the support of the #1 memory manufacturer in America.

Immediate discounts for online orders

www.crucial.com/pcwd

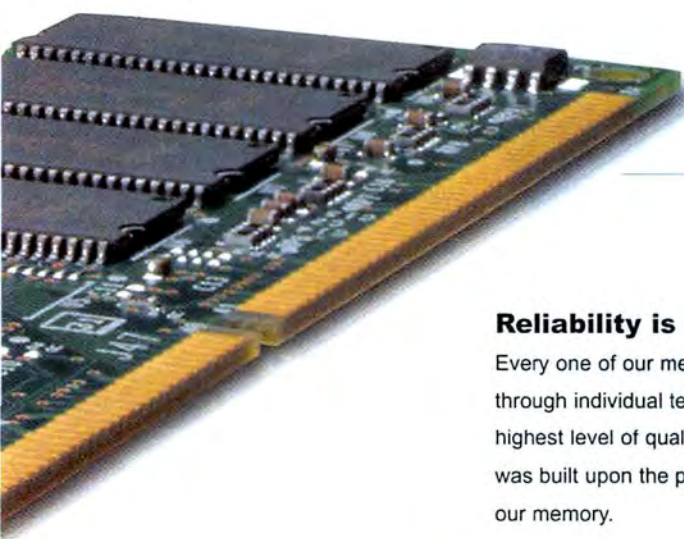
or call toll free 1-888-363-3062

©1999 Micron Semiconductor Products, Inc. All rights reserved. Crucial Technology is a trademark of Micron Technology Inc., and Micron is a registered trademark of Micron Technology, Inc. All other brands and names used herein are the property of their respective owners. Crucial Technology, a Division of Micron. Phone 208-363-5500. Fax 208-363-5501. E-mail crucial.sales@micron.com

Purchase Programs are Crucial

Whether you purchase for a corporation, educational facility or government agency, Crucial Technology can make your job easier. Dedicated account sales. Priority technical support. Discounted pricing up to 15%. Streamlined, 24-hour online ordering.

Sign up today at www.crucial.com/pcwd.



Reliability is Crucial

Every one of our memory chips goes through individual testing to ensure the highest level of quality. Our reputation was built upon the performance of our memory.

Memory Selection is Crucial

Our fast online Memory Selector is the easiest way to find the exact memory upgrade you need. **Simply point and click.**



Save up to 62% over Kingston®

Crucial prices reflect a 5% discount for placing your order online. Prices were current as of 6/23/99, however, they can (and do) change daily.

Individual prices may vary according to your specific system and memory type.

64MB Upgrade Comparison:

Compaq	Crucial	Kingston
Presario 4808	\$58.89	141.00
Deskpro EN C400	\$58.89	157.00
Deskpro EP Model 6400CDS	\$58.89	141.00

Micron Electronics	Crucial	Kingston
Millennia 400	\$58.89	141.00
Home MPC	\$132.98	-
Powerstation P133 with 54Si BIOS	\$132.98	-
ClientPro VXE 200/233	\$59.84	141.00
Magnum Pro Plus P200	\$132.98	-

Gateway	Crucial	Kingston
G6-300	\$58.89	141.00
P5-133	\$138.68	247.00
GP6-300	\$58.89	141.00

IBM	Crucial	Kingston
Aptiva (2140) Model L5H	\$58.89	157.00
PC 300GL Series		
Pentium II Systems (6591)	\$58.89	157.00
PC 300PL (6892-50U)	\$59.84	154.00

HP	Crucial	Kingston
Pavilion 3260	\$58.89	141.00
BRIO Advanced		
Business Models 8338	\$58.89	141.00
Vectra VL Series 8	\$59.84	141.00

Apple	Crucial	Kingston
iMac	\$62.69	157.00
Performa 5400/120	\$142.49	230.00
Power Mac 6100 Series	\$132.98	211.00
Power Mac G3	\$58.89	141.00
Power Mac G3 PC100	\$59.84	141.00

(All prices were taken from the Web sites of Crucial and Kingston on 6/23/99)

View our full line of memory upgrades and pricing at
www.crucial.com/pcwd

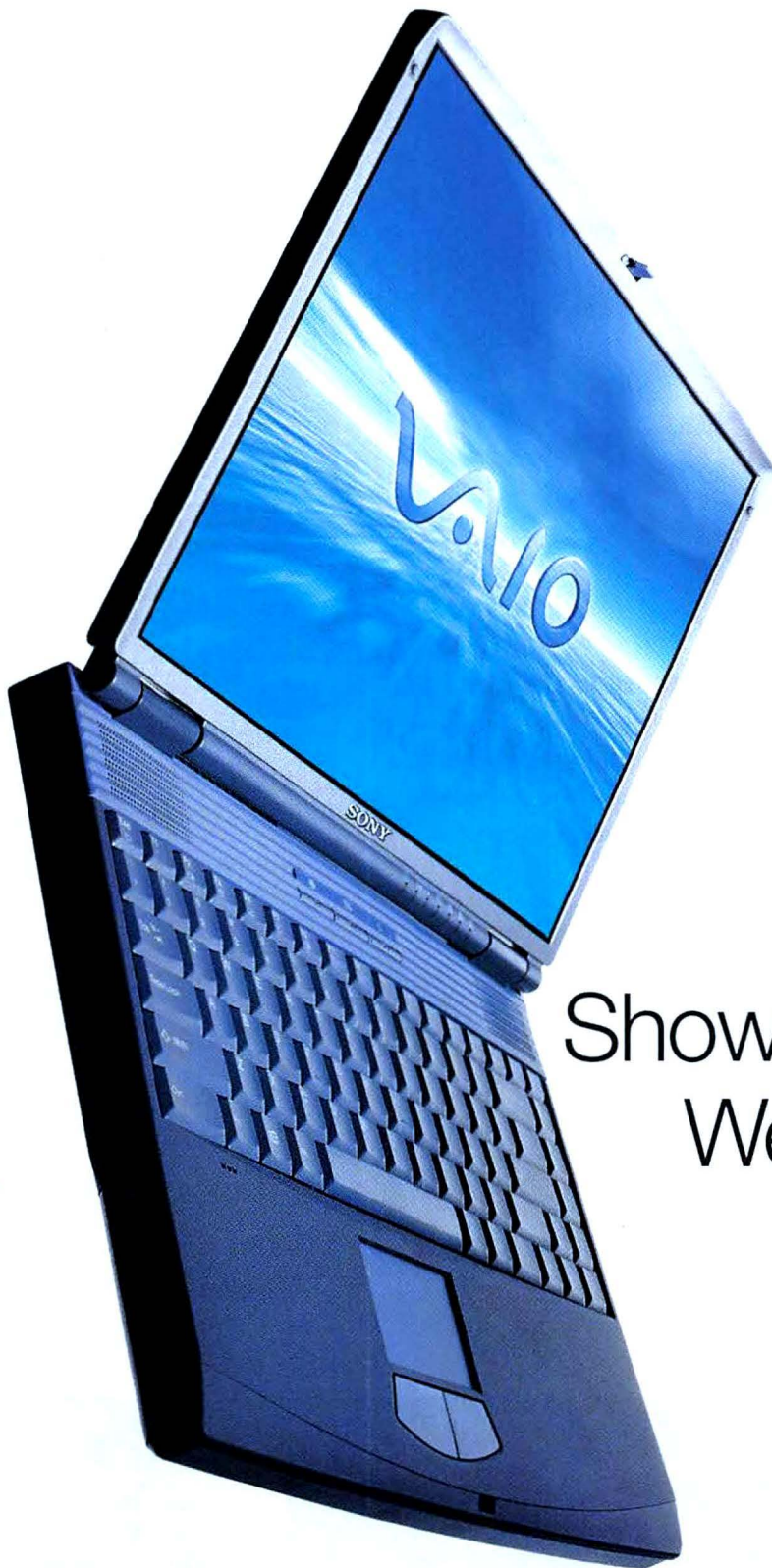
- 100% Guaranteed Compatibility
- Same-Day Shipping on Most Orders
- 30-Day Money-Back Guarantee
- Memory-Expert Salespeople
- Limited Lifetime Warranty
- Volume Discounts Available
- Toll-Free Technical Support
- Most Complete Memory Selector

Circle 50 on card or go to www.pcworld.com/productinfo

crucial
TECHNOLOGY
A Division of Micron®

Your Factory-Direct Memory Source

©1999 Sony Electronics Inc. All rights reserved. Reproduction in whole or in part without written permission is prohibited. Prices, specifications and promotions are valid only in the U.S. Prices and promotions do not include applicable sales tax or shipping and handling, and are subject to change without notice. Sony, VAO, 3Max+, LINK, VAO logo and the Sony logo are trademarks of Sony. Sony VAO Direct and Sony Computer Loan are service marks of Sony. Intel and Pentium are registered trademarks of Intel Corporation. All other trademarks are trademarks of their respective owners. **With the Sony Computer Loan Program, Sony Computer Loan terms: No money down, 15.17% ANNUAL PERCENTAGE RATE (APR) and 12.35% variable rate (7.75% Prime + 4.60% Spread) as of June 7, 1999, each subject to monthly increase. The monthly variable rate equals the prime rate published in the "Money Rates" table of *The Wall Street Journal* on the 1st business day of each month. Changes to rate take effect on the 5th business day of each month and remain in effect until subsequently changed. Eight-year term. On approved credit. The Sony Computer Loan is offered by Servus Financial Corp. Delivery options include overnight service, two-day delivery or ground service in the continental U.S. For Hawaii and Alaska: two-day delivery only. Shipping charges to and from the customer are not refundable. *Tax (if applicable), shipping and handling charges not included. Certain restrictions apply. **C1 PictureBook and LCD Slimtop models ship within 24 hours and are not built-to-order products. †Subject to carrier pickup and product/parts availability. All built-to-order notebooks are shipped from the Sony U.S. domestic configuration center. The C1 PictureBook ships within 24 hours and is not a built-to-order product. ††With weight saver in floppy drive bay. †††Using optional 2nd battery in floppy drive bay. Note: Image on screen is simulated.



Shows more.
Weighs less.



SONY

A 15" display has never been easier to carry. Turn your attention to the new Sony VAIO F290 All-in-One Notebook. Everything you need—including a brilliant 15" display—is built right in: the DVD-ROM, the hard and floppy drives as well as the V.90 modem and connections. So there's no need to lug around any external drives and peripherals.

We've also packed an Intel® Pentium® II processor 400 MHz, dual battery capability and stereo speakers inside. As loaded as it is, the F290 is one of the thinnest and lightest 15" display notebooks on the market. Order your customized VAIO All-in-One Notebook from Sony VAIO Direct.

Sony VAIO DirectSM

BUY DIRECT

1-888-384-SONY
www.sony.com/direct-epw

SONY VAIO® NOTEBOOKS ARE BUILT TO ORDER. NOTEBOOKS SHIPPED WITHIN 7 DAYS STRAIGHT FROM THE FACTORY.*



10 FREE DVD rentals from NetFlix.com with purchase of F290, F280 or F270.* (Offer expires 9/30/99)

VAIO

Features (F290, F280, F270):

- 6.4 GB fixed hard drive
- 4X (max.) DVD-ROM with movie playback
- Integrated V.90 modem
- High-capacity Lithium-Ion battery
- 256-bit graphics chip
- Built-in stereo speakers
- Digital touch pad
- i.LINK® (IEEE-1394) interface for DV motion capture and editing and still image capture

Accessories:

- Network Port Replicator **PCGA-PRF1**: \$199.99 Built-in Ethernet 10 Base-T, USB, parallel, serial, VGA, DC-in, PS/2® keyboard and PS/2 mouse ports
- AC Adapter **PCGA-AC71**: \$99.99 (One AC Adapter included with unit.)
- Rechargeable Lithium-Ion Battery **PCGA-BP71**: \$249.99
- All-in-One Carrying Case **PCGA-CCF**: \$99.99

3MAX+ Features:

- MaxScreen: 15" XGA TFT (F290 only)
- MaxBattery: 2X battery life**
- MaxMobility: Approx. 7 lbs.,** under 2" thin

Plus:

- All-in-One design
- i.LINK (IEEE-1394) interface

3MAX+

F290 **\$3,499.99**

As low as \$63.17 a month*

- 15" XGA TFT screen
- Weighs only 7.1 lbs.** and is 1.9" thin
- Mobile Intel Pentium II processor 400 MHz
- 128 MB SDRAM

F280 **\$2,799.99**

As low as \$50.53 a month*

- 14.1" XGA TFT screen
- Weighs less than 7 lbs.** and is 1.6" thin
- Mobile Intel Pentium II processor 366 MHz
- 64 MB SDRAM (expandable to 128 MB max.)

Customize with:

Upgrade to 128 MB RAM add \$200

F270 **\$2,399.99**

As low as \$43.31 a month*

- 14.1" XGA TFT screen
- Weighs less than 7 lbs.** and is 1.6" thin
- Mobile Intel Pentium II processor 333 MHz
- 64 MB SDRAM (expandable to 128 MB max.)

Customize with:

Upgrade to 128 MB RAM add \$200

Introducing Sony BusinessDirect

Now you can buy Sony for your business the easy way—through Sony BusinessDirect. You'll find a wide array of Sony products for your company, plus finance options including leasing and open accounts to make it simple. You can order online anytime, day or night, and we have a dedicated sales team just for our business customers. All Sony built-to-order PCs are shipped directly from our factory.** Visit Sony BusinessDirect today at the Sony VAIO Direct web site: www.sony.com/direct-epw

COMING UP

IN OCTOBER

WINDOWS, LINUX, BE OS, MAC?

The world of operating systems isn't simple anymore. Which of the many versions of Windows is best for you? What about Red Hat Linux or Caldera OpenLinux, or BeOS? Maybe even the Mac OS? Our superguide sorts it out.

SPEAK EASY: WHAT'S UP WITH VOICE RECOGNITION

For as little as \$29 you can talk to your computer—but is it ready to listen? *PC World* gives you the latest scoop on dictation packages, voice-based Web surfing, headset mikes, mobile recorders, text-to-speech programs, and more.

UPGRADE TO A JUMBO HARD DRIVE

Are enormous applications eating up your file space? We test 15 mega-giga-byte upgrade kits for speed and ease of installation, and recommend two Best Buys—one for the performance-hungry, one for the value-conscious.

7-STEP GUIDE TO ONLINE CAR SHOPPING

Learn how to use Web car-buying sites to make auto shopping faster, easier, and cheaper. Plus the best new- and used-car sites, and tips from the *Car Talk* guys on steering clear of lemons, both online and in the showroom.

ALSO NEXT MONTH

► **The PC World Top 100:** The best Power and Budget Desktops, Notebooks, Home PCs, Printers, Monitors, Graphics Boards, Modems, and Scanners.

► **Here's How:** Tips on creating a hardware profile to simplify Windows start-up, using hyperlinks to make documents more readable, and setting up a peer-to-peer network.

PC WORLD

PC WORLD

EDITORIAL

EDITORIAL DIRECTOR Philip Lemmons
EDITOR IN CHIEF Cathryn Baskin
EDITOR Steve Fox
MANAGING EDITOR Luis Camus
ART DIRECTOR Robert Kanes
EXECUTIVE EDITORS Tracey Capen, Yael Li-Ron, Bill Snyder, Daniel Tynan
ASSISTANT MANAGING EDITOR Kimberly Stein
SENIOR EDITORS Anita Epler, Brad Grimes, Karl Koessel, Dan Miller, Shane Rau, Randy Ross
SENIOR WRITER, FEATURES Harry McCracken
SENIOR ASSOCIATE EDITORS Yarden Arar, Vince Bielski, Cameron Heffernan, Michael S. Lasky, Laurianne McLaughlin, Karen Silver, Alan Stafford, Anush Yeghazarian
ASSOCIATE EDITORS Andrew Brandt, Michelle Campanale-Surkan, Aoife M. McEvoy, Kim Zetter
STAFF EDITORS Grace Aquino, Mick Lockey
EDITORIAL ASSISTANT Kalai Murugesan
SENIOR COPY EDITORS Stephen Compton, Steven Gray, Barbara Lewis
COPY EDITORS David Hayward, Carol Pragides
COPY EDITOR/RESEARCH EDITOR Jean Lieske
RESEARCH EDITOR Nicole Stefanko
EDITORIAL PRODUCTION ASSOCIATE Henry Pham
ASSISTANT TO EDITORIAL DIRECTOR Linda L. Grubbs
ADMINISTRATIVE ASSISTANT Heather Morra
BUSINESS MANAGER Heidi Anderson

ART AND DESIGN

ASSOCIATE ART DIRECTORS Barbara Adamson, Tim J. Luddy
ASSISTANT ART DIRECTORS Kate Godfrey, Carolyn Perot
SENIOR DESIGNER, INFOGRAPHICS Jeff Berlin
SENIOR DESIGNER Beth Kamoroff
ASSISTANT DESIGNER, INFOGRAPHICS Robin Briskin
PRODUCTION ARTIST Marlene Tobias

CONTRIBUTING EDITORS

Steve Bass, George Campbell, Scott Dunn, Roberta Furger, Judy Heim, Stephen Manes, James A. Martin, Stan Miaszkowski, Lincoln Spector, Scott Spanbauer, Kirk Steers, Carla Thornton, John Walkenbach, Christina Wood

PC WORLD TEST CENTER

TEST CENTER DIRECTOR Julian Milenbach
ASSOCIATE TEST CENTER DIRECTOR Ulrike Diehlmann
MANAGER, BENCHMARK DEVELOPMENT William L. Rinko-Gay
TEST MANAGER Nancy H. Miller
PERFORMANCE ANALYSTS Robert P. James, Elliott S. Kirschling, Jeffrey Kuta, Mike Salayko
TEST CENTER COORDINATORS Christopher B. Patterson, Julian Weatherby

PCW ONLINE

MANAGING EDITOR Rebecca Freed
EXECUTIVE EDITOR, NEWS Eric Bender
SENIOR EDITOR, NEWS Peggy Watt
SENIOR EDITOR, REVIEWS Rex Farrance
ASSOCIATE EDITOR, REVIEWS Gregory Frame
ASSOCIATE EDITOR, HERE'S HOW Matthew Newton
COPY CHIEF Kim Saccio-Kent
EDITOR/REPORTER Tom Spring
ASSISTANT EDITOR Arin Hailey
COPY EDITOR Dean Takehara

PCW COMMUNICATIONS

PRESIDENT'S OFFICE Jeff Edman, Publisher; Philip Lemmons, Editorial Director; Vicki Peilen, COO/CFO; Richard Willoughby, Senior VP
PUBLISHER, PC WORLD ONLINE Thomas Gewecke

VP, CIRCULATION Shawne Burke Pecar
VP, MANUFACTURING Linda Manes Goodwin
VP, CHIEF INFORMATION OFFICER Henri Froissart
VP, RESEARCH Bettina Eichel

PC WORLD GLOBAL PRODUCT LINE Nancy L. Jacobs

FOUNDER David Bunnell
FOUNDING EDITOR Andrew Fluegelman

SUBSCRIPTION SERVICES

PC World Subscriber Services, P.O. Box 55029, Boulder, CO 80322-5029

INTERNET: www.pcworld.com/resources/subscribe/customer_service

E-MAIL: pcwhelp@needata.com

PHONE: In U.S. other than CO 800/234-3498
In CO and outside U.S. 303/604-1465
New orders 800/825-7595

MAIL AND ONLINE

PC World Editorial, 501 Second St. #600, San Francisco, CA 94107

PHONE: 415/243-0500

FAX: 415/442-1891

E-MAIL: letters@pcworld.com

COMPUSERVE: go pcworld

WORLD WIDE WEB: www.pcworld.com

QUESTIONS AND SUBMISSIONS

Send material electronically to the appropriate online address listed below or mail it to *PC World*. We reserve the right to edit letters. *PC World* pays \$50 for published *Here's How* tips and questions; accepted submissions will be acknowledged by payment. Editors cannot guarantee personal responses to all questions.

ANSWER LINE: answer@pcworld.com

BUGS AND FIXES: bugs@pcworld.com

CONSUMER WATCH: consumerwatch@pcworld.com

FULL DISCLOSURE: steve@cranky.com

GOT A PROBLEM?: got_a_problem@pcworld.com

HARDWARE TIPS: kirk_steers@pcworld.com

HOME OFFICE: steve_bass@pcworld.com

INTERNET TIPS: judy_heim@pcworld.com

LETTERS: letters@pcworld.com

ON YOUR SIDE: onyourside@pcworld.com

SPREADSHEETS: john@j-walk.com

UPGRADE GUIDE: stan_miaszkowski@pcworld.com

WINDOWS NT: nttips@spanbauer.com

WINDOWS TIPS: scott_dunn@pcworld.com

WORD PROCESSING: george_campbell@pcworld.com

NEW PRODUCT ANNOUNCEMENTS

Please address press releases to *New Products* at *PC World*, or call 415/978-3212.

REPRINTS AND PERMISSIONS

You must have permission before reproducing any material from *PC World*. Write to *PC World*, Reprints and Permissions, 501 Second St. #600, San Francisco, CA 94107; include a phone number. To order reprints of your company's editorial coverage in *PC World*, call 612/582-3810.

BACK ISSUES

PC World issues and article copies are on microfilm and microfiche from UMI, 300 N. Zeeb Rd., Ann Arbor, MI 48106-1346; 800/521-0600.

MAILING LISTS

Occasionally we make our subscribers' names available to other companies whose products may interest you. To have your name excluded from these mailings, send a request with your mailing label to Subscriber Services, P.O. Box 55029, Boulder, CO 80322-5029.



The virtual office is a reality. The question is, who's going to help you manage it?

Introducing the Sprint PCS Clear Wireless Workplace.SM

Unfortunately, fewer wires doesn't always mean fewer problems. That's why Sprint PCS has made it simpler than ever for everyone in your office to work wireless. We built the only all-digital, all-PCS nationwide network from the ground up, so you can communicate more clearly when you use it. **Clear calls.** Our advanced CDMA technology means unsurpassed voice clarity. **Clear features.**



And features like Voicemail and Caller ID work the same wherever you are on our network.

Clear pricing. Predictable nationwide pricing makes it easy to keep costs under control.

Clear vision. With our expandable platform, you can adapt to future technology with fewer problems. Because, we figure, everyone in the wireless workplace should enjoy more freedom, including those who manage it.

1-877-255-9008 or www.sprintpcs.com/clear



The clear alternative to cellular.TM

Sprint PCS[®]

YOUR PARTNER FOR

Year 2000 "Best Buy"

24 Hour Technical Support
1 Year On-Site Service



Voyager V

CYRIX MII-333
\$338

- 32MB SDRAM Memory
- 6.4GB Ultra ATA Hard Drive
- 3D 8MB Video Graphics Shared
- 40X CD-ROM Drive
- 3D Stereo Sound
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- Multimedia Stereo Speakers
- Mini Tower Case
- 104 Keyboard, Microphone & Mouse
- 3 Year Limited Warranty
- No OS

CYRIX MII-366 Processor	\$348
AMD-K6-2/400	
w/3DNow! Technology	\$378
AMD-K6-2/350	
w/3DNow! Technology	\$348



Voyager XV

AMD-K6-2/400
\$818

- 512K L2 Cache
- 64MB 100MHz SDRAM
- 10GB Ultra ATA Hard Drive
- 17" 27dp Digital Monitor MPRII
- Intel i740 8MB 3D AGP 2X Video
- 40X CD-ROM Drive
- Aureal A3D™ Vortex 2 PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Speaker Sound System
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

CYRIX MII-366 Processor	\$788
CYRIX MII-333 Processor	\$778
AMD-K6III/450	
w/3DNow! Technology	\$948
AMD-K6III/400	
w/3DNow! Technology	\$888
AMD-K6-2/450	
w/3DNow! Technology	\$828
AMD-K6-2/350	
w/3DNow! Technology	\$788

Voyager GX

AMD-K6-III/450
\$1348

- 512K L2 Cache
- 128MB 100MHz SDRAM
- 13GB Ultra ATA Hard Drive
- 19" 27dp Digital Monitor MPRII
- ATI Fury 32MB
- 4th Generation DVD-ROM Drive
- Aureal A3D™ Vortex 2 PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone
- MS® Windows® 98 & IntelliMouse
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

CYRIX MII-366 Processor	\$1188
CYRIX MII-333 Processor	\$1178
AMD-K6III/400	
w/3DNow! Technology	\$1288
AMD-K6-2/450	
w/3DNow! Technology	\$1228
AMD-K6-2/400	
w/3DNow! Technology	\$1218
AMD-K6-2/350	
w/3DNow! Technology	\$1188

Voyager XIII

AMD-K6-2/350
\$678

- 512K L2 Cache
- 64MB 100MHz SDRAM
- 8.4GB Ultra ATA Hard Drive
- 15" 28dp Digital Monitor MPRII
- Intel i740 8MB 3D AGP 2X Video
- 40X CD-ROM Drive
- 3D PCI WaveTable Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- Power 3D Stereo Sound System
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

CYRIX MII-333 Processor	\$668
CYRIX MII-366 Processor	\$688
AMD-K6III/450	
w/3DNow! Technology	\$838
AMD-K6III/400	
w/3DNow! Technology	\$788
AMD-K6-2/450	
w/3DNow! Technology	\$728
AMD-K6-2/400	
w/3DNow! Technology	\$708

Endeavor MX

Celeron® 333MHz
with 128KB
\$658

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 32MB 100MHz SDRAM
- 6.4GB Ultra ATA Hard Drive
- 15" 28dp Digital Monitor MPRII
- AGP 3D Image w/ 4MB Video
- 44X CD-ROM Drive
- Aureal A3D™ Vortex 2 PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- Power 3D Speaker System
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 550MHz	\$1298
Pentium® III Processor 500MHz	\$1048
Pentium® III Processor 450MHz	\$838
Pentium® II Processor 450MHz	\$828
Pentium® II Processor 400MHz	\$778
Pentium® II Processor 350MHz	\$768
Celeron® 466MHz with 128KB	\$738
Celeron® 400MHz with 128KB	\$678

Endeavor EX

Pentium® II
400MHz
\$1018

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 128MB 100MHz SDRAM
- 10GB Ultra ATA Hard Drive
- 17" 27dp Digital Monitor MPRII
- Intel i740 8MB 3D AGP 2X Video
- 40X CD-ROM Drive
- Aureal A3D™ Vortex 2 PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 550MHz	\$1528
Pentium® III Processor 500MHz	\$1278
Pentium® III Processor 450MHz	\$1078
Pentium® II Processor 450MHz	\$1068
Pentium® II Processor 350MHz	\$998
Celeron® 466MHz with 128KB	\$978
Celeron® 400MHz with 128KB	\$918
Celeron® 333MHz with 128KB	\$898

Call for Notebooks & Custom Configurations

THE NEW MILLENNIUM



Endeavor BX

Pentium® III
500MHz

\$1558

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 128MB 100MHz SDRAM
- 10GB Ultra ATA Hard Drive
- 19" .27dp Digital Monitor MPRII
- Creative Labs RIVA TNT 16MB AGP
- 4th Generation DVD-ROM Drive
- Aureal A3D™ Vortex 2 PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- 104 Win 98 Keyboard, Microphone & Mouse
- MS® Windows® 98
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 550MHz	\$1808
Pentium® III Processor 450MHz	\$1348
Pentium® II Processor 450MHz	\$1338
Pentium® II Processor 400MHz	\$1288
Pentium® II Processor 350MHz	\$1278
Celeron® 466MHz with 128KB	\$1248
Celeron® 400MHz with 128KB	\$1188
Celeron® 333MHz with 128KB	\$1168

Endeavor GX

Pentium® III
500MHz

\$1678

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 128MB 100MHz SDRAM
- 17.2GB Ultra ATA Hard Drive
- 19" .26dp 1600x1200 Digital Monitor
- Creative Labs RIVA TNT 16MB AGP
- 3dxfx Voodoo Banshee 16MB 2X AGP Video
- 4th Generation DVD-ROM Drive
- Aureal A3D™ Vortex 2 PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- Multimedia Keyboard
- MS® Windows® 98 & Intelli-Mouse
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 550MHz	\$1928
Pentium® III Processor 450MHz	\$1478
Pentium® II Processor 450MHz	\$1468
Pentium® II Processor 400MHz	\$1418
Pentium® II Processor 350MHz	\$1398
Celeron® 466MHz with 128KB	\$1368
Celeron® 400MHz with 128KB	\$1318
Celeron® 333MHz with 128KB	\$1298

Crossbook X

AMD-K6®-2/300
2.1GB/12.1" TFT

\$988

- AMD K6-2 300/333/350MHz processor
- 12.1" (SVGA) or 13.3" TFT (XGA),
- Intel 430TX Mobile chipset
- 32MB SDRAM Memory expandable to 256MB
- 2.1GB removable hard drive (Optional HD Avail.)
- 4MB SGRAM video
- Built in 3D audio, 1.44MB Floppy
- 24X CD-ROM, Built in sound and speakers
- Full size 87 Key keyboard
- PS/2 Interface trackpad module
- TV out port, USB port
- 2 type II or 1 type III PCMCIA
- AC-adaptor, carrying case
- NiMH Battery Pack (Smart Lithium Ion battery Optional)
- Weight 7.2lbs with Battery Pack
- Size: 12.2"W x 9.4"D x 1.7"H
- Windows 95 or Windows 98
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

2.1GB	4.0GB	6.0GB
AMD-K6®-2/300 w/3DNow! '12.1" TFT	\$988	\$1128
AMD-K6®-2/333 w/3DNow! '12.1" TFT	\$1198	\$1238
AMD-K6®-2/350 w/3DNow! '13.3" TFT	\$1188	\$1248
AMD-K6®-2/350 w/3DNow! '13.3" TFT	\$1228	\$1278

Endeavor SX

Pentium® III
550MHz

\$2078

- Intel® 440BX/LX AGPset
- 2 High Speed Serial, 1 Game, 1 Parallel, 2 USB
- 256MB 100MHz SDRAM
- 20.2GB Ultra ATA Hard Drive
- 19" .26dp 1600x1200 Digital Monitor
- ATI Fury 32MB
- 4th Generation DVD-ROM Drive
- Aureal A3D™ Vortex 2 PCI Sound Card
- 56K v.90 Voice Fax Modem
- 1.44MB Floppy Drive
- 3D Sound System with SubWoofer
- ATX Mid Tower Case
- Multimedia Keyboard
- MS® Windows® 98 & Intelli-Mouse
- Corel WordPerfect Office 2000 w/Print Office
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Pentium® III Processor 500MHz	\$1828
Pentium® III Processor 450MHz	\$1618
Pentium® II Processor 450MHz	\$1608
Pentium® II Processor 400MHz	\$1558
Pentium® II Processor 350MHz	\$1538
Celeron® 466MHz with 128KB	\$1518
Celeron® 400MHz with 128KB	\$1458
Celeron® 333MHz with 128KB	\$1438

Columbia Sv2 Server

Single Pentium® II
400MHz w/512K

\$2018

- Dual Intel® Pentium® II Processor 333-450MHz
- Intel® 440BX Chipset 100MHz with USB
- 64MB 100MHz SDRAM (Supports up to 512MB)
- Integrated Adaptec 7890 Ultra-2 SCSI Controller (80MB/s)
- Integrated RAIDport III
- 6 Expansion Slots
- 4.5GB Ultra-2/LVD SCSI Hard Disk Drive
- Trident 3D Image 9750 AGP Graphics Adapter w/4MB
- 32X Max SCSI CD-ROM Drive
- Intel® EtherExpress® Pro 10/100
- 1.44MB Floppy Disk Drive
- 300W Full tower w/6 1/4" Ext. Bays, 3 1/2" Bays
- 104 Key Enhanced Windows Keyboard
- Microsoft PS/2 Mouse
- Microsoft NT Server 4.0 with 5 User License
- Intel® LANDesk® Client Manager for Windows NT
- Super Doctor Utility with PC Health Monitoring
- Fully Tested and Burned In
- 3 Year Limited Warranty
- 1 Year On-Site Service/24x7 Tech. Support

Single Pentium® II Processor 350MHz	\$1848
Single Pentium® III Processor 450MHz	\$1978
Single Pentium® III Processor 500MHz	\$2238
Single Pentium® III Processor 550MHz	\$2538



CROSSLINE
1.888.909.CROSS
(1-888-909-2767)

16026 Carmenita Rd., Cerritos, CA 90703

Tel: 562.921.0752 • Fax: 562.921.0183

<http://www.crossline2000.com>

email:sales@crossline2000.com

Copyright 1999 Crossline Commercial Corp., all rights reserved. Intel Inside logo and Pentium are registered trademarks & MMX is a trademark of the Intel Corporation. Microsoft, Windows 98 and Windows NT are registered trademarks of the Microsoft Corporation. All other brands and product names are the trademarks & copyrights of their respective companies. We are not responsible for errors in photography or typographical errors. All products, pricing and system configurations are subject to change without notice and we reserve our legal right to do so. Prices may reflect a cash discount. Original shipping charges as well as return shipping and all other cost that may occur are non-refundable. All returns after 30 days are subject to a restocking fee. There are no returns after 45 days. All open software is non-refundable. All returns must be in a like new condition or in original packaging.

See What You've Myst

Since 1993, over 5 million people have forgotten their everyday worries, finding themselves captivated by *Myst*'s intriguing adventure and stunningly beautiful environments. In doing so, they have made *Myst* the best-selling computer game of all time.

Now this timeless classic has been revamped with a host of new and improved features. *Myst: Masterpiece Edition* includes stunning graphics in all new 24-bit color, digitally remastered audio and video, and, most importantly, the addition of our proprietary DigitalGuide™ help technology. The DigitalGuide makes the game playing experience more accessible and less intimidating for players of any skill level.

So, whether you've never played *Myst* before or you've played, but never fully experienced this classic, now is the time to see what you've missed.



**UPDATED VERSION
NEW FEATURES!!**

MYST
MASTERPIECE EDITION

Current *Myst* Owners: Look for \$10 upgrade rebate on box

www.mystworlds.com

Copyright 1993, 1999 Cyan, Inc. and The Learning Company, Inc. and its subsidiaries. All rights reserved. *Myst* and Cyan are registered trademarks of Cyan, Inc. Red Orb Entertainment and DigitalGuide are trademarks of Learning Company Properties Inc.



Circle 212 on card or go to www.pcworld.com/productinfo

Wiring the Home of the Bulldogs

SAN FRANCISCO'S Wallenberg High School, the "Home of the Bulldogs," looks like thousands of other schools built in the sixties for the legions of baby boomers then reaching school age. All across the country, in these glass-and-concrete buildings, we boomers struggled with new math, learned to "duck and cover," and counted down the Top 40 with transistor radios glued to our ears. Kids'

soccer, baggy pants, and PCs? Not even a glimmer in the minds of marketers back then.

Its building may be outdated, but Wallenberg High has moved well beyond new math. Already equipped with about 120 computers for its 630 students, the school was recently named a Digital High School by the California Department of Education. The four-year DHS Program, now in its second year, aims to equip all high schools in the state with computers and Internet access by 2000. The ultimate goal: to help students become technologically literate and ready for today's job market.

Wallenberg High, with its state-funded grant of \$189,000, bought 50 more computers for the school, thereby achieving the recommended 4:1 ratio of students to computers. The school purchased an additional 50 PCs to donate to students and will spend, as required, 20 percent of its funds on staff development. With the school district's matching grant, Wallenberg will install a new network.

The school plans to install in each classroom a networked PC—equipped with DVD-ROM drive, printer, 29-inch monitor, and VCR—to be used as a presentation unit for lessons. Wallenberg will also add 14 new computers to its lab. Last year, school administrators started workshops about the Internet, spreadsheets, presentation software, and other applications. This year, they'll work on integrating the PCs and applications into the curriculum.

Enter *PC World*. On August 5, staffers got out their screwdrivers, cracked the user manuals, and went back to school. We helped Wallenberg High School install the new computers, begin a series of training seminars for both teachers and students, and set up 50 refurbished 486 PCs in students' homes.

And we're not alone. Thousands of volunteer groups across the country at the local, state, and national levels are donating their



Despite some progress, most public schools still desperately need help in adopting technology.

time and expertise to help our kids learn critical technology skills. As you'll see in "Are Wired Schools Failing Our Kids?" (page 148), most public schools still desperately need help in adopting technology, particularly in teacher training. To cite just one statistic: Only 20 percent of teachers say they feel prepared to integrate computers into classroom instruction.

THE LOCAL CONNECTION

ORGANIZATIONS NATIONWIDE make it easy to adopt a school. *PC World* hooked up with Wallenberg through the San Francisco School Volunteers program, a local nonprofit that recruits, trains, and links 2700 business and community volunteers with local schools and students. SFSV and similar organizations are members of the National Association of Partners in Education, which develops school volunteer, community service, and business partnership programs nationally. Contact Partners in Education at www.partnersineducation.org.

Partners in Education helps business and community groups develop programs that target specific schools' needs. It also provides training programs, technical assistance, publications, and other resources. The group's success to date is impressive: More than 7 million volunteers are involved in over 400,000 school partnerships nationwide.

JOIN THE TECH CORPS

TECH CORPS, another national nonprofit organization, also works to improve technical literacy in elementary and high schools. Founded in 1995 by Gary Beach, a senior vice president at IDG (*PC World's* parent company), Tech Corps is dedicated to helping build a technology infrastructure for schools, much as the Peace Corps

helps build infrastructure in developing countries.

Funded by corporate contributions, Tech Corps runs various programs of local, statewide, and national scope. Its volunteers do a range of jobs: conducting teacher training seminars, mentoring students and staff, repairing and installing computers, helping plan computer purchases and implementation, assisting teachers in classrooms, and working with teachers to integrate technology into their curriculum. Tech Corps also sponsors WebTeacher (www.webteacher.org), an interactive, self-guided training program for teachers. To volunteer, register at www.techcorps.org.

To find out how our project with Wallenberg High progresses, drop us a line. Who knows? Maybe we'll end up wearing baggy pants and playing soccer after all.

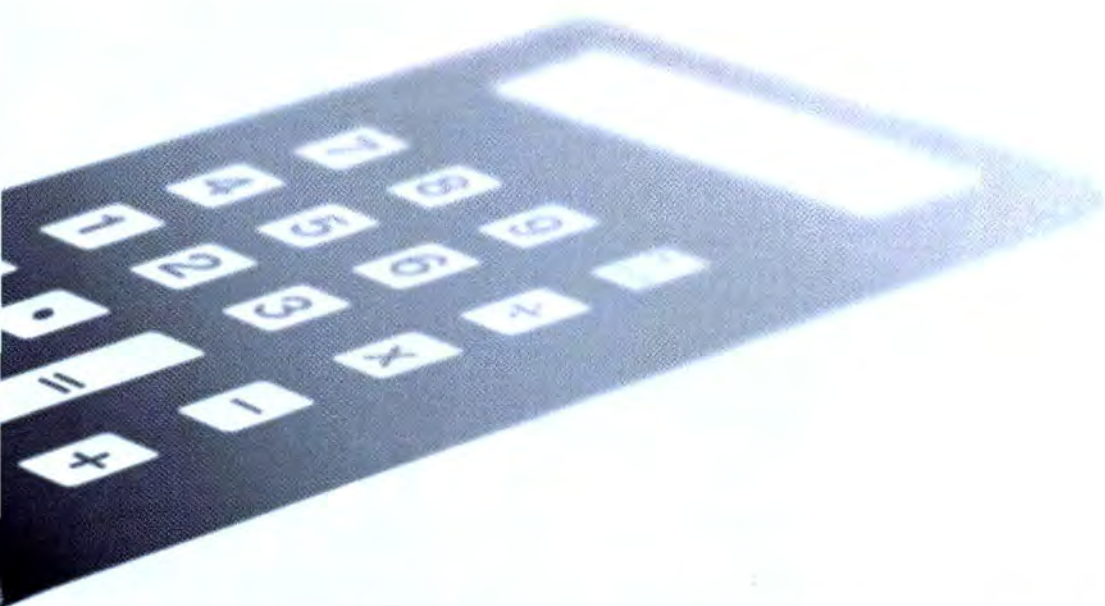
Cathryn Baskin is editor in chief of *PC World*.



Full-Impact DVD. Experience the excitement of DVD-ROM with Toshiba's new Satellite® 4000 Series. With 14.1" dia. TFT active-matrix displays, Toshiba's 3D Sound System with Stereo Bass Reflex speakers and more, it's the ideal combination of performance, multimedia and exceptional value.



Performance. Rocketing Intel® Pentium® II or Intel Celeron™ processors up to 400MHz with as much as 256KB on-die Level 2 cache make these the fastest Satellite 4000 Series portables ever. With hard drives up to 6.4 billion bytes and up to 64MB of SDRAM you get topline performance that's attentive to your bottom line.



Portability meets accountability.



All-in-one design. Built into every durable notebook you'll find DVD-ROM, hard disk, diskette drive and a high-speed V.90/K56flex modem.* There's no need to swap or carry around extra components. So your investment yields maximum productivity and portability in one convenient package.



Expansion. Easy, one-touch peripheral connections through an optional port replicator make the Satellite 4000 Series the only computer you need for both on the road and in the office. See why it equals the best notebook value ever. Call 1-800-TOSHIBA or click on www.toshiba.com.

TOSHIBA

The World's Best Selling Portable Computers.

Dramatically Different

The new Millennium G400 Series high performance video cards

The Fastest

- › Explosive 3D, 2D and DVD performance
- › The only 256-bit DualBus graphics chip
- › Fast AGP acceleration and 16 or 32MB of memory



The fastest 3D performance

The Sharpest

- › True Environment-Mapped Bump Mapping for maximum 3D realism
- › Vibrant Color Quality 32-bit rendering, texturing and Z-buffering
- › 300 or 360 MHz UltraSharp DAC for flicker-free displays



3D Environment-Mapped Bump Mapping

The Most Versatile

- › Unique DualHead Display supports two independent monitors with one AGP card
- › The only card to support 8 combinations of RGB, TV and Flat Panel monitors
- › Upgradeable with MJPEG video editing and Digital Flat Panel



One AGP card supports two displays

matrox

The Millennium G400. One video card. Endless possibilities.

www.matrox.com/g400 1-800-362-9352

Endless possibilities are for retail products only and may not apply to bulk orders. Please refer to corporate pricing packaging for details. The performance benchmarks listed refer to www.matrox.com/eng/usa/compatibility/eng/eng/. *The 3D WinBench 99 does not support 3D full rendering.

YOUR TAKE ON: Multilevel marketing ♦ Net privacy ♦ Preinstalled software

IS MULTILEVEL MARKETING
ON THE LEVEL?

IN THE "Spam Me, Scam Me" sidebar to "The Online Con" [July], author Jeffrey Rothfeder says more than once that multilevel marketing is illegal. That's not true. True multilevel marketing, in which income is achieved through the sale of products or services, is not illegal in any of the 50 states and, in fact, is legally practiced in every state and in over 70 countries and territories worldwide.

What Rothfeder was talking about is a Ponzi or pyramid scheme, where income is achieved simply by recruiting others. It was very irresponsible of your magazine to publish this story without making that distinction clear. I am a network marketer (or multilevel marketer). I make *no money* simply from signing up a new recruit. The FTC declared MLM to be a legal form of distribution in 1979. Your author should have known that.

This kind of yellow journalism should be restricted to the tabloids at the supermarket checkout lines.

Tim Hicks, Phoenix

YOU WERE RIGHT on target with your description about the way a pyramid scheme works. And this is covered in a 1979 FTC ruling. These types of scams are horrendous and should be brought to the public's attention. I would ask you, however, to give the legitimate multilevels equal time. After all, major corporate players are investing their time and money—and reputations—in the legitimate network businesses.

Steve Maurer
Fayetteville, Arkansas

Author's response: We are aware that network or multilevel marketing companies that make money by selling products—for example, Mary Kay Cosmetics and Amway—are perfectly legitimate; we did not mean to suggest otherwise. However, according to the FTC, many so-called network marketing companies generate revenue not by selling products, but from recruiting additional "salespeople"—a practice commonly known

as a pyramid scheme. In numerous rulings and legal actions, the FTC has said such schemes are illegal. Our article specifically discussed companies that hid illegal activities under a cloak of legitimacy. We apologize for any confusion.

—Jeffrey Rothfeder

TOO MUCH FOR A GOOD THING?

WHEN YOU WROTE about free help online ["Great Support at a Great Price," *Got a Problem?* May], you said that Ask-A-Tech was a part-time operation run by three people.

Like most of your readers, I appreciate discovering sites like this, but, given that your audience is in the millions, do you approach the people who run

these sites and ask them first whether exposure to such a massive readership is something they can handle, or even desire? I can see how an overwhelming flood of hits could cause a part-time help site to fall so far behind in responding that it might

decide to simply close up shop instead.

Don Loe, Chicago

Editor's response: Your question is a valid one. Like other companies and sites we contact in preparation for our articles, Ask-A-Tech was aware of the publicity it would receive, and we understand it has increased its staff in response.

—Carla Thornton

NET PRIVACY? NO PROBLEM

YOUR INTERESTING articles and reader letters about invasion of privacy on the Internet have left me wondering: Am I missing something? The following is all it takes to protect my privacy on the Net:

1) I use Cookie Crusher to eliminate 99.9 percent of cookies. When I must accept a cookie in order to access a page, I do so but then I immediately erase it from my hard drive when I'm finished with my online session. I've put a shortcut to the cookie folder on my desktop, so it's ▶



CROSS FIRE

PC Serial Numbers:
Invasion of Privacy

HOW ABOUT SAYING in your reviews whether a computer's processor includes an embedded, trackable serial number ["Intel Adds ID Number to PIII," *Top of the News*, April]?

This information would do two things: It would keep the issue of invasion of privacy alive, and let users choose whether they want to own a PC that can be tracked. (The Pentium III is not the only CPU with an embedded serial number. Some Pentium IIs as well as Celerons also have it.)

I will not buy a computer with such a trackable number and want to know if any of the machines you are reviewing carries one or not.

Stan Ewy
Santa Clara, California

But So What?
They're All Over

I THINK PEOPLE who refuse to buy serial-numbered CPUs have something to hide. Every motor vehicle I've ever purchased has had a serial number that every mechanic who worked on it wrote down. Yes, that makes it possible for some person with no good intention to track everything I've ever had done to a car. So what? Every firearm, TV set, microwave oven, or Weed Eater has a serial number that helps to authenticate your warranty. What's the difference between these serial numbers and the ones on PCs? Is there illegal software on your system? Are you afraid someone will discover that 30-day shareware product you've been using for two years? Get a life!

Roger Shorney, Miller, Missouri

LETTERS

very easy to check which cookies are there and to delete the ones I don't want.

2) If a site requires me to provide personal information that I think is none of its business, I invent such information. I never give my real name, address, telephone number, or e-mail address.

A. Luneva, via the Internet

SECRETS OF PREINSTALLED SOFTWARE

IN RESPONSE TO Michael Guerard [*Letters*, July], who asks why developers don't support OEM versions of their software: Preinstalled software really isn't installed at all. If you push, prod, and poke your way deep enough with a computer maker's tech support folks, you'll find they never install anything—everything is ghosted/imagined on the new PC. Essentially this means they copy the complete hard drive from an existing PC (including the operating system and drivers).

It sounds great since, theoretically,

things need be successfully installed only once with human error thereafter avoided. More important to the maker trying to maximize profit, it takes only a few minutes to copy to the new PC.

Unfortunately, to be successful a ghost/image must be put on an identical machine—identical in absolutely every detail, including the chips on the motherboard, SIMMs, DIMMs, sound cards, graphics boards, or whatever.

Now you can begin to understand why the software folks don't want to get involved. Most of their stuff works quite well when properly installed, but they know that doesn't happen.

*Jim Stevenson
Des Moines, Iowa*

AS A VOLUNTEER who helps provide online support for several of Symantec's products, let me note that when Symantec licenses a product such as WinFax to an OEM, that company has the right to

modify the program to suit its own purposes. Because Symantec has no control over, or knowledge of, those modifications, there is no way it can support the resulting "lite" version; it is left to the OEM to provide support.

*Richard H. Gleick
Maitland, Florida*

MORE ON TIPS

A READER [*Letters*, July] asks why you publish so many Microsoft tips. If Bill Gates had his people write good, nonbuggy programs that contained good on-screen help, there wouldn't be a need for tips. I like the few you've written for Lotus. I have all versions of Lotus and have had no trouble with them compared to Office products. The lack of backward compatibility is one of my main problems with Office. Lotus allows compatibility in both directions. As a volunteer who works for hospitals and other nonprofit organizations, I have difficulty working with differ- ►

Who Tracks Your PC Assets?

FOR YEAR 2000 AND BEYOND™

PC ASSET AND SOFTWARE MANAGEMENT

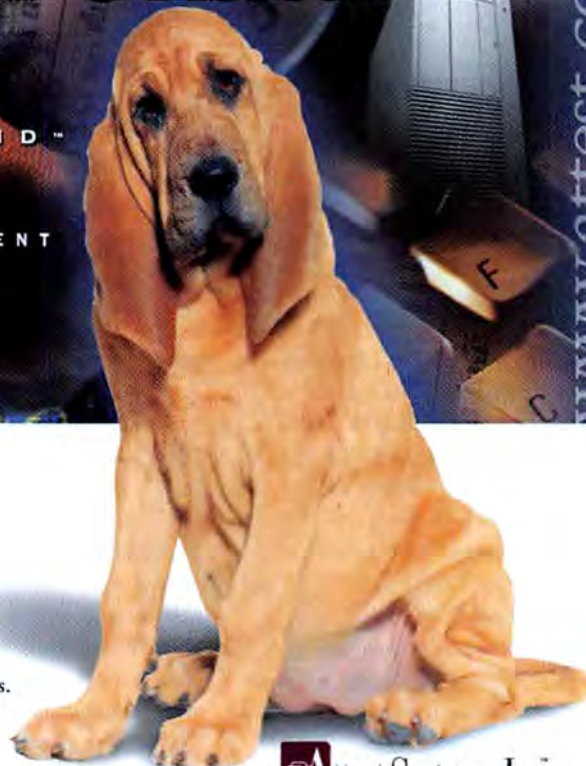


How many PCs are in use throughout your organization? What software is installed? What will be the impact of moving to the next version? Are you wasting your IT dollars?

In today's desktop/laptop environment there are so many questions. Now there's an easy way to sniff out the answers. It's called GASP®, published by Attest Systems, Inc.™ Whether you're big or small, remote or centralized, GASP will quickly – and accurately – inventory your PC software, files, and key hardware statistics. For software and hardware asset questions, let GASP be your best friend.

For more information on how GASP can help you, call toll free

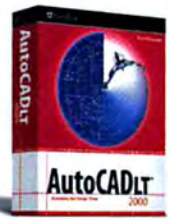
888-491-7811 www.attest.com



Attest Systems, Inc.

© 1999 Attest Systems, Inc. GASP, the GASP logo and Attest are trademarks of Attest Systems, Inc.

How to put your design team together.



Introducing AutoCAD LT® 2000.

On virtually every project, you work with a multidisciplinary group of specialists. People who add expertise to original CAD designs. Architects and engineers, drafters and consultants, suppliers and clients. We call them the extended design team. The question is, how do you keep everyone and everything on track?



Autodesk®
Open
License
Program

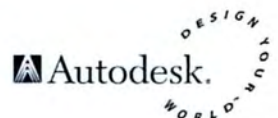
The answer is new

AutoCAD LT 2000. With over 200 improvements, AutoCAD LT 2000 software empowers the extended design team by enabling increased levels of communication and collaboration. It's easy to use, and with 100% AutoCAD® drawing compatibility, AutoCAD LT 2000 software enables the team to easily exchange design ideas and drawing files throughout the duration of a project. It's the complete package for light editing, viewing, and other less complex CAD needs. And it's affordable, only \$559*. See how AutoCAD LT 2000 can put your design team together.

Call your preferred software reseller, visit www.autodesk.com/b23 or call

1-800-225-1076 ext.B23.

©1999 Autodesk Inc., Autodesk, the Autodesk logo, AutoCAD and AutoCAD LT are registered trademarks and Design Your World is a trademark of Autodesk Inc. in the United States and/or other countries. *Suggested retail price.





Oslo / Melbourne / Portland

Bauer Brewing Company 9099 NE Ha

Tel: (523) 555.0012 Fax: (523) 555.00

He was both artist and businessman. The keeper of the ancient standard and the finder of new efficiencies. And so it was inevitable that one day Sam would seek a less ancient way to stay on top of all those ingredients, schedules and long-term plans. "No problem," said the IS guy, "let me set you up with FileMaker® Pro and

Sam Behrend
Brewmaster

(AND DATABASE MASTER)

horne River Ave. Portland, OR 97279

sam@bauerbrewing.com

you can create exactly what's in your head." And in a matter of days, Sam built a tool that solved his own group's problems – and boosted his international operations by making all that good stuff available on the Web. Visit us at www.filemaker.com. *What's your problem?*™



New! AnthroBench®

Combine your need for strength and flexibility with our exceptional eye for detail and the Anthro Lifetime Warranty:

The incredibly strong AnthroBench.



Available in heights and widths that work for you. Add shelves and adjust them in one inch intervals.



Mix and match colors on shelves and legs.



Lots of places to route your cables and cords, including down the legs!

Call us at 800-325-3841

6:00 AM to 6:00 PM PST, M-F

www.anthro.com



Anthro Corporation® Technology Furniture® Phone: 800-325-3841 www.anthro.com
Since 1984. Prices from \$999.

LETTERS

ent versions of Excel and Access, so your tips are of great help. Microsoft products have become ubiquitous mainly because of the company's marketing prowess.

Fred Snow, Medford, New Jersey

TIME WELL SPENT

THIS WEEKEND I discovered your June issue in my pile of unread periodicals.

I took the time to read through the issue and, after doing so, was reminded why I enjoy your magazine, and what enticed me to become a subscriber in the first place. Page after page of informative, helpful, easy-to-understand information was at my fingertips.

I kept folding down the corners of pages I wanted to copy and file next to my computer. I ended up folding almost the entire magazine. And that's part of the problem: I have too many of your previous issues sitting next to my PC already. Keep up the good work, and I will remain a dedicated subscriber.

John Peris

Lancaster, Pennsylvania

PC World welcomes your letters to the editor. See page 14 for contact information. ■

CORRECTIONS AND CLARIFICATIONS

IN AUGUST'S *Home Office*, the URLs for the freeware utilities OuttaSight and PushPin should have been listed, respectively, as rosa.simplenet.com/software/oos/index.htm and rosa.simplenet.com/software/pushpin/index.htm. The correct URL for Properties-Plus is www.ne.jp/asahi/cool/kish.

In July's *New Products*, the review of Lotus's QuickPlace implied that the product lacks a search function; in fact, it does have that capability.

In July's *Spreadsheets* ("How to Create a Time Sheet in Excel"), the formula for cell H8 works in most cases, but if the second part of the workday crosses midnight, it returns an incorrect result. The formula should read: `=IF(E8<D8,E8+1-D8,E8-D8)+IF(G8<F8,G8+1-F8,G8-F8)`.

In June's *New Products*, the phone number for Ericsson with respect to its CF 888 infrared modem/cell phone should have been 800/374-2776.

PC World regrets the errors.

PerfectFlat™ technology looks better with... Intel Inside® ViewSonic® on top!



Selecting the right PC is only half the battle. Today, how you top it off is just as important. Innovations like multimedia monitors, flat panel displays and large screen CRTs are changing the old phrase "Monitor Sold Separately" to "PC Sold Separately".

Take the new ViewSonic GF775 17" (16.0" viewable) monitor for example. This is the first 17" (various viewable) flat-screen CRT utilizing **PerfectFlat** technology to provide your Visual Computing Experience™ with precise, clear images. The GF775 provides an ultra-fine .24mm stripe pitch and 1600 x 1200 maximum resolution.

At ViewSonic, we offer the #1 best selling monitors and flat panel displays in the USA*. Buy with confidence from the company that's won over 550 industry awards. The GF775's warranty covers 3 years parts and labor. Plus 24 hour customer service, 7 days a week.

For more information on the company that's won over 550 industry awards, visit our website at: www.ViewSonic.com/pcworld



(PC Sold Separately)



(800) 888-8583 *Stanford Resources, Inc. Quarterly Monitor Report Q1 '99 and Display Search Quarterly Supply vs. Demand Study CRT's Q1 '99, LCD Monitors, Q1 '99. Specifications subject to change without notice. Copyright © 1999, ViewSonic Corporation. All rights reserved. Corporate names and trademarks stated herein are the property of their respective companies. Intel and the Intel Inside logo are registered trademarks of Intel.



www.ViewSonic.com

**STOP BY AND WE'LL
SHOW YOU HOW TO BUY
A COMPUTER.**

**STAY LONG ENOUGH
AND WE'LL SHOW YOU
HOW TO BUILD ONE.**

CNET: Hardware

Desktop computer
reviews and features

How to buy your first PC

1: Know what you need

Under the hood:

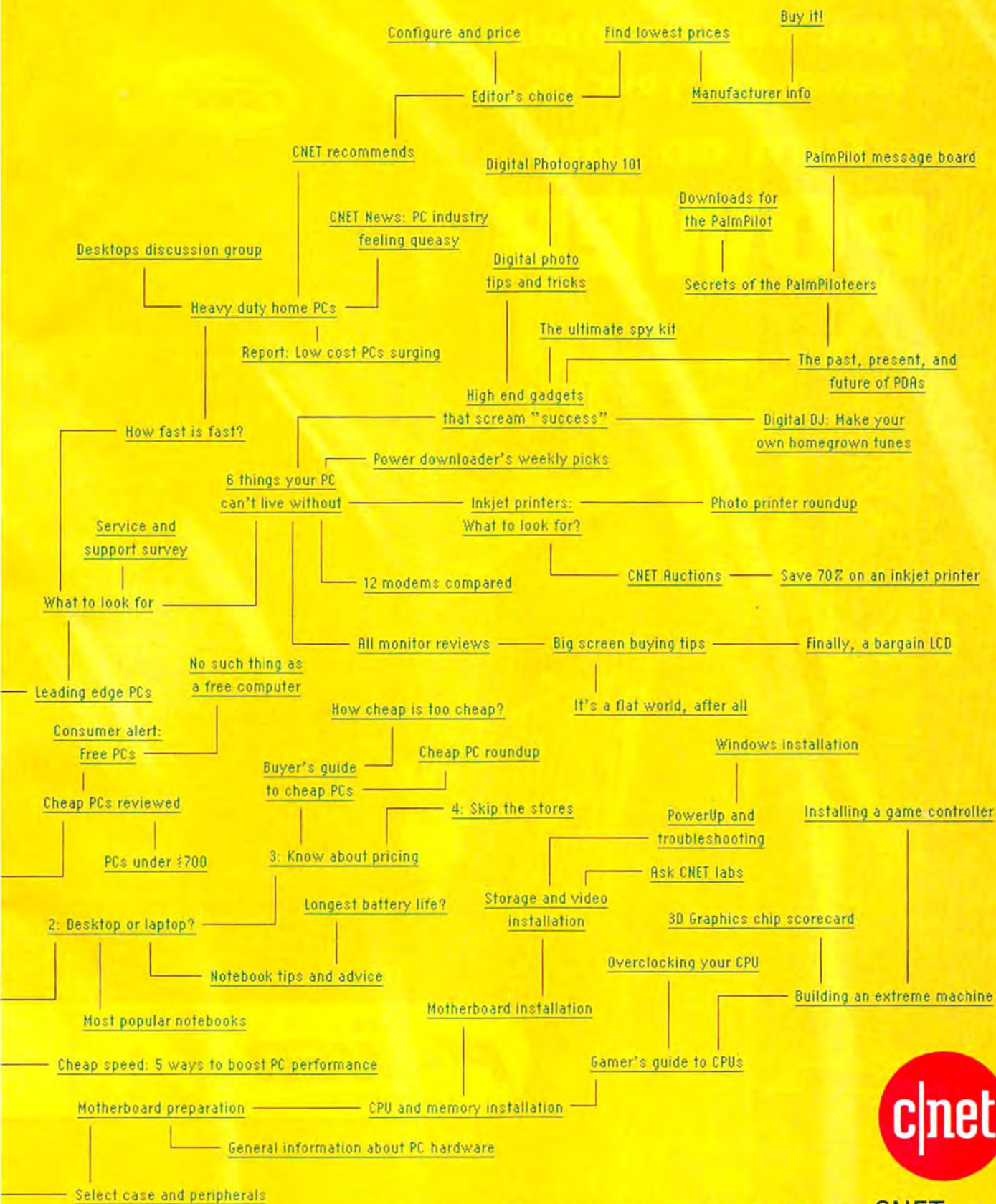
What makes a PC fast?

Build your own
computer

Hardware: Do it yourself

Before you begin

Select CPU and
motherboard



The source for computers and technology.™ CNET.com

If you want to totally
transform your PC

Turn on the
POWER



ALL-IN-WONDER 128
ALL-IN-WONDER PRO

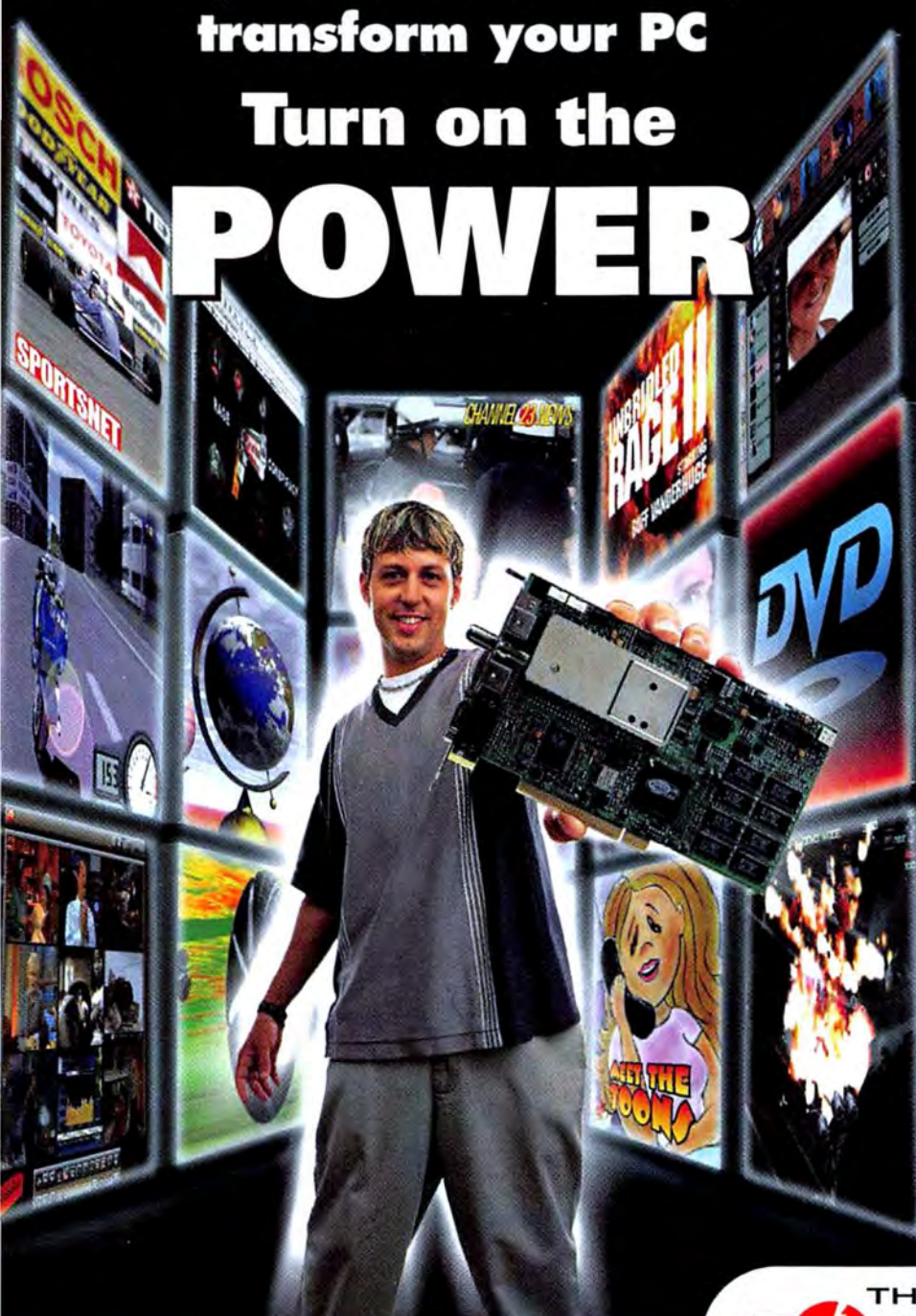
One powerful upgrade
does it all

- Capture and edit video
- Play 3D games
- Watch TV and DVD¹ movies on your PC
- Browse the Net on your big screen TV
- Schedule and record your favorite TV shows for later viewing, using the Digital VCR

Capture MPEG-2 video² in real-time and add to any business or school project with ALL-IN-WONDER 128

Choose the all-in-one solution that's right for your budget including PCI and AGP versions with 8, 16 or 32MB of memory

Totally transform your PC without the need for multiple expensive upgrades — one card does it all — visit ati.com today!



THE
POWER
OF SPEED



Visit ati.com



© Copyright 1999 ATI Technologies Inc. ATI, RAGE 128 and ALL-IN-WONDER are trademarks and/or registered trademarks of ATI Technologies Inc. Most Name 3 © 1999 Digital Software International. Expedite © 1999 Rage Software P.L.C. All other company and/or product names are trademarks and/or registered trademarks of their respective manufacturers. ¹ DVD playback not available on PCI version of ALL-IN-WONDER PRO. ² MPEG-2 capture requires ALL-IN-WONDER 128 and Pentium III system.

Washington Tackles Internet Law

The House and Senate are cooking up a stew of legislation on junk e-mail, privacy, and e-commerce—among other issues. Here's what you need to know.



AS CONGRESS HEADS INTO the home stretch for the 1999 legislative session, members will be dealing with a full platter of Internet-related bills. They want to curtail the flow of your personal information; keep spam from overwhelming your children; and make the Web a safe, happy place to do business. If you use the Internet (and I know you do), these issues affect you. But you don't have to read the *Congressional Record* regularly to get up to speed on Washington's antics. Here's the lowdown on the bills that could have the biggest impact on you (but given that this is politics, might not).

PRIVACY

REPRESENTATIVES HAVE introduced several bills relating to online privacy, but little action is likely to occur until Congress receives the Federal Trade Commission report on this issue, due out about the time you read this. None of these bills has generated much excitement among privacy advocates, who are lobbying for passage of a comprehensive law to govern the collecting and sharing of information.

The proposed Consumer Internet Privacy Protection Act of 1999 (HR 313), introduced by Rep. Bruce Vento (D-Minnesota, vento@mail.house.gov), aims to regulate how ISPs can distribute information about you. Vento's bill would require ISPs to obtain your written permission before giving anyone else access to data you provided, and to disclose to you any information it collected and who it shared that data with. Earlier in this session, Rep. Bob Franks (R-New Jersey, franksnj@mail.house.gov) introduced a similar bill—dubbed the Social Security On-line Privacy Protection Act of 1999 (HR 367). However, neither bill currently covers Web sites. Unless that change happens, the bills won't protect consumers where they're most vulnerable.

The only Internet privacy legislation passed last session was the Children's Online Privacy Protection Act of 1998, which requires Web sites to obtain parental permission before collecting personal information from children under 13. The proposed Children's Privacy Protection and Parental Empowerment Act of 1999 (HR 369) would make it a crime for list brokers to sell information about a child under 16 without a parent's written consent. The net effect: less spam for younger Web-goers.

SPAM FIGHTERS

IF AT FIRST YOU don't succeed, try, try again. That appears to be the motto of Sen. Frank Murkowski (R-Arkansas, email@murkowski.senate.gov), who has reintroduced the Inbox Privacy Act of 1999 (S759), a modified version of last year's antispam bill. Like the earlier model, this bill would require junk e-mailers to include identifying information and explicit opt-out provisions in their messages, and to comply with all requests by recipients not to receive spam. A clause in the revised bill would bar junk e-mailers from sending unsolicited e-mail to any domain that has a no-spam policy.

The bill's domain-blackout provision would undoubtedly curtail junk mail, but its ►

reporting requirements would mean extra work for ISPs, which are lining up in opposition. Last year's bill died a slow death, and this year's model may suffer the same fate.

The Can Spam Act (HR 2162), introduced by Rep. Gary Miller (R-California, PublicCA41@mail.house.gov), is getting lots of support from antispammers. Modeled on a California state law Miller wrote, the bill would permit ISPs to sue violators of their antispam policies and would establish criminal penalties for falsifying a domain name when sending out spam. So far, the Can Spam Act is the only federal antispam bill endorsed by the Coalition Against Unsolicited Commercial E-mail.

E-COMMERCE

EVERYONE'S BANKING ON e-commerce to give the economy a boost—and Congress is doing its part to help make it happen. The Internet Growth and Development Act of 1999 (HR 1685) is a catch-all bill intended to make the Internet a thriving

medium, according to Rep. Rick Boucher (R-Virginia, NINTHNET@mail.house.gov), the bill's sponsor. Boucher's bill would, among other things, give digital signatures the same legal weight as paper-based signatures, and it would require Web sites to post notice of their policies regarding the use of personal information. Boucher seems to have lumped several pet projects into the bill; the resulting hodgepodge probably has little chance of being passed into law.

Internet shoppers unite: Sen. Robert Smith (I-New Hampshire, www.senate.gov/~smith/webfor.html) has introduced the Internet Tax Moratorium Act (S328), which would replace the current three-year suspension of Net sales taxes with a permanent ban. The ban would prevent states from forcing Web merchants to collect taxes for purchases in states where they have significant Internet or catalog sales; merchants already collect taxes in states where they have a physical presence.

Finally, the access-to-consumer-information category includes a couple of noteworthy bills. First, Rep. Michael Forbes (R-New York, mike.forbes@mail.house.gov) has introduced the Improved Consumer Access to Travel Information Act (HR 1030) to examine what impediments (if any) the airline industry imposes on the online travel business. Second, the chair of the House Commerce Committee, Rep. Tom Bliley (R-Virginia, tom.bliley@mail.house.gov), has introduced the Consumer and Investor Access to Information Act of 1999 (HR 1858) to help ensure that stock quotes and other investment-related information will remain freely available to consumers via the Web.

Tell us your thoughts on Internet-related laws at consumerwatch@pcworld.com. PC World Contributing Editor Roberta Furger is author of *Does Jane Compute? Preserving Our Daughters' Place in the Cyber Revolution* (Warner Books, 1998). ■

FREE!
check creation software
download at: www.versacheck.com

Home & Business Solutions 2000

In today's fast-paced, competitive world efficiency and saving money are more important than ever. That's why the people at Mips Dataline America, Inc., the leader in retail check creation software, first created VersaCheck. Users save 50-80% vs. pre-printed checks. Mips now offers an integrated suite of products to handle many of your business needs including Internet Commerce, Contact Management and Data Capture. Discover more about the many benefits of using Mips' products by visiting your local software store or office superstore, or see our Website at: www.versacheck.com

The fastest, easiest way to capture contact data!

Print your own custom checks!



New!
32 bit version

Save 50-80% vs. pre-printed checks!

\$19.99

(After \$10 upgrade rebate)

Win 3.1/95/98/NT 4.0

Circle 138 on card or go to www.pcworld.com/productinfo



New!

\$49.99

Win 95/98/NT 4.0

Complete Contact Manager!

Win DataScan Technology

\$49.99

Win 95/98/NT 4.0



\$79.99

Win 3.1/95/98/NT 4.0

The easiest way to set up your business online!

FREE
Web Hosting
For 60 Days!

Just \$9.95 per month thereafter

Also link to your store from your existing Web site!

MICRO CENTER
The Computer Superstore

OfficeMax
800-788-8080

COMPUSA
800-COMPUA
Office DEPOT
Office Products and More from One Place

Fry's

TigerSoftware
800-888-4437

SPS
800-800-0032

Also available through other fine retailers.

800-898-8560
www.versacheck.com

mips Dataline America, Inc.
Tel: 858-613-6686 • Fax: 858-613-6688



Empower yourself with an Intel® Pentium® III processor based PC system from UMAX! Blazing new Intel® Pentium® III processor with 512k integrated cache & 100 MHz bus give you the power you need to maneuver today's system-demanding multimedia and business applications with ease.

- ▶ **Intel® Pentium® III processor with 512k Integrated Cache** – enables unsurpassed performance on all of today's most popular applications.
- ▶ **100 MHz bus** – optimizes memory usage, relieves critical system bottlenecks and provides faster performance.
- ▶ **Powerful Software Bundle** – includes pre-installed Microsoft® Windows® 98, Lotus SmartSuite, IBM 1999 World Book Multimedia Encyclopedia; Adobe® PhotoDeluxe® & America Online 4.0. **Y2K Compliance** – all UMAX PCs meet the year 2000 requirement, and are free from Y2K issues.

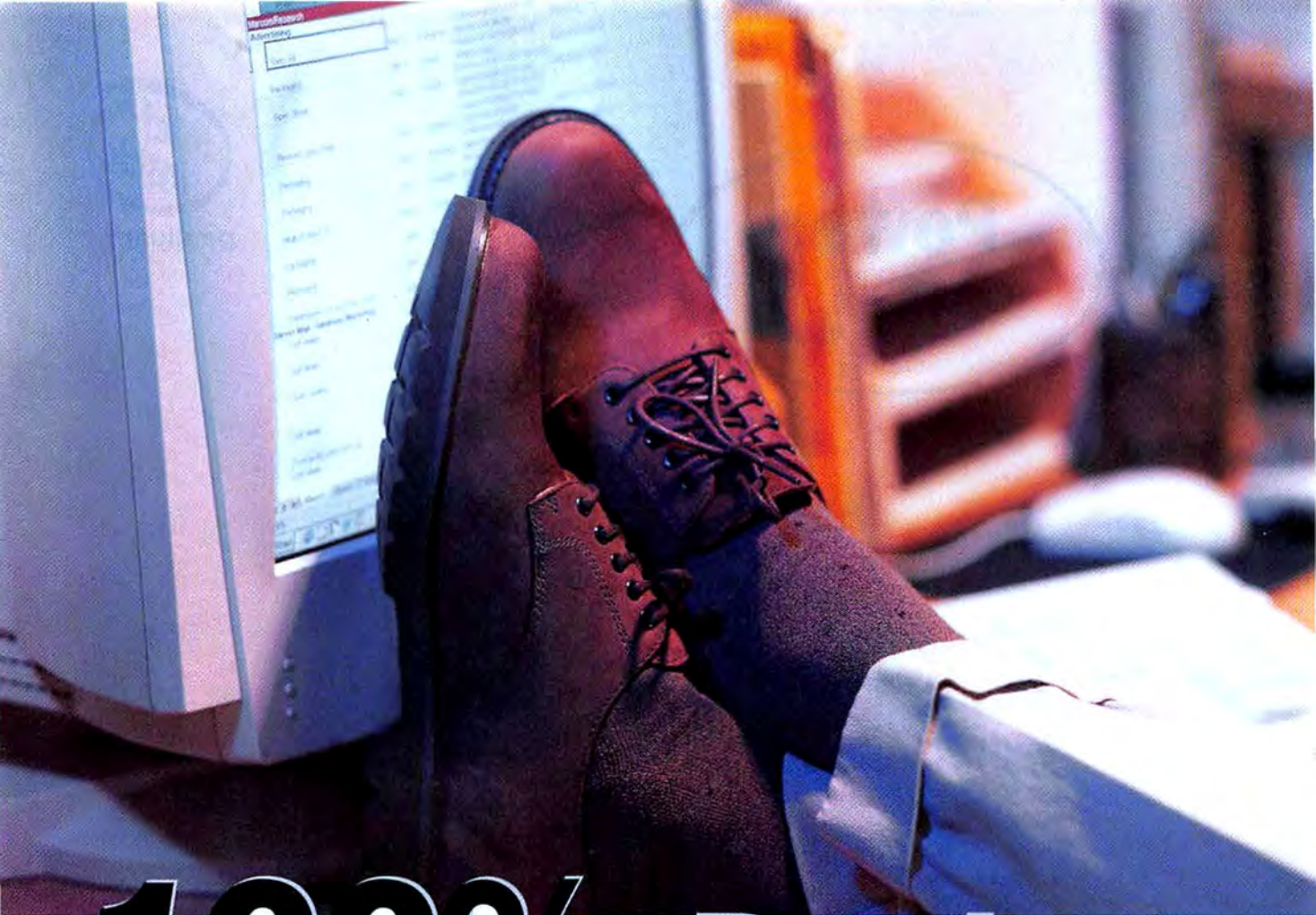


GET THE POWER! – Get an Intel® Pentium® III processor based PC from UMAX.

CPU	Cache	Bus
Intel® Pentium® III Processor 450 MHz	512K	100 MHz
Intel® Pentium® III Processor 500 MHz	512K	100 MHz

Call 888-234-UMAX or visit our website for more UMAX PC family products!

UMAX®
www.umax.com

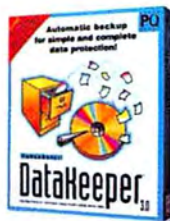


100% Backup 0% Effort

Combining real-time backup and real-world practicality, **PowerQuest® DataKeeper™ 3.0** makes your life easier.

With computers, disaster can strike at any time. You know you should back up your data, but it's such a time-consuming hassle. That's why you need a "real-time" backup solution that automatically protects your work from the moment it's created. You need DataKeeper from PowerQuest. As the world's first "real-time" backup solution, DataKeeper continuously backs up and monitors every change to your critical files, protecting your data without making you lift a finger. DataKeeper also offers registry protection of critical system files, as well as tradi-

tional batch mode backup functionality. And you can save your work to a network, CD, floppy drive, or removable media such as a LS120™, JAZZ®, or Zip® drive for even greater convenience. Best of all, DataKeeper's unique technology ensures that the entire backup process is completely transparent—you'll never even know it's working. Until you need it, that is. So call PowerQuest at 1-888-801-1946 or visit our web site at www.powerquest.com/ad for more information and get your own copy of DataKeeper. Because, if you're not using a real-time backup, who knows what you might end up missing.



Get your free demo by visiting www.powerquest.com/ad or call 1-888-801-1946.

www.powerquest.com/ad

© 1999 PowerQuest Corporation. All rights reserved. PowerQuest is a registered trademark, and PowerQuest DataKeeper is a trademark of PowerQuest Corporation in the U.S.A. and elsewhere. All other brand and product names are trademarks or registered trademarks of their respective owners.

A Good Deal If You Can Get It

IN APRIL, A THRILL went through the computer industry when Microworkz, a small PC maker in Seattle, launched the Webzter Jr., a system that sells for \$299 (without a monitor). The press gasped and people flocked to the phones. But those who wrote to *On Your Side* were

not so thrilled. I got dozens of angry letters like this one from Tim Tuttle of Lima, Ohio: "I need to apologize to my mother. I convinced her to make a Microworkz her first computer. She ordered it over two months ago and still hasn't received it. Now Microworkz won't refund her money."



Rick Latman, CEO of Microworkz, explains that the company got buried when word of the Webzter got out. "When the news hit, the orders eclipsed the capacity of the company at the time." The rush came sooner than expected, he says, because an early press release got picked up by media around the country. "There

were a lot of articles and TV appearances in March. We didn't even plan to run ads for the Webzter for another month."

By then the company was adding 200 employees (to a force of 39), installing phone lines, moving to a bigger space, and gearing up manufacturing to handle the greater volumes. Latman claims that orders are now caught up.

When Microworkz was slow to issue refunds, customers disputed the charges with their credit card companies, so Microworkz had to double-check every cancellation before issuing a credit. Latman isn't sure that everyone who canceled got credited. He suggests that customers still waiting for reimbursement call 888/306-2044.

Since then, Microworkz has introduced an even cheaper PC, the \$199 IToaster, but this time it is capping orders at 10,000 so it doesn't get swamped. Meanwhile, Tuttle's mother finally got her PC—10 weeks after she ordered it.

Heads Up...



THINGS DON'T LOOK GOOD for peripheral maker **NewCom**. The company ceased operations in May, saying its creditor canceled financing and seized its inventory. Get the details at www.newcominc.com... Orphaned laptop owner Kathrine Dietz, an **EPS** customer (EPS went belly up early this year), wrote to ask where to get a hard drive upgrade. Lots of Web companies sell parts for orphaned machines. I like www.controlmemory.com because it delivers promptly and lets me search by brand and model... Onetime **Hotmail** user Ruth Ellen Rader laments that Hotmail closed her free e-mail account and dumped its contents. According to Hotmail's Laura Norman, Rader violated the Terms of Service (though privacy concerns prevent Hotmail from revealing in what way). "The Hotmail TOS is explicit about our right to close accounts that violate the rules," explains Norman. Rader disputes the charges. The lesson? If you have valuable data on a free e-mail account, save it elsewhere... Security shareware **SecureWin** was a top pick in our privacy review last year. But customers now say they can't reach the company. SecureWin's Shevan Shaban says, "Please accept our apologies. SecureWin is going out of business. We are transferring the software to a new owner who will provide support and future releases."

LETTER OF THE MONTH



I MUST APOLOGIZE FOR a scathing e-mail I sent to *On Your Side*. I had purchased a Gateway GX-450XL computer partly because of a review in *PC World*. After weeks of problems and tech support calls, I vented my wrath on *PC World*.

Less than 48 hours later, a Gateway rep called to say he thought it best to replace my system unit. He said he would have a new one delivered to his office, where he'd run it through a battery of tests. He also upgraded my PII-

450 system to a PIII-450 at no charge. When he had the new system a few days later, he called to make sure it included all the components I had ordered. Then he shipped it to me via next-day air. I am very pleased with my new system and the service I received from Gateway. Many thanks to *On Your Side* for contacting Gateway on my behalf. I humbly apologize and rescind all scathing statements I blasted at you.

—Kenneth Guy, Kihei, Hawaii

PC World responds: You're welcome. ■

GOTTEN A RAW DEAL?

Or a great one? E-mail the details to onyourside@pcworld.com. We'll investigate complaints and publish items of the broadest interest. Christina Wood is a contributing editor for *PC World*.

THE Computer PAGE.

Power Networking

CORE JINI™

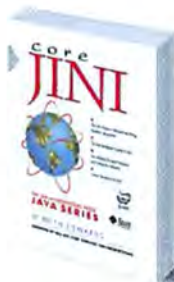
by W. Keith Edwards

Revolutionary Jini technology enables any device, from enterprise servers to kitchen appliances, to network easily and reliably. *Core Jini*, the first developer's guide to Jini, covers the entire Jini API and includes solutions for both hardware and enterprise networks. (PTR)

Pub. Price: \$49.99

Discount 20%

Our Price: \$39.99



CORE PHP PROGRAMMING

by Leon Atkinson

Borrowing the best from Java, Perl and C, PHP creates a productive scripting environment. Atkinson provides easy-to-understand coverage of PHP syntax, functions and walk-throughs of three Web/database integration applications. The CD-ROM is loaded with a complete PHP 3 implementation, a comprehensive code library, and the Apache and Xitami Web servers. (PTR)

Pub. Price: \$39.99

Discount 20%

Our Price: \$31.99



GRAPHIC JAVA™ 2, VOLUME 2, 3rd EDITION

by David M. Geary

Former Sun engineer David Geary provides practical explanations, robust code examples and everything you need to know about Swing. The CD-ROM is ready to run on Solaris, Windows 95 and Windows NT, and comes with all the example code from the book. (PTR)

Pub. Price: \$54.99

Discount 20%

Our Price: \$43.99



THE COMPLETE JAVA™ 2 CERTIFICATION STUDY GUIDE

by Simon Roberts,
Philip Heller & Michael Ernest

Simon Roberts developed the Java Certification exam for Sun Microsystems. He wrote the questions—now he gives you the answers. The CD-ROM is loaded with sample tests with a simulated testing environment. Pass them and you'll pass the test. (Sybex)

Pub. Price: \$49.99

Discount 20%

Our Price: \$39.99



ESSENTIAL PERL 5 FOR WEB PROFESSIONALS

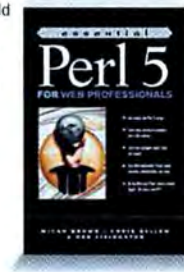
by Micah Brown, Dan Livingston & Chris Bellow

Streamline or automate virtually any Web development task with Perl 5. Write Perl scripts to send email, read and write files, search the Web, add counters to your site, authenticate your users, rotate banners, process forms and more. (PTR)

Pub. Price: \$19.99

Discount 20%

Our Price: \$15.99



ESSENTIAL CSS & DHTML FOR WEB PROFESSIONALS

by Dan Livingston & Micah Brown

Build hot sites that load faster and work better than anything you've done before with Cascading Style Sheets (CSS) and Dynamic HTML (DHTML). Create real-world practice sites that sell products, educate visitors, offer subscriptions, and display ads with help from Livingston and Brown, two top Web pros. (PTR)

Pub. Price: \$19.99

Discount 20%

Our Price: \$15.99



Save on these titles

along with **20%** off our top 25 bestselling computer books.

LINUX CLEARLY EXPLAINED

by Bryan Pfaffenberger

In a clear, concise and comprehensive text, Pfaffenberger lays out everything you need to know about the Linux Operating System. Whether you want to load or configure the Linux OS on a PC or run Windows, the information is all here. The CD-ROM includes Red Hat 5.1, the most popular edition of the Linux OS. (Morgan Kaufman)

Pub. Price: \$44.95

Discount 20%

Our Price: \$35.96



UNIX NETWORKING CLEARLY EXPLAINED

by Richard L. Petersen

Unix has a reputation for being hard to master, but *Unix Networking Clearly Explained* makes it easy to use and implement the networking aspect of the Unix operating system. Petersen's complete tutorial provides thorough coverage of the many aspects of Unix networking. (Morgan Kaufman)

Pub. Price: \$39.95

Discount 20%

Our Price: \$31.96



RED HAT LINUX 6 FAST & EASY™

by Coletta & Craig Witherspoon

Red Hat Linux 6 Fast & Easy is perfect for the beginning Linux user. The Witherspoons demonstrate Gnome techniques for managing the Linux file system: using the calculator, address book and other applets; setting up your business printer; sending faxes; checking your email; browsing the Web—everything you need to know to get started. (Prima Tech)

Pub. Price: \$16.99

Discount 20%

Our Price: \$13.59



DEBIAN GNU/LINUX: GUIDE TO INSTALLATION AND USAGE

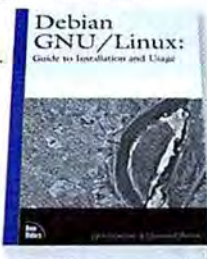
by John Goerzen & Ossama Othman

Unlock your computer's full potential—increase speed, versatility and stability by installing Debian GNU/Linux, found on the enclosed CD-ROM. Maintained by more than 500 developers worldwide, Debian GNU/Linux has thousands of applications covering everything from Web and mail servers to programming and development to graphic design and gaming. (New Riders)

Pub. Price: \$24.99

Discount 20%

Our Price: \$19.99



GTK+/GNOME DEVELOPMENT

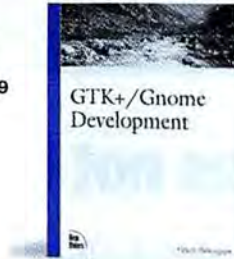
by Havoc Pennington

Experienced programmers will benefit from *GTK+/Gnome Development's* detailed and advanced coverage of the GIMP Toolkit for developing Linux applications. Users can develop X Windows applications or use the book as a reference and search for function prototypes and detailed descriptions. (New Riders)

Pub. Price: \$34.99

Discount 20%

Our Price: \$27.99



MASTERING™ PERL™ 5

by Eric C. Herrmann

No Unix experience is required for *Mastering Perl 5*. Learn all the programming concepts and techniques you need from a Windows perspective. Includes special Jump-Start chapters to get you started quickly and efficiently. Soon, you'll be ready to put Perl 5 to work anywhere. (Sybex)

Pub. Price: \$39.99

Discount 20%

Our Price: \$31.99



PERL PROGRAMMER'S INTERACTIVE WORKBOOK

by Vincent D. Lowe

Perl Programmer's Interactive Workbook is focused on teaching the key skills you need to build rock-solid scripts and programs. No "phony" examples, just plenty of real-world code and hands-on exercises drawn from actual experience. Master Perl variables, branching, loops and more—everything you need to get results fast. (PTR)

Pub. Price: \$39.99

Discount 20%

Our Price: \$31.99



OPENLINUX 2.2 WEB PUBLISHING TOOLKIT & SYSTEM ADMINISTRATOR'S GUIDE, 3rd EDITION

by Mark F. Komarinski & Cary Collett

The new version of Linux from Caldera Software, the first commercial release of the long-awaited 2.2 version, is as easy to install as Microsoft Windows. This package includes the *Linux System Administration Handbook*, as well as a CD-ROM loaded with goodies—Apache Web server, Partition Magic, Boot Magic, WordPerfect 8, and StarOffice. (PTR)

Pub. Price: \$59.99

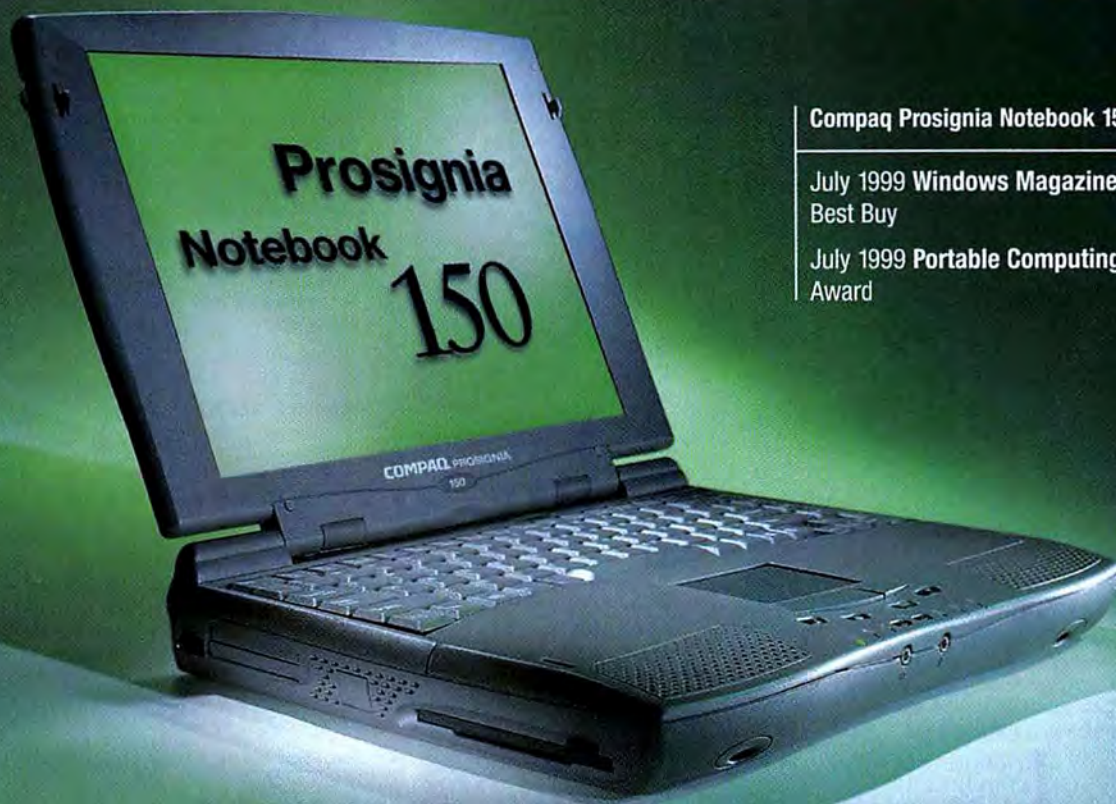
Discount 20%

Our Price: \$47.99



BARNES & NOBLE

Visit the store nearest you or visit bn.com and click the .com to find these featured books fast.

Compaq Prosignia Notebook 150 Awards:¹July 1999 Windows Magazine — WinList:
Best BuyJuly 1999 Portable Computing — Lizzie
Award

\$1499. Compromises not included.

Call now to get a great price on the award-winning Prosignia Notebook 150 and get all the power of an AMD[®] processor. Looking for an affordable notebook without sacrificing advanced performance and technology? Well, look no further. Because for only \$1499 the Compaq Prosignia Notebook 150 — powered by a 350/100MHz AMD processor — includes all you need to help your business grow more productively. For one, it's ready to go right out of the box, with pre-loaded software that immediately gets the power of the Internet working for your business. What's more, the CD-ROM drive, diskette drive, and modem are built right in. Add all that to business advantages including 24x7 dial-up tech support, and you'll agree that the Prosignia Notebook 150 is a bargain at any price. And a steal at this one.

PROSIGNIA NOTEBOOK 150

\$1499¹**\$50² Monthly lease³**

- AMD-K6[®]-2 350/100MHz Processor
- 4GB SMART Hard Drive⁴
- 32MB/160MB SDRAM
- 12.1" CTFT (800 x 600) Display
- 24X Max CD-ROM⁵/3.5" 1.44MB
- Compaq V.90 Data/Fax Modem⁶
- Li-Ion Battery
- Microsoft[®] Windows[®] 98
- Free⁷ Trial of Compaq Online Services
- One-Year Worldwide Limited Warranty⁸

PROSIGNIA NOTEBOOK 150

\$1999¹**\$67² Monthly lease³**

- AMD-K6[®]-2 400/100MHz Processor
- 4GB SMART Hard Drive⁴
- 64MB/192MB SDRAM
- 14.1" CTFT (1024 x 768) Display
- 24X Max CD-ROM⁵/3.5" 1.44MB
- Compaq V.90 Data/Fax Modem⁶
- Li-Ion Battery
- Microsoft Windows 98
- Free⁷ Trial of Compaq Online Services
- One-Year Worldwide Limited Warranty⁸

**To buy now**Call **1-888-860-9573**Go to www.compaq.com**COMPAQ**Better answers[™]

All prices shown are Compaq prices. Retailer and Reseller prices may vary. ¹Advertised configurations may vary from award-winning configurations. ²Prices shown are subject to change and do not include applicable state and local sales tax or shipping to recipient's destination. ³Financing available through Compaq Capital Corporation (CCC) to qualified U.S. businesses, subject to credit approval and execution of CCC documentation. Monthly payments are based on 36-month Fair Market Value lease, and do not include taxes, fees, or shipping. Other fees and restrictions may apply and CCC reserves the right to change or cancel this program at any time without notice. ⁴For hard drives, GB=billion bytes. ⁵24X Max CD-ROM data transfer rates may vary from 150 to 3600 KB/s. ⁶V.90 Protocol: V.90 Modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ⁷Compaq Online Services: Free 30-day trial requires Internet access capability. ⁸Certain restrictions and exclusions apply. Call (800) OK COMPAQ for warranty details. ©1999 Compaq Computer Corporation. All rights reserved. Compaq, the Compaq logo, and Prosignia are registered trademarks and Better answers is a registered service mark of Compaq Computer Corporation. Microsoft is either a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries. AMD-K6 is a registered trademark of Advanced Micro Devices, Inc. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. 1517/9/99

Outsmart the Wily Computer Virus

PROBLEM *Even if your PC runs an antivirus program, the risk of a data-destroying infection is real.*

SOLUTION *Take a few additional precautions to help keep your computer safe and sound.*



SHANE TOVEN never worried about computer viruses. The chief engineer and IS manager for KAXE-FM in Grand Rapids, Minnesota, knew that the whole staff used antivirus software and practiced "safe computing." Then last April, Chernobyl—one of the year's deadliest viruses—slipped past the public radio station's security. Two of the station's Windows 95 machines suffered full meltdown.

"At first, all of our PCs worked fine on April 26, the day Chernobyl was supposed to hit. Then a couple of them quickly ground to a halt," remembers Toven. "When I went to reboot, I got the

dreaded 'insert system disk' message. According to Fdisk, there were no partitions and no boot sectors—classic signs of Chernobyl."

Feeling more than a little sheepish, Toven realized he hadn't updated McAfee VirusScan's signatures, the data files that identify specific viruses. (He was using an older version of the package that could not update itself automatically.) Chernobyl probably sneaked in "through a contaminated file attached to an e-mail from someone we knew," he says. The virus destroyed 2 gigabytes of data, including employee records, correspondence, and other vital files.

Even if you follow the usual safeguards—installing and updating a good antivirus package, avoiding e-mail attachments from strangers, and never downloading files from the Internet—your system probably isn't 100 percent safe from viruses. Few of us compute in isolation, never exchanging files with others. New viruses can claim casualties before antivirus vendors identify them. Your best line of defense is to assume your PC will become infected—and take steps now to save your neck.

SMART PRECAUTIONS

EXPERTS AND SURVIVORS who've tangled with the nastiest viruses offer the following wisdom:

Make updating signature files easy. As Toven discovered, the key to warding off most attacks is simply keeping your antivirus software updated. But remembering to check for new signature files, downloading them, and distributing them to the people who need them can be a hassle. Fortunately, most programs now remind you when signature files need to be updated, and will download the update for you from the company's Web site at the click of a button. The best, including Norton AntiVirus, PC-cillin, and McAfee VirusScan, perform this job automatically as often as once a day.

Keep a boot disk handy. Melissa and other Word and Excel macro viruses that torment most users at one time or another do little serious damage. But an infestation such as Chernobyl may stop your PC from even starting up. That's when you reach for the boot disk—a floppy from which you can run the antivirus program's scanner if your PC becomes inoperable. Most antivirus packages give you the option of making a boot disk during setup. If yours does not, you can easily make your own, notes Ken Dunham, virus expert at About.com (formerly the Mining Company). Dunham says users ►



Microsoft offers the best integrated knowledge management solution:

Office - The leading productivity software that enables knowledge workers to capture and share information and expertise.

Exchange - The preferred messaging and collaboration server that allows your team to work together more effectively.

SQL Server™ - The best database server for empowering knowledge workers to have unprecedented business intelligence.

Windows® - The most popular operating system for sharing knowledge via the Internet on PCs, handheld devices, and servers.

© 1999 Microsoft Corporation. All rights reserved. Microsoft, Windows, SQL Server, and Where do you want to go today? are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

How far away are you from finding the best ideas in your company?

Ideas are everywhere. When you empower people with the ability to quickly find, share and contribute to these ideas, they'll create even better ones. The easiest way to get information to flow this freely is to evolve your existing systems using tools you already know. Software like Microsoft® Office can help your employees become knowledge workers by providing a consolidated, customized view of all the sources of data and expertise in and outside your company, empowering them with the information they need to make better decisions.

And when you build on software you already know from Microsoft, it makes evolving your company into the digital economy that much easier. And your company's best ideas closer than you think. For complete details, and helpful case studies, visit www.microsoft.com/dns

Microsoft

Where do you want to go today?

GOT A PROBLEM?

can find instructions for creating a start-up disk, plus other virus-related advice, at antivirus.about.com. "You should boot from a clean disk before removing a virus," he says. "Some viruses can't be cleaned any other way."

Use more than one antivirus utility. No single antivirus package can detect and remove every virus, so using multiple programs lessens the chance of a virus getting through. "Pay for one commercial package and add one or more free programs," suggests Dunham. "Set the primary package to scan all the time and use the secondary programs only when you need them, so they don't conflict. It's like getting a second opinion from a doctor." Find a list of free antivirus products at antivirus.about.com/library/weekly/aa051099.htm. And pick up extra protection from a free Web-based scanning service like Trend Micro's HouseCall (housecall.antivirus.com) or Network Associates' McAfee Clinic (clinic.mcafee.com).

Lost & Found

\$70 list; PowerQuest; 800/379-2566; www.powerquest.com

PRODUCT INFO NO. 613

MRecover

Free; www.antivirus.about.com/msub21.htm

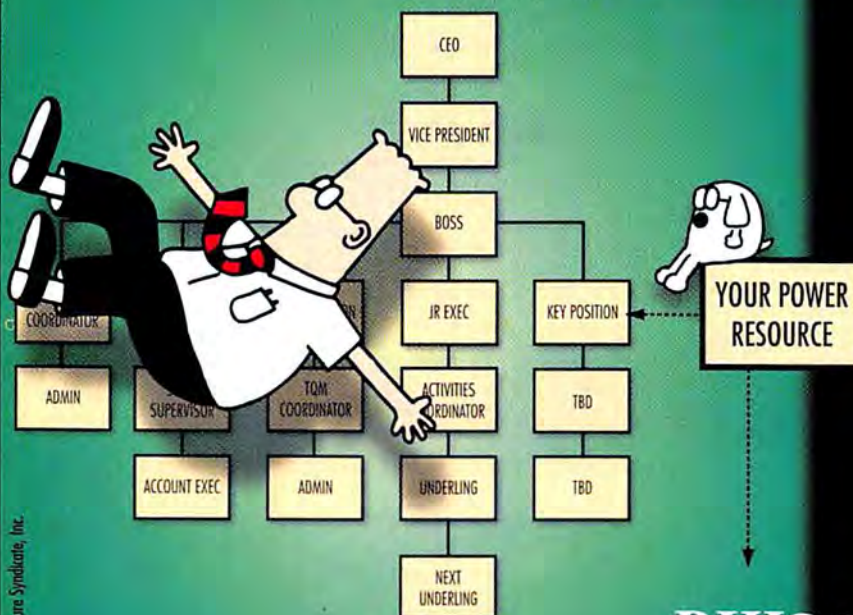
Clean up after an invasion. Once you rid your PC of its marauder, don't stop there, advises Joe Wells, author of the WildList of viruses (www.wildlist.org). "Read up on what the virus does to files, then take steps to eliminate unpleasant surprises down the road," he says. "For instance, Melissa turns off the dialog box asking if you want to enable macros in Microsoft Word documents, so after disinfecting you'll need to turn that feature back on to remind yourself you have that security option." (In Word 97, select *Tools•Options*, click *General*, and check *Macro virus protection*; in Word 2000, select *Tools•Macros•Security* and choose *Medium security*.)

Back in Grand Rapids, Shane Toven was about to reformat the hard drives on his devastated computers when he happened upon PowerQuest's Lost & Found data-recovery utility. "I downloaded and installed the demo, and in half an hour, I had recovered all my wiped-out files," reports Toven. Another utility, the free MRecover, can also restore Chernobyl-savaged computers.

Toven got a lucky break. Your best defense: Keep backups of all your vital data. After his near-fatal brush with Chernobyl, Toven changed his modus operandi: "I went out and bought a separate NT server just for backups," he reports. "I also now keep clean, write-protected boot disks for each operating system we use."

Carla Thornton is a contributing editor for PC World. If you're having trouble resolving a PC-related hardware or software problem, we'd like to hear from you. See page 14 for contact information. ■

The Direct Line to Your Career



You're the best. And you want the best contract position to match your skills and experience. So why waste time hoping that you'll fall into the job you want? *RHI Consulting* is your direct line to the career you deserve.

We have the connections, dedication and experience to find contract positions specifically suited to your needs. *RHI Consulting* is a division of Robert Half International Inc., the world's leader in specialized staffing with over 230 offices in the US, Canada and Europe. You can rest assured that we'll find you the right position in the right location. Plus, we offer the industry's leading benefits package, including major medical, vision, holiday pay and a first-rate advanced technical training program.

So, stop wasting time. Contact us today to receive your **FREE 1999 Salary Guide** and let our Account Executives get you where you want to be.

RHICONSULTING®
Technology Professionals™

800-793-5533 • rhic.com

Circle 190 on card or go to www.pcworld.com/productinfo

Save Time



Print your own time capsule now.

Go to www.officemax.com

Visit the OfficeMax Web site for a fun, family project for the new millennium - a time capsule. First, go to www.officemax.com and download and print the time capsule template. Follow the online instructions for assembling the project. Then, have each member of your family choose something to put inside the capsule. Finally, seal it.

When you finish downloading the template, make sure to

check out the incredible selection of HP supplies you can order right from the OfficeMax Web site. Everything from specialty papers to cartridges and toner can be ordered and sent directly to your home or business. When you know what you want, it's a great way to save time and a trip to the store.

Like shopping the old-fashioned way? Of course you can always visit the OfficeMax store near you for HP supplies and much more. When you do, look for a special offer for the *Family Fun in the 21st Century* HP Idea Kit. It's full of projects and ideas to help you use your HP color inkjet printer to put fun into everything your family does.



**hp HEWLETT®
PACKARD**
Expanding Possibilities

OfficeMax

For the store nearest you call:
1-800-788-8080

UMAX

#1 in U.S. sales*



UMAX SCANNERS. FOR THOSE WHO WANT MORE.



ASTRA 2200
(USB & SCSI)



ASTRA 2400S
(SCSI)

Do you aim a little higher? Then you need a UMAX Astra series scanner. Whether it's the Astra 2400S with a legal-size scanning area and blazing-fast SCSI interface. Or the Astra 2200, with its easy-to-use push button design and built-in transparency cover, you can't miss. You get award-winning software to make you more productive — from Adobe, Caere and NewSoft. No wonder more people buy UMAX scanners than any other brand. For more information call (800)331-UMAX. Or visit www.umax.com

Say Good-Bye to Windows Crashes

IT WAS LIKE an episode of *Outrageous Police Chase Videos*. Under my PC's hood, deep in a Windows folder, dozens of DLL files were wildly pursuing one another, careening out of control and smashing into my hard drive. After each collision, my system would shudder and crash. And I'd end up staring at a lovely blue screen with an ugly Windows error message.

I'll bet you've had the same problem. Unexpected crashes are a sure sign something's wrong under the hood—something far worse than a bad gasket on your search engine. The culprit is almost always a faulty DLL. Don't sweat it. I have a way to get you out of a DLL traffic jam.

TRIAL BY FILE

FIRST, A FEW BASICS. Dynamic link libraries (aka DLLs) are small programs used by Windows applications. Some DLLs are needed by specific programs and rarely cause problems. Others—the usual DLL troublemakers—are part of Windows itself and are shared by many programs. For instance, `commdlg.dll`, a “common dialog” DLL, enables other programs to create dialog boxes.

The problem? Some programs dump their own versions of these DLLs—usually outdated, crotchety ones—onto your system. When you launch the program, it loads the old DLL. Even when you quit the app, that DLL hangs around in memory. Later that day, you load another program that uses the same DLL—only a more recent version of it—then wham! The new



Unexpected crashes are a sure sign something's wrong **under the hood**—something far **worse** than a **bad gasket** on your search engine.

app gets rear-ended by the old DLL, road rage ensues, and the bits hit the fan.

Windows 98 is supposed to sort out these conflicts whenever you install a new program, comparing DLLs and throwing out the older ones. Trouble is, this does not always happen.

Fortunately, you can get rid of old DLLs yourself. It's a relatively safe task, but even so, back up your system first.

The trick is to search for all the DLLs on your hard disk, find the duplicates, and nuke the prior versions. You can do this by going to the Windows Desktop, hitting <F3> to bring up the Find: All Files box, and searching My Computer for all files

ending in .dll. (Be sure to search your entire drive, including subfolders.) In the results window, select *View>Details* and click the *Name* column heading to sort the files. If your PC is like mine, your drive is filled with duplicate DLLs. Depressing, no?

Now right-click each duplicate file, select *Properties*, and click the *Version* tab. The file with the higher version number should be in the \Windows\System folder. If the DLL with the lower version number is in the app's program folder, change its file extension to .d_l. That way, the old version won't load, which will force the program to look in the System folder for

the right DLL. (The one place you should see many duplicate DLLs is in your \Windows\Sysbackup folder. Leave those alone.)

Last step: Reboot your PC and load the program that used the older DLL. If it runs, it's probably okay, and you can repeat the process with the next pair of duplicates. If it doesn't run, then restore the original name of the old DLL.

NEVER A DLL MOMENT

IF ALL THAT SOUNDS too complicated, consider getting an application like DLL-Checker that'll do the job for you. The program, written by my user group buddy David Jung, scans your PC for DLLs, VBXs, OCXs, and VXDs (say that three times, fast). Then it lists their location and identifies them by size, date, and version. That helps you see the duplicates, compare the versions, and decide which ones to dump. The utility can also archive old DLLs.

I played with an early beta of DLLChecker, and it worked fine. The \$10 program should be available at www.VB2Java.com or on FileWorld by the time you read this.

Premiering next month on Bass-TV: *World's Scariest Windows Error Messages*.



You'll find the file mentioned in this article at www.fileworld.com/magazine. Contributing Editor Steve Bass is a licensed marriage and family therapist and president of the Pasadena IBM Users Group. He can be reached at steve_bass@pcworld.com. ■

DLLChecker

\$10 list; www.VB2Java.com

PRODUCT INFO NO. 603



From **\$299**

Big space at a small price.

Unbelievable? Not with the OnStream 30GB and 50GB digital storage solutions.

You've watched the cost of servers continue to decline. That's good. And you'd think the cost of effective backup solutions would follow. But they haven't. Until now. Introducing the OnStream 30GB and 50GB Digital Tape Drives that cost only a fraction of what you're used to paying. But don't let the low price fool you. With our breakthrough technology, Advanced Digital Recording (ADR™), we've combined a collection of more than 47 patented technology innovations that deliver an unprecedented blend of reliability, performance, capacity, convenience, and affordability. And, you'll be able to backup most servers on a single cartridge. Now that's smart. To learn more about OnStream and our reliable workgroup backup solutions, call 1-800-759-4621 ext. 209 or visit www.onstream.com/performance

OnStream.

Recording the Digital Age™

WinLIST
Windows Magazine 1999

GLOBAL
COMPUTER SUPPLIES

COMPUSA
THE COMPUTER SUPERSTORE

MICRO CENTER
FOR COMPUTER REPAIRS & SERVICE

MicroWAREHOUSE

CDW Computing Solutions
Built for Business™

© 1999 OnStream, Inc. All rights reserved. All OnStream prices are estimated US street prices. Compressed capacities based on a 2:1 compression ratio, using backup software. The capacity, backup speed and transfer rate will vary with file and system configuration. OnStream, ADR, OnStream Echo, Advanced Digital Recording, the OnStream logo and the ADR logo are trademarks of OnStream, Inc. All other trademarks are properties of their respective owners. All information and specifications are subject to change at any time without notice.

ADR™

Outlook virus fix? ♦ Easy updates for Win 98 ♦ Defrost Norton freeze-ups

Outlook Patch Misses the Point

IN THE AFTERMATH of the Melissa and Explorer virus outbreaks, we know that an infected e-mail attachment can nuke your data if you let it. Both epidemics brought corporate e-mail systems (and productivity) down as administrators scrambled to upgrade antivirus utilities and disinfect messages queued on servers.

Microsoft has since posted e-mail attachment security updates for Outlook 97, 98, and 2000 on its Web site (officeupdate.microsoft.com/welcome/outlook.htm). Information systems professionals will probably jump on the patches, but I recommend that regular computer users skip them. The patches don't improve Outlook's basic security, and they don't block Melissa, Explorer, or any other macro virus. Instead, they change the dialog box that appears when you launch an attachment. Without the patch, you're invited to open the attachment or save it to disk. After you apply the patch, only the save-to-disk option appears.

The best way to protect yourself is not to open attachments at all. The next best approach is to save the file to disk and then use an updated antivirus program to scan it for viruses. Microsoft's patches ensure that you'll save a file to disk instead of opening it immediately—but that's all. The patch does nothing to prevent you from launching the file from your hard disk. And you have to launch every attachment from your hard drive, even when the file comes from a reliable source. Microsoft says you can't uninstall the patches if you decide they're more trouble than they're worth. I advise you to forgo the patch and use your head instead.

Escape Norton AntiVirus Lockups

BUG After installing Norton AntiVirus, you have problems when Windows starts up. Programs refuse to load, you get error messages about programs that can't load, or your system locks up.

WORK-AROUND An article in Symantec's knowledge base (service1.symantec.com/support/nav.nsf/docid/19983374923) says these problems may signal a timing conflict caused by different programs competing for memory at the same time. Fortunately, there's more than one way to load NAV's Auto-Protect component without lowering the program's high level of virus protection. If you've experienced problems with a Symantec program, take a look at its knowledge base by visiting www.symantec.com/techsupp and selecting the program from the drop-down list.



The Last Word on Windows 98 Updates

INSTEAD OF CHOOSING one of the Windows 98 update options mentioned in last month's column (see www.pcworld.com/aug99/bugfix), you can order Windows 98 Service Pack 1 on CD-ROM, and save yourself the download. The Windows 98 SP1 CD-ROM itself is free, but you have to pay \$5 for shipping and handling. To order, call 800/426-9400, or look for instructions online at order4.microsoft.upgrade.com/scripts/startwin98se1.asp.

Netscape Communicator 4.61

HARD ON THE heels of the release of version 4.6, Netscape has released this latest update to fix the problems—including crashes and PalmPilot synchronization issues—identified at home.netscape.com/eng/mozilla/4.6/relnotes/windows-4.6.html.

CHECK WIN 98'S FILE CHECKER

BUG You wonder what Windows 98's System File Checker does, so you decide to give it a spin. After fixing some corrupted files, you reboot, only to be greeted with multiple Windows Protection Error messages—or no Windows at all.

Inside Windows 98's Accessories menu lies the System File Checker (to launch it, choose *Start•Programs•Accessories•System Tools•System Information•Tools•System File Checker*). The utility is a great idea: If your PC has problems caused by a corrupted, missing, or otherwise faulty Windows operating system file, the checker identifies it and prompts you to restore a good version of the file from the original disks. But because the program doesn't know the correct location of certain Windows system files, it sometimes copies files of the same name from the scaled-down version of the OS known as mini-Windows. Mini-Windows files are used by Windows 98 only during its initial setup.

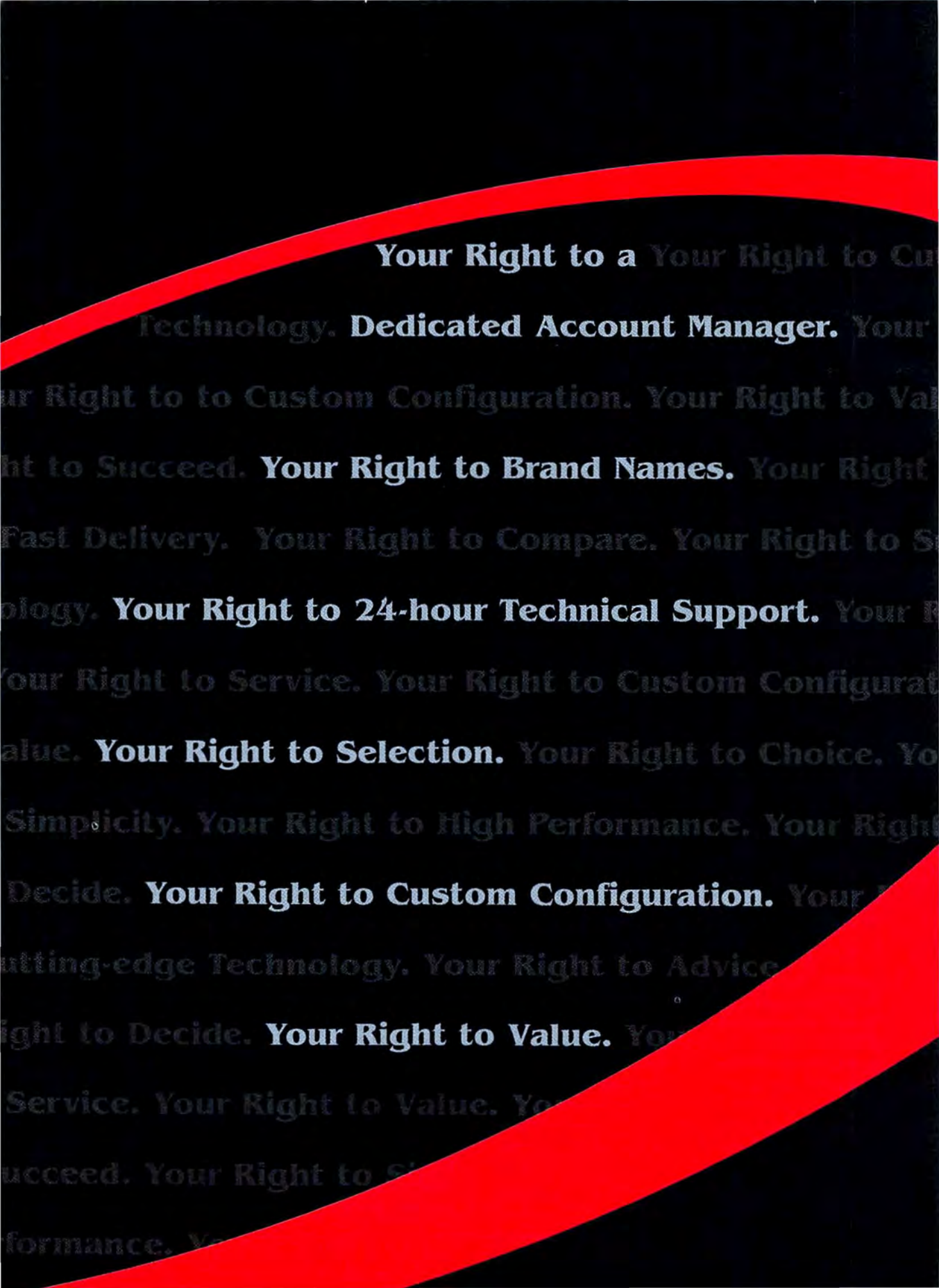
WORK-AROUND Microsoft describes the problem in brain-numbing detail at support.microsoft.com/support/kb/articles/q192/8/32.asp. To fix a Windows installation that's "gone mini," you have to boot using a Windows 98 start-up floppy with CD-ROM support, and then restore the files one by one using the extract.exe program. Microsoft offers a blow-by-blow account at support.microsoft.com/support/kb/articles/q129/6/05.asp.



You can find files from this article at www.fileworld.com/magazine. Scott Spanbauer is a contributing editor for PC World.

BUGGED?

FOUND A HARDWARE or software bug? Tell us about it via e-mail at bugs@pcworld.com.



Your Right to a Your Right to Cu
Technology. Dedicated Account Manager. Your
ur Right to to Custom Configuration. Your Right to Val
ht to Succeed. Your Right to Brand Names. Your Right
Fast Delivery. Your Right to Compare. Your Right to S
ology. Your Right to 24-hour Technical Support. Your R
Your Right to Service. Your Right to Custom Configurati
alue. Your Right to Selection. Your Right to Choice. Yo
Simplicity. Your Right to High Performance. Your Right
Decide. Your Right to Custom Configuration. Your
utting-edge Technology. Your Right to Advice
ight to Decide. Your Right to Value. Your
Service. Your Right to Value. Yo
ucceed. Your Right to S
formance. Ye



CDW presents a Bill of Rights for the IT manager.

The Founding Fathers were really onto something. Why not guarantee the rights of the individual citizen? So, we at CDW decided to do that very same thing. For starters, we firmly believe in your freedom of selection. That's why we draw from thousands of name brand products to provide you with custom-configured solutions. And let's not forget your right to superior service from a dedicated account manager, not to mention your right to 24-hour technical support and the lowest possible prices on everything from complete systems with pre-installed software to the simplest accessories. We believe this all serves to form a more perfect union between CDW and you. Frankly, anything less would be unconstitutional.



**Computing Solutions
Built for Business™**
www.cdw.com
800-306-4239

Circle 41 on card or go to www.pcworld.com/productinfo

Your right to *selection*

The affordable way to keep up with technology

Don't get left behind—your dedicated CDW account manager can help you find the desktop solution that beats the competition and saves your budget. The Compaq Deskpro EP desktop computer, with a 500MHz Intel® Pentium® III processor may be just what you're looking for. For high-quality color images and output, try the MultiSync A700+ 17" monitor from NEC Technologies and an HP LaserJet 2100se printer. The Astra 1220U scanner from UMAX is great for SOHO users and includes a free USB hub. Microsoft Office® 2000 provides cutting-edge tools for streamlining operations and making better business decisions. Increase your memory with an upgrade from Simple Technology. This and other great solutions are just a phone call away!

COMPAQ

Deskpro EP
Towerable desktop computer

\$1119.68

CDW 150315



Simple TECHNOLOGY

64MB memory
upgrade

\$99.57

CDW 115517



NEC Technologies

MultiSync A700+

17" monitor, 16" viewable image size

\$286.82

CDW 137312



HEWLETT
PACKARD

Expanding Possibilities

HP LaserJet 2100se printer

\$699.00

CDW 144929

UMAX®

Astra 1220U
flatbed scanner
With 4-port USB hub

\$129.00

CDW 171415

Microsoft®

Office 2000 Professional
Upgrade

\$289.90*

CDW 154901

*After \$40 mail-in manufacturer rebate
(offer ends 12/31/01)

SONY

Go anywhere without worry!

If you're looking for a worry-free, lightweight mobile solution, look no further than the Sony VAIO PCG-F250 notebook computer. At just 1.7" thin, the super-slim VAIO is the traveling companion you've always dreamed of. With a powerful 366MHz Intel® Celeron™ processor and a 4.3GB hard drive, this little baby will do just about everything except ask, "Are we there yet?" Protect your notebook with the DEFCON 1 from Targus. Don't have room for a separate color printer and scanner? The Canon® BJC-80 doubles as both! If you're tired of worrying about cables and plugs, check out the Iomega Klik! drive. It slides right into your notebook and saves your files easily! Transfer those same files back to the home office quickly with your Linksys EtherFast PC Card 10/100 LAN Card. Call your CDW account manager today and find out why CDW's service can't be beat!



VAIO Notebook Computer

With **3MAX**

\$1596.00*

CDW 165693

*After \$100 mail-in manufacturer rebate (offer ends 9/30/99)



Iomega Klik! PC Card drive
40MB removable media
PC Card Type II drive

\$199.95

CDW 165724

LINKSYS
EtherFast PC Card
10/100 LAN Card

\$75.50

CDW 94392

Canon

BJC-80
Portable Color
Bubble Jet™ printer

\$299.00

CDW 94630



DEFCON 1
Notebook security system

\$49.99

CDW 120249

The power to forge ahead

Have more tasks than time? You need a workhorse workstation to ease your load. The Compaq Professional Workstation AP200 is the ideal solution for entry-level CAD, financial trading and software development. Let its 500MHz Intel® Pentium® III processor, 10GB Ultra ATA hard drive and Microsoft Windows® NT Workstation V4.0 platform pull you through even the most complicated applications. Simplify your printing with the QMS Magicolor 2 DeskLaser printer. Natural looking images are here with the truly-flat Mitsubishi Diamond Pro 900u 19" monitor. You can't share your work without staying connected; check out the very reliable Cisco Catalyst 1900 Switch. Adobe Photoshop V5.5 is the most powerful ever—discover the advantage of the included Adobe ImageReady™ V2.0. CDW has the hardware and software for all your power computing needs—call CDW today!



MITSUBISHI
DISPLAY PRODUCTS
Innovation On Display.
Diamond Pro 900u
19" truly flat monitor

\$689.98

CDW 130067

Adobe Photoshop V5.5
For Windows 95, 98 and NT V4.0

Upgrade

\$187.92

CDW 171267



COMPAQ

Professional
Workstation
AP200

\$2045.80

CDW 152931



Monitor sold separately



QMS magicolor 2
DeskLaser printer

\$1179.99

CDW 119103

CISCO SYSTEMS



Catalyst 1924 Switch
24 10BASE-T ports, 2 100BASE-TX ports

\$1249.28

CDW 98418

All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers, including but not limited to Y2K compliance. Accordingly, CDW makes no representation or warranty with respect to the Y2K compliance of products sold.

56K modems are capable of 56Kbps downloads, however, current regulations limit download speed to 33Kbps.

Internet connectivity requires access services from an Internet access provider. Contact your local access provider for rates, terms and conditions.

©1999 CDW Computer Centers, Inc.
200 N. Milwaukee Avenue, Vernon Hills, IL 60061 PCW4909D 9/99



Computing Solutions
Built for Business™

800-306-4239

www.cdw.com

Circle 46 on card or go to www.pcworld.com/productinfo

Your right to *value*

Multifunction printing for your office

HP OfficeJet R40 All-in-One

Color printer, scanner, copier

Printer

- Resolution: 600 x 600 dpi black, HP PhotoREt II color layering technology
- Print speed: up to 11 ppm black, 8.5 ppm color

Scanner

- Versatile flatbed design
- Resolution: 600 x 2400 dpi optical (up to 9600 enhanced) PrecisionScan
- Scanning: 30-bit color, 8-bit grayscale

Copier

- Copy speed: up to 11 cpm black, 8.5 cpm color CopySmart II
- 1-year limited warranty
- HP C6680A

\$599.00

CDW 159487

HP OfficeJet

R60 All-in-One

\$699.00 CDW 159488

- Integrated color printer, copier and scanner with automatic document feeder
- HP C6683A

HP OfficeJet

R80 All-in-One

\$799.00 CDW 159519

- Integrated fax, color printer, copier and scanner with automatic document feeder
- HP C6684A



**HEWLETT
PACKARD**

Expanding Possibilities



HP JetDirect 170X

External print server for Ethernet networks

- Prints files up to six times faster than a file server or PC connection
- Simple installation and management via HP JetAdmin network peripheral management software
- Microsoft Windows NT simple device installation via HP network printer installer for Windows NT

\$144.93

CDW 133584

HP JetDirect 300X External 10/100 print server

\$248.45 CDW 102969

- Multi-NOS/multi-protocol support for Ethernet and Fast Ethernet networks
- Supports NDS, NDPS, SNMP, DHCP/WINS and lpd
- Automatic network/protocol switching
- Autonegotiates 10/100Mbps and full/half-duplex mode



HP ProCurve Switch 408

10/100 8-port switch

- 10/100 autosensing per port allows you to connect any 10BASE-T or 100BASE-TX device
- HP's Flow Control ensures reliable communication during full-duplex operation
- MDI/MDI-X cascade port makes it easy to add other hubs and switches to the network
- Covered by HP's lifetime warranty

\$249.91*

CDW 164578

*After \$50 mail-in manufacturer rebate (offer ends 10/31/99)



.....
↓
CLICK HERE



We've built you a sleek, new site complete with our standard features, plus great time-savers:

- *Filter Your Search*
- *Active menus for advanced browsers*
- *Comparable products at a glance*
- *Easy to find accessories*

www.CDW.com

Online solutions built for you.

TOSHIBA



Portege 3110CT

Notebook computer

- 300MHz Intel® Pentium® II processor
- 64MB RAM
- 6.4GB hard drive
- 56Kbps (V.90) modem
- 10/100BASE-TX Ethernet
- Microsoft Windows® 98
- 10.4" active matrix
- 2.9 lbs.
- 0.78" thick

\$2189.79

CDW 173524



PS790

19" monitor with short 15" depth

- 19" SuperClear™ screen,
- 18" viewable image size
- 0.25mm dot pitch
- Resolution: 1600 x 1200 at 76Hz (maximum); 1280 x 1024 at 88Hz (recommended)
- ARAG® screen treatment
- OnView® controls including ViewMatch®
- 3-year limited warranty

\$459.51*

CDW 114966

*After \$100 mail-in manufacturer rebate (offer ends 9/30/99)



simple
TECHNOLOGY



PhotoReader for CompactFlash USB

For PCs and Macs

- 1.5MBps maximum transfer rate
- USB interface
- External AC adapter
- Dimensions: 69 x 94 x 23mm
- Supports Mac OS and Windows® 98

\$93.54

CDW 140297

SYMANTEC®

Norton AntiVirus V5.0

For Windows 95, 98 and NT

Symantec Norton AntiVirus V5.0 lets you quarantine infected files, making it easier to get help with viruses directly from the Symantec researchers and automatically protect yourself against all viruses and malicious Active X and Java applets. As always, Norton AntiVirus runs constantly in the background to keep your computer safe from viruses.

\$38.79

CDW 122955



Quantum

CAPACITY FOR THE EXTRAORDINARY™

Fireball CX

6.4GB 3.5" low profile ATA/4 hard drive

- Ultra ATA/66 interface
- 9.5ms average seek time
- 5400 rpm rotational speed
- 241MBps maximum internal transfer rate
- 512KB buffer
- 3-year warranty

\$137.05

CDW 167989

All products sold by CDW are third party products and are subject to the warranties and representations of the applicable manufacturers, including but not limited to Y2K compliance. Accordingly, CDW makes no representation or warranty with respect to the Y2K compliance of products sold.

56K modems are capable of 56Kbps downloads, however, current regulations limit download speed to 53Kbps.

Internet connectivity requires access services from an Internet access provider. Contact your local access provider for rates, terms and conditions.

©1999 CDW® Computer Centers, Inc.

200 N. Milwaukee Avenue, Vernon Hills, IL 60061 PCW4909F 9/99



**Computing Solutions
Built for Business™**

800-306-4239

www.cdw.com

Circle 44 on card or go to www.pcworld.com/productinfo

TOP OF THE NEWS



AMD Grabs the Crown

600-MHz Athlon Bests the PIII

The new king zips past Intel's PIII-600 with record Windows 98 performance on business and graphics applications.

CLINTON VS. STARR. Trump vs. Trump. Gates vs. the feds. Now you can add AMD vs. Intel to the list of all-time battles royal. AMD has bet its future on the new Athlon processor. Best known by its code name, K7, this next-generation chip was designed with one clear aim: Unseat Intel as the speed king. And based on our tests of the first Athlon systems, AMD has done just that.

We tested two machines that are based on the AMD Athlon-600 chip—a preproduction Compaq Presario 5861, and a demonstration system built by AMD for our evaluation. Then we pitted both of these systems against Compaq and Quantex computers powered by Intel's new Pentium III-600 chip, which was rushed out the door in time to take on the Athlon.

REAL GAINS

THE ATHLON systems outperformed the PIII PCs in every part of the PC WorldBench 98 suite of business applications, averaging a 9 percent gain. In fact, the system AMD built bested Compaq's PIII-600 by 14 percent. In our graphics tests, the Athlon PCs flew through CAD and 3D modeling software, completing the AutoCAD test 21 percent



faster than the Pentium IIIs. New chip logic in the Athlon speeds up the floating-point math used to display geometric shapes and high-resolution images, and the new floating-point unit noticeably accelerates existing apps. It does all this without requiring software to be rewritten, unlike AMD's 3DNow graphics instructions and Intel's Streaming SIMD instructions.

What a turnaround: Previous AMD chips paled beside Intel's graphics and floating-point muscle. AMD has also built in a 200-MHz system bus, which enables some performance gains now and will allow even more later.

System makers will use the Athlon in high-end home and small-office desktops configured much like PIII computers. AMD doesn't expect to crack the corporate PC market until next year since enterprise customers demand more time to evaluate products and insist that identical systems be available for a set amount of time. For now, graphics performance is the Athlon PCs' rai-

son d'être. In particular, you'll want to consider the chip for modeling apps, Web site development, and Internet plug-ins. We didn't see big performance gains on today's 3D games, but next year's should be more demanding.

And here's the clincher: Athlon-600 systems should cost \$100 to \$200 less than comparably configured PIII-600 machines. Compaq's Athlon-600 Presario sells for just \$2189. That makes AMD the current price/performance leader for consumer PCs.

WHAT KINGS ARE MADE OF

FROM NAME to basic design, the Athlon represents a dramatic departure for AMD. The company chose the name to suggest speed and athleticism and to distance the chip from downscale predecessors in the K6 family. The chip debuts at speeds of 500, 550, and 600 MHz, with features that Intel won't deliver until its major upgrade to the PIII, code-named Coppermine, arrives late this year. "The Pentium III is sort of an upgrade of the Pentium II," says Dean McCarron, principal at Mercury Research. "But the Pen-



Update on 'Free' PCs

SINCE the free-PC craze erupted earlier this year, more players have joined the fray and one has dropped out. Most of the new deals provide a free system to users who commit to several years of Internet service from a specified ISP. Among the latest offers: Pay \$648 up front for three years of Microsoft's MSN service, and get a computer from Lan Plus. When you buy a cheap PC and sign up for Internet access, some vendors and retailers will include a rebate that covers all or most of the system's cost. E-machines, Micron, CompUSA, and Circuit City all have some variation on this theme. The dropout? A vendor called The Simple Solution is no longer taking orders for its free PC, the Enchilada.

500-MHz Notebooks

INDUSTRY sources expect Intel to ship new mobile Pentium III chips running at 400, 450, and 500 MHz in late September. Look for the first PIII notebooks from major vendors at that time. These systems should feature a 100-MHz system bus, as do today's Pentium-III desktops. But Intel's "Geyserville" notebook technology, which lets machines run at one speed on the battery and at a higher speed on AC power, has hit delays: Gey-



GET UP-TO-THE-MINUTE NEWS about computer products and Internet happenings from PC World Online's News area. Just point your browser to www.pcworld.com/pcwtoday.

tium II architecture is on the order of three years old."

The Athlon's architecture is new. The CPU can handle up to six instructions per clock cycle, AMD says, whereas the Pentium-III can handle three instructions per clock cycle. (But sometimes the PIII can break instructions into small pieces and handle five such micro-operations at once.) The Athlon's 128KB level 1 cache, which processes some program instructions faster than regular RAM does, is four times larger than the PIII's level 1 cache. It should speed up jobs such as 3D rendering and some database work, McCarron says.

The Athlon's 200-MHz system bus is twice as fast as the PIII's. (AMD based it on the EV6 system bus developed by Digital Equipment that's used in Compaq servers and workstations with the Alpha microprocessor.) Today, the Athlon CPU enjoys a 200-MHz connection to the system chip set. But you won't realize the full potential of the bus until 200-MHz RAM becomes available, likely in the next six to nine months. (See the infographic below.)

AMD claims another advantage: It has added 24 new instructions to its 3DNow technology. But savvy PC buyers

will ask, "Where's the software?" Like Intel's Pentium III Streaming SIMD Extensions, AMD's 3DNow instructions can speed up graphics and other tasks in specially

wait until software companies update applications to take advantage of its new instructions. We're taking a show-me attitude. No software using the 19 new instructions was ready

for us to test, and AMD won't reveal the names or ship dates of software enhanced to capitalize on them. Most existing 3DNow-enhanced apps are games, with a few exceptions, such as IBM

ViaVoice. Image editing and voice recognition apps are in the works, AMD says.

New 3DNow instructions aim to rev up speech and video encoding, Internet plug-ins, and Web streaming.

enhanced applications; 19 of the new 3DNow instructions aim to rev up speech and video encoding, Internet plug-ins, and Web streaming—also areas Intel tackled with SSE.

But like Intel, AMD must

THE FIRST BIG TEST

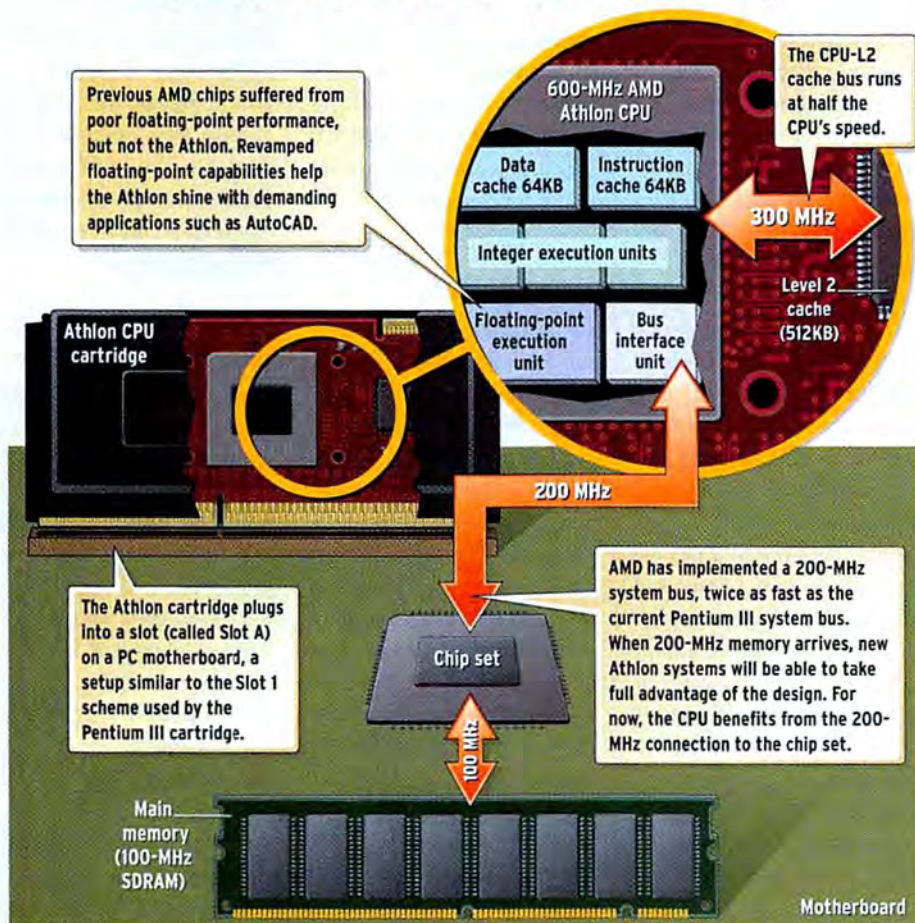
TO PUT THE Athlon's new floating-point unit to the test, the PC World Test Center ran AutoCAD Users Group International's AUGI Gauge, a benchmark that times operations performed in Autodesk's AutoCAD 2000 computer-aided design software.

The Compaq Presario 5861 finished the test in 16.2 minutes, slightly ahead of the AMD demonstration system and roughly 3.5 minutes, or 21 percent, faster than the two PIII-600 machines. That's not chump change when you're talking benchmarks. It's a difference that translates into much faster completion of graphics-intensive work, such as Web design or modeling.

In our test with Caligari's TrueSpace 4.1 3D modeling program, the AMD demonstration PC showed an 18 percent advantage, enough to produce noticeably faster screen updates. (The Compaq Presario couldn't run this or the Rage Expendable test because its otherwise admirable 3dfx Voodoo3 3500 card doesn't support the test's 32-bit color mode.)

The two Athlon machines

Inside AMD's New 600-MHz Athlon Chip



IMPRESSIVE PRICE: Compaq's fast Presario 5861 costs a mere \$2189.

topped the PIII-600 systems by 8 percent in Futuremark's 3DMark, a series of benchmark tests that include game tasks using 3DNow and SSE extensions. Several parts of 3DMark, as well as our Rage Software Expendable game test, measure the number of video frames a CPU can display per second. The Athlons beat the PIIIs, by 5 to 16 percent. Since the frame rates of many games are already plenty fast, you may not see the difference. But an Athlon machine should offer investment protection as companies release more complex titles.

As for the less glamorous applications you use every day, you certainly don't need machines this fast for work with Word or Excel. But if you're

going to buy an Athlon system because it's the fastest PC on the market, you will relish the results. The AMD demonstration system's PC WorldBench score of 281 is the fastest we've seen on a computer running Windows 98. The Athlon scores stand out even more when you put them in context: Pentium III-550 systems average a PC WorldBench score of 242, while PIII-500 systems—still mighty zippy—average 230.

BOTTOM DOLLAR, TOP VALUE

NOT SURPRISINGLY, all the configurations in this bunch are generous, including 19-inch monitors. If you want a loaded home PC, the Compaq Presario Athlon-600 and Quantex PIII-600 both qualify. However, the Compaq Athlon costs \$210 less.

Take note of a few significant differences beyond the CPU. Compaq's Presario ►

JUST IN

serville notebooks are not expected to ship before early 2000. Those machines may reach 600 MHz on AC power.

Office at the Airport

A NEW SERVICE lets travelers turn airport downtime into productive computing time. Laptop Lane rents private cubicles outfitted with PC, phone, fax, printer, and high-speed Internet connection. The service is available now at airports in Atlanta, Chicago, Cincinnati, Denver, and Seattle, and the vendor expects to roll it out at ten more major airports in the next six months. The cost—\$2 for the first 5 minutes, 38 cents for each additional minute—covers all charges for U.S. long-distance calls, faxing, printing, and online access.



DESKTOPS: BUSINESS APPS TEST REPORT

Athlon-600 Systems Fastest Across the Board

SYSTEM	CPU	RAM (MB)	Level 2 cache (KB)	PC WorldBench 98 score	Faster	Application test time
AMD Athlon-600*	Athlon-600	128	512	281		
Compaq Presario 5861	Athlon-600	128	512	272		
Quantex SM600 SE	Pentium III-600	128	512	260		
Compaq Prosignia 330	Pentium III-600	128	512	247		
Average of 4 systems	PIII-550	128	512	242		
Average of 36 systems	PIII-500	128	512	230		
Average of 2 systems	K6-III-450	128	256 ¹	228		

*Demonstration PC made by AMD.

Minutes

Word 97 Word Pro 97 Excel 97 1-2-3 97 Paradox 8.0 Picture Publisher 7.0



HOW WE TEST All systems are tested with PC WorldBench 98, PC World's application-based benchmark. A higher PC WorldBench 98 score is better. For more details on our benchmark and how we run it, see PC World Online (www.pcworld.com/testing). Data based on testing conducted by the PC World Test Center. All rights reserved. ¹Both K6-III-450 systems also had a 1024KB level 3 cache.

Tidbytes

Corel Does Linux: Due this fall, the Corel package will include Linux itself, plus the K Desktop Environment graphical user interface and Corel's own installation and setup utility. At press time, pricing had not been set. **Digital Music Player Update:** If you're looking for portable music devices that play both freely downloadable MP3 files and commercially sold online tracks, don't hold your breath. Few are expected before next year. That is what some hardware companies are saying privately, despite the fact that Secure Digital Music Initiative—a record industry group—has delivered specs for the devices and is expecting products in late 1999.

has a 13GB hard drive, and a 16MB graphics card based on the 3dfx Voodoo3 3500 chip set, while the Quantex has an 18GB hard drive, and a 32MB graphics card based on the NVidia RIVA TNT2 Ultra. Compaq's Athlon computer does not come with as many options as a typical Presario: Compaq will offer the system with a 17-inch monitor for \$1999, or you can buy it with a fancy speaker and subwoofer set for just under \$2500, but the core configuration is fixed.

The Presario 5861 is one of the first systems we've tested that has an 8X DVD-ROM drive. But don't throw a party just yet: The new drive's rotational speeds throw off data at roughly 11 MBps, faster than current CPUs and graphics cards can handle. "[The 8X drive] is really of most benefit to PC makers looking for a way to differentiate their systems," says Robert Katzev, an analyst at Disk/Trend.

Nitpicking aside, \$2189 isn't much to pay for a loaded box

containing a first-rate CPU. Consider this: When Pentium III-500 systems debuted last March, many of their prices were north of \$2800. Long live competition.

Quantex's SM600 SE, still reasonably priced at \$2399, comes with a 6X DVD-ROM drive and all the multimedia goodies you'd expect. Our \$2499 Compaq small-business Prosignia 330 has an 18GB hard drive; it's also DMI 2.0 compliant and equipped with Compaq manageability software. Unlike the Athlon-based Presario 5861, this machine can be built to order. Add a 10/100 network card and a Zip 250 drive, and the Prosignia still checks in at a fair price of \$2539.

Other system vendors planning to ship Athlon-600 computers soon include CyberMax, IBM, MidWest Micro, and Polywell. IBM says that it will add Athlon systems at all three introductory speeds to its Aptiva line in the third quarter of this year.



COMPAQ PROSIGNIA 330 (left) and Quantex SM600 SE use the PIII-600 chip, Intel's answer to Athlon.

YOUR NEXT MOVE

THE BRIEF HISTORY of computing is littered with the remains of companies that thought superior technology could vanquish better-connected, better-marketed kings of industry. Since AMD is having financial troubles (see "Intel Is Winning the Battle of the Bucks"), you might wonder if it's best to wait to buy an Athlon desktop until the dust settles. The simple answer is

no. As AMD is fond of pointing out, the world's top ten PC makers, with the exception of Dell, now use its chips, and you can expect the likes of Compaq and IBM to support PCs you buy from them no matter what happens to AMD.

That said, the upcoming months hold plenty of challenges for AMD. As it tries to pump up the Athlon's clock speed—a 650-MHz version is already in the works—Intel's

Intel Is Winning the Battle of the Bucks

INTEL'S RIVALS sometimes win technology contests, as AMD has just done convincingly with the Athlon. But boy are they losing the financial war. National Semiconductor and IDT recently announced plans to dump their respective Cyrix and Centaur desktop chip business units. Soon after AMD unveiled the Athlon, the company announced a \$162 million second-quarter net loss, along with the resignation of its respected chief operating officer. In contrast, Intel announced second-quarter earnings of \$1.7 billion. It's enough to make a consumer wonder: Can

AMD—or any other company—prevail against Intel?

DEEP POCKETS

PRODUCING faster and better chips than Intel's is difficult enough. But the challengers also must face the formidable "Intel Inside" program that gives PC makers millions to subsidize marketing and advertising. Moreover, Intel—with sales revenue of \$26.3 billion in 1998—has the financial



muscle to cut prices on the lower-performance chips that its rivals hawk as their stock in trade. AMD, just now moving up to higher-end chips, logged sales revenue of \$2.5 billion in 1998.

National Semi decided it simply could not keep up and put its Cyrix division, acquired in November 1997, up for sale. Taiwanese chip-set maker VIA Technologies plans to purchase Cyrix and ship new desktop chips by year's end. Na-

tional Semi will still sell MediaGX, the chip that sparked the sub-\$1000 PC trend, but only for low-cost computing appliances like set-top boxes.

UPSTARTS STALL

IDT ANNOUNCED in July that it hopes to sell its Centaur subsidiary, maker of the WinChip processors. WinChips never kept pace with Intel, AMD, or Cyrix clock speeds and thus sold for a pittance. The remaining CPU upstart, Rise Technology, which makes the low-end MP6 chip, still hasn't announced any big-name U.S. customers.

war room is humming. Intel's 820 system chip set for PIII desktops, code-named Camino, will arrive soon, enabling a 133-MHz system bus. Speedy new memory will be ready when the chip set ships, delivering an immediate performance spike.

Furthermore, Intel will use a .18-micron process to make its Coppermine PIII chips, expected to debut late this year at 667 MHz. This process helps enable fast chip speeds and carves more chips from the same amount of silicon than today's .25-micron process can. AMD also plans to shift to a .18-micron process late this year in its Austin, Texas, fabrication plant, but the company will have it hands full since it's simultaneously opening a new \$1.9 billion fabrication plant in Dresden, Germany.

On a larger level, Intel and AMD face a common problem—and so do consumers. While the chips keep getting faster, no “killer app” that demands more than 600 MHz is waiting in the wings. Truth be told, most people today are still not using software that screams for even

But AMD is using the Athlon to batter its way into the high-end PC market and eventually into workstation and server strongholds, where chips sell at a larger profit. It's a bold and difficult move. AMD must avoid supply problems, which have cost it dearly in the past.

DESKTOPS: GRAPHICS APPS TEST REPORT

Athlons Zoom Through AutoCAD and 3D Tasks...

SYSTEM	CPU	Graphics chip set	AutoCAD 2000 test (seconds)	Rage Expendable test (frames per second)	3DMark	CPU 3DMark
AMD Athlon-600*	Athlon-600	NVIDIA RIVA TNT2 Ultra	982	66	6034	10568
Compaq Presario 5861	Athlon-600	3dfx Voodoo3 3500	973	Results not available. ¹	6143	10643
Quantex SM600 SE	Pentium III-600	NVIDIA RIVA TNT2 Ultra	1185	60	5752	9021
Compaq Prosignia 330	Pentium III-600	NVIDIA RIVA TNT2 Ultra	1175	57	5552	8904
*Demonstration PC made by AMD.			Faster	Faster	Higher is better	



HOW WE TEST We test all PCs with a beta version of the AutoCAD Users Group International's AUGI Gauge for AutoCAD 2000, which tests computer-aided drafting performance. We also use a self-running, timed demo version of Rage Software's Expendable—a 3D game that uses both 3DNow and SSE instructions. Futuremark's 3DMark 99 Max Professional Edition benchmark tests a PC's 3D gaming capabilities through 26 tasks that use 3DNow and SSE instructions. ¹Graphics card doesn't support this test's 32-bit color mode.

...and Inch Past PIII-600s on Everyday Graphics Jobs

SYSTEM	CPU	Graphics chip set	Graphics memory (MB)	Presentation test (seconds)	Playback tests (frames per second)
AMD Athlon-600*	Athlon-600	NVIDIA RIVA TNT2 Ultra	32	146	99 85 80 33
Compaq Presario 5861	Athlon-600	3dfx Voodoo3 3500	16	146	102 85 85
Quantex SM600 SE	Pentium III-600	NVIDIA RIVA TNT2 Ultra	32	146	96 85 78 28
Compaq Prosignia 330	Pentium III-600	NVIDIA RIVA TNT2 Ultra	32	148	96 85 75 28
Average of 2 systems	Pentium III-550	NVIDIA RIVA TNT2	32	160	96 82 63
Average of 3 systems	Pentium III-500	NVIDIA RIVA TNT2	16	145	95 67 50
*Demonstration PC made by AMD.			Faster	Faster	

PowerPoint 97

Director 6

Redline Racer

Incoming

TrueSpace 4.1



HOW WE TEST In Microsoft PowerPoint 97, we time a script that builds a 50-slide presentation; faster times are better. Using Microsoft Active Movie, we play back a looping AVI clip while running an animation created with Macromedia Director 6 in the foreground. We also execute self-running demos in Criterion Redline Racer and Rage Incoming. In Caligari TrueSpace 4.1, a 3D modeling program, we play back a tutorial that uses AGP textures. For all four playback tests, higher frame rates are better. Tested applications do not make use of AMD's 3DNow technology. All systems tested with 128MB of system RAM. Data based on testing conducted by the PC World Test Center. All rights reserved. ¹Caligari results not available for this system; graphics card doesn't support this test's 32-bit color mode. ²Caligari test results not complete for these PCs.

500 MHz worth of horsepower. The tremendous popularity of \$1000 to \$1500 systems is no accident: You can run Word, Excel, a Web browser,

"If AMD can make it through the next two quarters and get the K7 going, it looks like there's going to be a lot of customers for the chip," says Linley Gwennap, editorial director of *The Microprocessor Report*. But it can't lose millions for too many more quarters, he says.

and basic games and graphics programs quite nicely on a Celeron or K6-2 machine. As we said when the Intel Pentium III-550 systems debuted, don't buy more computer than you need.

On the other hand, if you regularly buy systems with the top-of-line chip, the advantage of an Athlon-600 machine is clear. It's the new speed monarch, and what's more, it won't cost you a king's ransom. ▶

Presario 5861

Street price: \$2189; Compaq

PRODUCT INFO NO. 735

Prosignia 330

Street price: \$2499; Compaq

800/345-1518;

www.compaq.com

PRODUCT INFO NO. 736

Quantex SM600 SE

Street price \$2399; Quantex

Microsystems;

800/896-4898;

www.quantex.com

PRODUCT INFO NO. 737

New Flavor of DSL Brings Faster, Cheaper Web Access to Your Door

BY YEAR'S END, you could be surfing the Internet at speeds up to 11 times faster than the fastest dial-up connection permits, for about \$50 to \$80 a month. By the end of the year 2000, you could enjoy even higher speeds for less than you currently pay for that dial-up account. The reason: a new standard called G.Lite.

G.Lite is a flavor of Asymmetric Digital Subscriber Line technology, which carries data at high speeds over plain copper wires. While some forms of ADSL download at 8 mbps, G.Lite maxes out at 1.5 mbps downstream and 384 kbps up; the first round of G.Lite implementations will probably run somewhat slower still, most likely in the range of 384 to 640 kbps for downloads. To work, the

technology calls for two basic components: a G.Lite-compliant modem, which should be available at your local computer store by the end of 1999; and G.Lite-compatible phone service, which requires only that your phone company flip a switch at its central office to convert your existing line.

CHEAPER AND EASIER

WHILE G.LITE ISN'T as fast as some forms of ADSL, it should be a lot cheaper and easier to install. Because manufacturers have committed to a single standard, the resulting economies of scale mean G.Lite hardware should cost less than previous, proprietary

ADSL solutions. Unlike other forms of ADSL, G.Lite doesn't require a technician to make a house call, so phone companies should find it cheaper to deploy. And even though cable access is potentially much faster, G.Lite users don't force neighbors to share the bandwidth. G.Lite's lower price, easier installation, and consistent bandwidth could make it

ADSL equipment from a single vendor, it has to pay the higher prices that proprietary hardware demands (costs that it no doubt passes along to you). And because your modem must be compatible with the specific form of ADSL your telco uses, you can't just grab an ADSL modem off the shelf at your local computer store. In most cases, you sim-



the likeliest candidate yet to bring broadband Internet access to mainstream users.

Of course, DSL is already being rolled out in selected markets across the country. ADSL is the specific type of DSL most commonly marketed to individual users; other, faster forms of DSL are sold primarily to businesses. Unfortunately, the manufacturers that sell ADSL hardware have implemented the technology in subtly incompatible ways. Your local phone company may be using any one of four distinct forms of ADSL, none of which will work with the others. Because your local telco needs to standardize on

ply have to accept the modem your telephone company gives you—at prices that currently start around \$300.

G.Lite modems, by contrast, are expected to cost less than \$200 at the outset, with prices dropping fast after that. Virtually all major modem makers, including 3Com, Diamond Multimedia, Intel, Viking, Zoom Telephonics, and ZyXel, plan to start shipping G.Lite modems this fall or this winter. Expect Dell, Compaq, and other major PC vendors to start offering G.Lite modems as optional equipment around the same time.

Of course, having a G.Lite modem isn't going to do ►



WITH JANUARY 1 fast approaching, the PC industry makes its final preparations for the millennium rollover; the PC Y2000 Alliance posts the latest consumer resources online; and we take a look at the free Know2000 QuickCheck utility. We also take a look at the latest in Y2K fashion. Really.

Who You Gonna Call?

■ **BUG BUSTERS:** The threat of Y2K is prompting unprecedented cooperation among competing PC companies. One example: the PC Y2000 Alliance. Composed of such hardware heavyweights as Compaq, Dell, Gateway, Hewlett-Packard, IBM, and Toshiba, the alliance has put up a Web site (www.pcy2000.org) designed to help users determine whether their system is Y2K-ready. You'll find FAQs, step-by-step instructions for checking your hardware's Y2K compliance, and links to members' year 2000 Web sites for more specifics. Regrettably, there isn't much software support, though-ClickNet and Symantec are the only contributing software vendors.

■ **Y2K QUICKCHECK:** The Year 2000 Group, a software company, recently released a free trialware version of its Know2000 Y2K compliance utility. Rather than independently testing your software, Know2000 checks every executable file on your drive against a database of known software problems. The database, provided by soft- ►

I have the world at my fingertips...
one world... one phone call



- Multi Link Capability
- Web Hosting
- Web Graphics
- 56K V.90 True Unlimited Access Accounts
- 2200 Local Access Numbers WorldWide
- E Commerce Powered By Cold Fusion
- Telnet
- Web Design
- UseNet

If you're looking for a reliable connection with state-of-the-art speed, then you need to call **Cruisenet** today, or sign-up online at www.cruisenet.net

Circle 59 on card or go to www.pcworld.com/productinfo



Cruisenet, LLC
2095 Dunbarton Drive
Suite 106
Jackson, MS 39216

(601) 366-1119

Toll Free 1-877-778-7166

you much good unless your local phone company offers the service. Fortunately, most of the major telephone companies—including BellSouth, SBC (which comprises Ameritech, GTE, and Pacific Bell), Sprint, and US West—expect to start selling G.Lite services either later this year or early next. Pricing isn't set yet, but expect it to be in line with current residential ADSL rates—about \$50 to \$80 per month, including the ISP charges. As G.Lite becomes more widely available, those prices are likely to drop to around \$30 by the end of the year 2000.

Setup fees should be lower, too. You currently pay a couple of hundred bucks just to get ADSL service installed. That's because the telephone company has to dispatch a technician to install a line splitter outside your house before the ADSL service will work. Because G.Lite doesn't require a splitter, such "truck rolls" should become unnecessary (see "No

More Waiting for the Phone Guy," below), reducing your installation costs to zero.

SLOWER SERVICE FIRST

THOUGH THE G.Lite standard supports speeds up to 1.5 mbps, chances are the phone companies will roll out 384- or 640-kbps services first. Smart telcos don't want to sell more speed than they know they can deliver. They know data rates can vary greatly, depending on the quality of the copper loop that extends between your home and their central switches. They also know that adding many thousands of high-speed customers will put pressure on the connections between those switches and the Internet at large. A controlled rollout allows the phone companies to increase their backbone capacity gradually. Finally, phone companies expect that even submaximum G.Lite speeds will be

enough to entice users who are currently plodding along at 56 kbps or slower.

G.Lite is saddled with a couple of catches: Like all forms of DSL, it has a limited range. If you are not within about 15,000 feet—2.8 miles—of a

Broadband Buys

SERVICE	Typical speed (downstream)	Typical monthly cost
ADSL	256 kbps-8 mbps	\$40-\$400
Cable	256 kbps-512 kbps	\$40
Dial-up	56 kbps	\$20
G.Lite	384 kbps-640 kbps	\$40-\$80
ISDN	128 kbps	\$60
T1	1.5 mbps	\$1200

central office or switch, you probably can't get it. You'll have to consult with your local phone company to find out whether you're eligible. Also, while your local phone company doesn't have to install a splitter outside your house, you may have to plug a microfilter into your phone jack before you can install a G.Lite modem. (The microfilter is a small box that eliminates excess noise on your phone line.)

But for telcos and ISPs, G.Lite represents the latest, greatest weapon in their ongoing competition with cable companies for broadband customers. Prior to ratification of the standard by the International Telecommunications Union last June, industry analysts were predicting that some 900,000 DSL lines would be in use nationwide by the end of 2000, compared with about 2.5 million cable modem setups. G.Lite could be the key to narrowing that gap. More important for end users, G.Lite means more broadband options at lower prices. —Cameron Crotty ►

ware publishers, contains results of vendor tests for over 3500 programs, including office applications from Microsoft and Corel. The free trial version, Know-2000 QuickCheck, took about 10 minutes to download over a 56-kbps connection, and another 15 minutes or so to run through our test PC's hard drive. But to get the full database entry for a particular application, including contact information for the issuing vendor and URLs for online patches and updates, you must purchase the \$20 retail version. www.know-2000.com/y2k/quickcheck.html

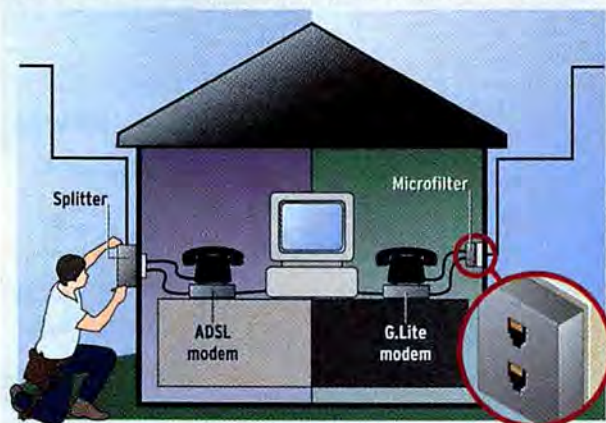
Keep Your Shirt On

■ **LAWYERS OUT OF LUCK:** So let's say January 1 rolls around and your office's PCs all crash, taking with them millions of dollars worth of crucial customer data. Don't even think about suing your computer vendor, not after Congress recently passed legislation effectively limiting Y2K-related lawsuits. The bill would give companies 90 days to repair computers before lawsuits could be filed over problems, and would also cap certain punitive damages. Small businesses, for example, would be liable for only the share of damage their products or services caused. For more information, visit the President's Council on Year 2000 Conversion at www.y2k.gov.

■ **CRISIS CO-OPTING 101:** It's the end of the world as we know it—why not try to turn a buck? Y2K-themed T-shirts and apparel are popping up all over the place. For our money, the Web site Y2Khype.com has the best attitude and selection. Its motto? "Y2K: A symbol of hope. A gateway to the future. A reason to sell T-shirts." Check it all out at www.y2khype.com.

No More Waiting for the Phone Guy

WHEN YOU ORDER ADSL service today, the phone company has to send out a technician to install a splitter—a device that puts voice and data signals on separate strands of wire. G.Lite doesn't require a splitter, which makes it cheaper to install. G.Lite modems will likely be bundled with microfilters, small boxes that plug into phone jacks to filter out line noise.





This man is tired
of being right.

John Williams, Jr.
Founder, CFO

thelefthand.com
Founded 1996

Online catalog with
secure ordering

Just some of what's found in
dot com directory.

www.dotcomdirectory.com

Brought to you by the dot com people™



Tired of being a left-handed man in a right-handed world, John started an online company offering all the left-handed supplies anyone would ever want. But with so much on the Internet, businesses like John's were often hard to find. Until today. Now real businesses with a dot com address are easy to find in Network Solutions' dot com directory.™ You'll get contact information, credit reports,

even directions from your front door to theirs — cross-checked and updated regularly. Then link right to their Web sites, instantly. Now, whether you're looking to buy something of theirs or sell something of yours, dot com directory makes it easier to find the information you need. So, no matter which hand you use to point and click, **click over to www.dotcomdirectory.com today.**

Feature-Packed 3-Pound Notes From IBM and Compaq

IF YOUR 8-pound notebook is starting to wear on your nerves (and shoulders and neck), here comes relief: New 3-pound notebooks from Compaq and IBM offer a viable, lightweight option without some of the compromises that other ultraportable notebooks entail.

We reviewed preproduction versions of IBM's ThinkPad 240 and Compaq's Armada M300, each expected to retail for \$1999. Unlike the first wave of superslim 1-inch-thick notebooks (which began shipping last year), these machines have nearly full-size keyboards and include built-in parallel and serial ports.

TINY TRAVELERS

LIKE COMPETING superslims from Sharp, Sony, and Toshiba, the ThinkPad 240 and Armada M300 pack a lot into improbably tiny packages. They measure about an inch thick with the screen closed and weigh about 3 pounds, not including their AC adapter

or external floppy drive. Like their competitors, they have no built-in internal bays.

But these two newcomers carry some key improvements. While competitors' keyboards are roughly 85 to 90 percent as big as a full-size notebook's, the ThinkPad's and Armada's come in at 95 percent. We found touch-typing on both a little easier than on older superslims we've tested, like Sony's VAIO PCG-505FX.

The built-in ports on both notebooks mean one less piece of equipment to pack for the road. Other superslims relegate parallel and serial ports to detachable sticks. But the ThinkPad and Armada house these connections (along with other standard ports) on the notebook itself.

Both notebooks perform capably, equaling the speed of similarly equipped full-size portables. Neither notebook can match the 3-hour battery life that full-size laptops typically achieve, but they did fair-

ly well on our battery tests, considering that they run on lightweight four-cell batteries. (Standard notebook batteries have eight or more cells.) You can buy longer-lasting, slightly heavier batteries for both notebooks that pur-

portedly double their away-from-outlet life, a claim we did not test.

TOP TOUCH-TYPING

IF YOU TYPE a lot and want a great keyboard, look no further than IBM's ThinkPad ▶



SUPERSLIM NOTEBOOKS

FEATURES

These Bantamweights Carry Big Keyboards and Built-in Ports

SYSTEM	Price	CPU	Hard drive (GB)	Screen size (inches)	Height by width by depth (inches)	Weight (pounds)	Keyboard size (percentage of standard keyboard size)	Options	Product info number
Compaq Armada M300 800/345-1518 www.compaq.com	\$1999	Celeron-333	4.3	11.3	0.9 x 10.4 x 9	3.1	95	Expansion/port replicator base, range of docking stations	728
IBM ThinkPad 240 800/426-7255 www.ibm.com	\$1999	Celeron-300	6.4	10.4	1 x 10.2 x 8	2.9	95	External CD-ROM drive, Zip drive	-
Sharp Actius PC-A250 ² 800/237-4277 www.sharp-usa.com	\$2499	Pentium II-300PE	6.4	11.3	1 x 10.4 x 8.3	3	89	External CD-ROM drive	729
Sony VAIO PCG-505TR ² 888/315-7669 www.sony.com	\$1999	Pentium MMX-300	6.4	10.4	0.9 x 10.2 x 9.1	3.1	90	External CD-ROM drive	730
Toshiba Portégé 3110CT ² 800/867-4422 www.toshiba.com	\$2299	Pentium II-300	6.4	10.4	0.8 x 10.1 x 8.6	3.1	90	External CD-ROM drive	731

¹ Includes battery; does not include bundled port sticks, external floppy drive, AC adapter, or extra-cost peripherals.

² Parallel and serial ports not built in.

All products: 911

Sensible never looked so good.

Breakthrough performance. Breakthrough price.

When *PC Magazine* selected the Optiquest V95 monitor as its "Editors Choice," it was partly for flawless front-of-screen performance. And partly for its amazingly affordable price. They were also impressed with how favorably this large screen 19" (18.0" viewable) display compares to 21" (various viewable) monitors for applications from spreadsheets to computer games.

Model	Optiquest V95	NEC Technology E900	NEC Technology A900
Viewable Image Size	18.0"	18.0"	18.0"
.26mm Dot Pitch or Better?	Yes	No	No
1,280 x 1,024 @ 88Hz	Yes	No	No
TCO Certified	Yes	Yes	No
PC Magazine Editors Choice	Yes	No	No

Competitive data as of 1/99.

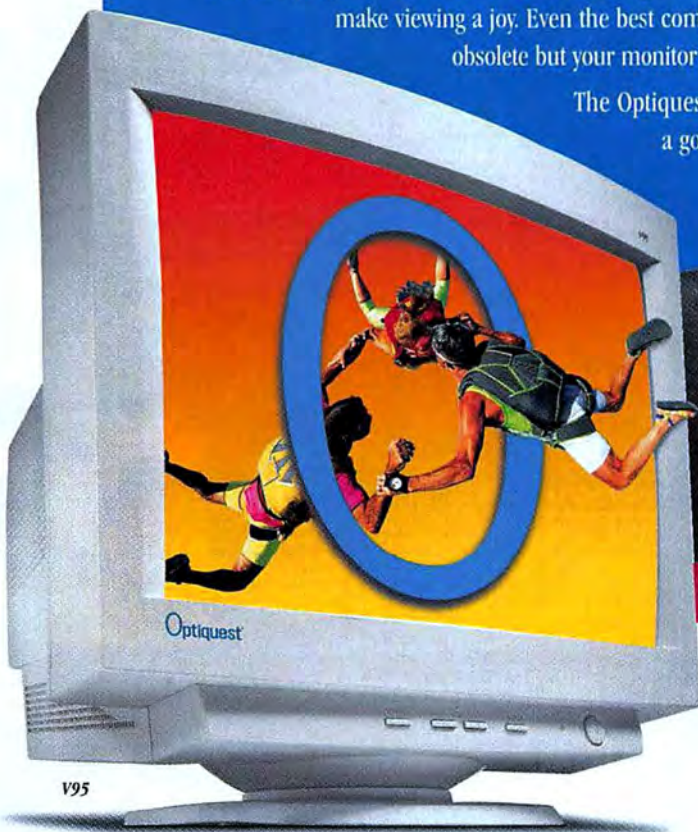
The longer you look the better it gets.

Like all Optiquest monitors, razor sharp images and bright, precise colors make viewing a joy. Even the best computers are quickly obsolete but your monitor is a lasting investment.

The Optiquest V95. It's giving sensible a good reputation.

For more information:

www.optiquest.com/pcworld



Beyond Brilliant.

(800) 843-6784 • Specifications subject to change without notice. • Copyright © 1999 ViewSonic Corporation, all rights reserved.
• Corporate names and trademarks are the property of their respective companies.



V95

Optiquest®
OPTIMIZE YOUR IMAGE™

Can't Get Everything For Your Business In Just One Place?

You can't comparison shop at a one-brand wonder.
You can't rely on auction-house serendipity.
And you can't buy everything you need for your business
at one place...unless you shop here.

Your One-Stop Solution

VA.com: Point, click, point, click, done. At Value America, we've leveraged our retailing expertise with the technology of the Internet in order to create the most efficient and cost-effective way for you to purchase products for your business. In fact, we're a direct, informative link between your business and hundreds of top manufacturers. Value America.com combines the best of all worlds—quality, convenience, service, selection, and price—to become *the single-source purchasing solution* for your business.

Welcoming, Accessible, Responsive

At VA.com, everything you need for your office, department, or company is as close as a toll-free phone call or a simple mouse click. Once online, you'll have access to thousands of brand name products, a state-of-the-art navigation system to help you find them, and a streamlined ordering process to help assure they arrive on time.



Put This Potential to Work for You

Click on VA.com and get in-depth product listings—with multimedia presentations to help you make informed buying decisions; keep track of business product warranties; coordinate volume purchasing; access detailed billing records (see your purchases for an entire quarter); order fax and copier paper for the month, and manage your account information or make purchases from almost anywhere, anytime.

A Good Business Partner

Whether it's shaping custom computer configurations, arranging setup and installation services, or discussing payment, leasing, and volume-discount options, we can provide the knowledge, expertise, and personalized service you'd expect from *your partner*.



Everything Fits in This Special Place

Value America's business model is a good model for *your business*—it values quality and service as much as low prices. Now your business no longer has to consider compromising on quality to get great values on technology and office products, supplies, and furnishings.

Now You Can— Click on VA.com. It's All Here.

Value America has everything for your business in one place: VA.com. Get it all—the best products from the best brands at the best prices—over 60,000 technology and office products, supplies, and furnishings!



IBM ThinkPad 390E Notebook w/free cordless connection 2626DOU/04K0064

Intel® Pentium® II processor, 300MHz, 64MB RAM, 4.3GB HD, 56K modem, 24x-max variable speed CD-ROM, 14.1" TFT active-matrix display, Windows® 98

\$2399 \$80.00/mo.*



Toshiba Tecra 8000 Notebook PAT800U-B951

Intel® Pentium® II processor, 300MHz, 64MB SDRAM, 6.4 billion byte HD, 56K V.90 modem, 24x-max variable speed CD-ROM, 13.3" TFT display, Windows® 98

\$2799 \$93.30/mo.*



HP Omnibook XE2 Notebook F1724WT

Intel® Celeron™ processor, 333MHz, 32MB RAM, 4.1GB HD, 56K V.90 modem, 24x-max variable speed CD-ROM, 12.1" TFT active-matrix display, Windows® 95/98

\$1549 \$51.64/mo.*



Compaq EP Towerable Desktop PC 401608-002

Intel® Celeron™ processor, 400MHz, 32MB SDRAM (256MB max), 4.3GB HD, 3.5" 1.44MB diskette drive, Windows® 95. Monitor sold separately

\$799 \$27.00/mo.*



AcerPower Desktop PC 4100-400A

Intel® Pentium® II processor, 400MHz, 32MB SDRAM (384MB max), 8.4GB HD, 10/100 NIC, 32x-max variable speed CD-ROM, Windows® 98. Monitor sold separately

\$939 \$31.30/mo.*



Apple Power Macintosh G3 Micro Tower M7556LL/A

350MHz PowerPC processor, 64MB RAM (1GB max), 6.0GB HD, 32x-max variable speed CD-ROM, 10/100 Base T Ethernet, 1MB backside L2 cache, Mac OS 8.5, Monitor sold separately

\$1599 \$53.30/mo.*



Canon MultiPass C3500 Multifunction H12-1302-US1

Color printer (720 x 360 dpi black or color, 6.5ppm black, 2.5ppm color), fax machine, copier (360 x 360 dpi black, zoom feature), scanner (400 dpi enhanced, 200 dpi optical)

After \$50 mail-in mfr's rebate \$249 \$9.30/mo.*



100MB Zip® Drive Cartridge 10028

Capacity 100MB. Works with any Zip drive. Preformatted for Mac or PC.

\$859 each



Visions Collection Multimedia Workstation 7917

Accommodates a complete CPU, CD-ROM storage system, printer, plus room for lots of software and essentials.

\$12799



9-Outlet Personal Computer Surge Protector SP8200T

Complete surge protection on all 3 incoming AC lines (hot, neutral and ground). Protects 2 telephone devices, accommodating RJ11 jacks.

\$2499

Visit our online store or call for latest pricing and availability.

*Business Leases—

36-month lease, on approved credit for qualified businesses (minimum lease amount \$999). To arrange for a lease, credit terms, and volume discounts, call our business-to-business team at (888) 656-8258. Lease subject to credit approval and availability, based on Fair Market Value purchase option, not including any fees, freight or applicable taxes; terms subject to change without notice.

Value **AMERICA** **.com**

Dot-Coms Are Not Created Equal

www.ValueAmerica.com (or simply VA.com) • (888) 656-8258

240. We found it noticeably more comfortable to use than the Armada's, despite the latter's longer wrist rest and bigger <Shift> and <Enter> keys. The ThinkPad brings together a pleasantly firm keyboard, IBM's trademark red eraser-head pointing device, and big, soft mouse buttons. The keys' blue-and-white lettering on black makes the characters easier to read than the Compaq's black lettering on gray.

Equipped with Intel's Mobile Celeron-300 CPU for budget notebooks, the ThinkPad 240 posted a respectable PC World-Bench 98 performance score of 159. Its battery lasted 1.5 hours in our tests—at the low end for a superslim.

Like the Armada, the IBM ThinkPad has almost all the features found on a standard notebook, including audio, monitor, serial and USB connections, and a built-in V.90 modem. It comes with only one Type II PC Card slot and one speaker, however—typical superslim limitations. To use the bundled floppy drive or any other peripheral with the ThinkPad, you have to attach it externally.

Expansion possibilities are somewhat limited. IBM offers a \$289 external CD-ROM drive and a \$369 Zip drive but no DVD-ROM drive or port replicator. The notebook's 10.4-inch screen, the only size available, is the smallest you'll find on a superslim. Nevertheless, we found it bright and readable.

PLENTY OF PERIPHERALS

IF YOU'RE LOOKING for a superslim that can replace a basic desktop, the Armada is a winner. It can accept an optional \$299 1.1-pound detachable



base, making it the first notebook of its size we've seen that can use the very same plug-in peripherals available to full-size notebooks with modular bays.

The base, less than an inch thick, snaps easily onto the bottom of the Armada and releases via a large button on the base's right side. In addition to supplying stereo speakers, the base adds two internal bays, one of which holds the floppy drive. A second, modular bay can accommodate an 8X-24X CD-ROM drive (included in the standard price), a second hard drive (\$700 for 6.4GB), an LS-120 drive (\$219), or a six-cell lithium-ion battery (\$169). An extra \$150 buys you a 4X DVD-ROM version of the base. According to Compaq, you can attach or disconnect the base and all the add-

IBM'S THINKPAD 240 has one of the best keyboards in its class.

ins except the hard drive without first rebooting the notebook (this feature wasn't functioning on our test unit).

The base will also satisfy your needs if you aim to make an ultralight your primary PC. It adds PS/2 ports and replicates all the connections found on the notebook, allowing easy desktop hookups. The Armada can also attach to a separate port replicator, designed for users who want to travel with the base, and to two other docking stations that add such features as a monitor stand and more internal bays.

The Armada enjoys a slight performance edge over the ThinkPad. Its Celeron-333 chip helped it earn a PC World-Bench 98 score of 165. Its battery lasted 1 hour and 46 minutes in our tests, 16 minutes longer than the ThinkPad's. (The battery is hidden in an adjustable bar that serves either as a port cover or as a foot to tilt the notebook for a better typing angle.) Also, the Armada's 11.3-inch screen offers a little more viewing room than the ThinkPad's but still fits easily on an airplane tray table.

THE FINISH LINE

WITH THE ThinkPad 240 and the Armada M300, IBM and Compaq offer the most tantalizing 3-pound notebooks yet. But the battle isn't over. Expect to see a new superslim later this year from Dell. Meanwhile, NEC plans to ship a slightly heavier, 3.5-pound ultraportable with a 12.1-inch screen and a built-in CD-ROM drive by year-end.

Superthins with 12- or 13-inch screens and 400-MHz processors should reach the market next year, according to Katrina Dahlquist, an industry analyst with International Data Corporation.

If you can't wait for the latest technology to fit into a 3-pound bundle, many 4-pound notebooks, such as the HP OmniBook 900, offer longer battery life, the fastest mobile processors, 13.3-inch screens, and full-size keyboards. Most of them cost at least \$2500, though, and still require you to attach the floppy drive and other peripherals externally. If light weight is a priority, the new 3-pounders from Compaq and IBM can do most of the same things without breaking your back—or the bank.

—Carla Thornton ►

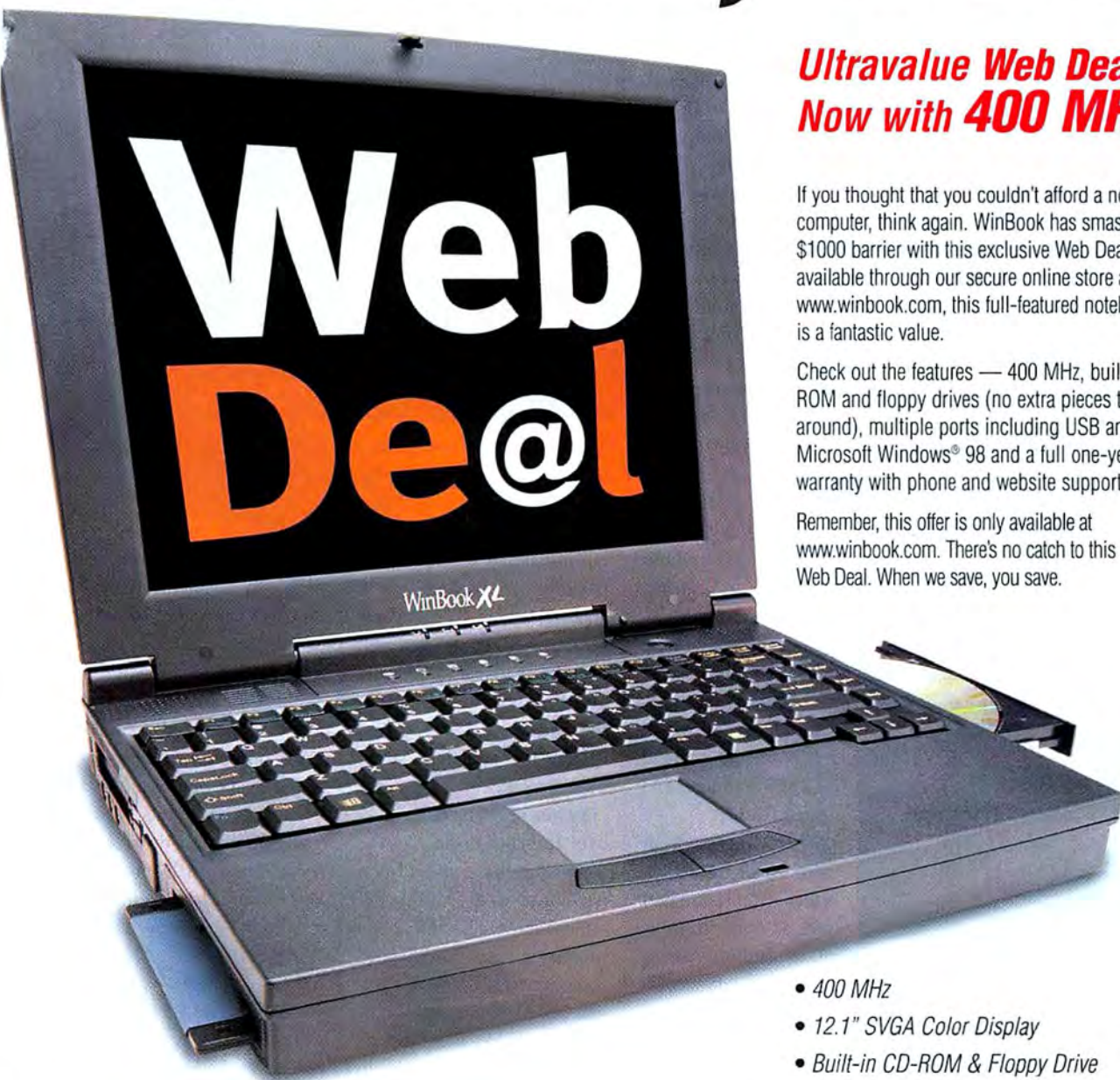
SUPERSLIMS TEST REPORT

As Powerful as a Big Notebook

NOTEBOOK	CPU	RAM (MB)	Level 2 cache (KB)	PC World-Bench 98 score
Compaq Armada M300	Celeron-333	64	128	165
Average of 4 standard notebooks	Celeron-333	64	128	165
IBM ThinkPad 240	Celeron-300	64	128	159
Average of 2 standard notebooks	Celeron-300	64	128	160

TEST **PC WORLD CENTER** **HOW WE TEST** All systems are tested with PC WorldBench 98, PC World's application-based benchmark. A higher PC WorldBench 98 score is better. For more details on our benchmark, see www.pcworld.com/testing. Data based on testing conducted by the PC World Test Center. All rights reserved.

400MHz, \$999



Ultravalue Web Deal. Now with 400 MHz!

If you thought that you couldn't afford a notebook computer, think again. WinBook has smashed the \$1000 barrier with this exclusive Web Deal. Only available through our secure online store at www.winbook.com, this full-featured notebook is a fantastic value.

Check out the features — 400 MHz, built-in CD-ROM and floppy drives (no extra pieces to carry around), multiple ports including USB and infrared, Microsoft Windows® 98 and a full one-year limited warranty with phone and website support.

Remember, this offer is only available at www.winbook.com. There's no catch to this Web Deal. When we save, you save.

**Winner of over
185 awards.**
Visit our website
www.winbook.com for
more award information.

**Get your *Web Deal*
today.** Visit us online and save
at www.winbook.com.

- 400 MHz
- 12.1" SVGA Color Display
- Built-in CD-ROM & Floppy Drive
- Fast Ultra DMA Hard Drive
- Microsoft Windows® 98 pre-installed

Quantities may be limited.

*Current 400 XL Web Deal available to order
by phone at 800-722-4408 for \$1199.*

**Order Online and save at:
www.winbook.com**

Prices and specifications valid in U.S. only and subject to change without notice. All purchases are subject to availability. Prices do not include shipping or any applicable taxes. For a complete copy of Guarantee and Limited Warranties, contact WinBook Computer Corporation or our website at www.winbook.com/winbookmerch/warranty.html.

©1999 WinBook Computer Corporation. All rights reserved. WinBook is a registered trademark of Micro Electronics, Inc. All other trademarks and registered trademarks are property of their respective corporations.

WinBook®

Critically Proven.

Circle 254 on card or go to www.pcworld.com/productinfo

Internet Call Waiting Turns One Phone Line Into Two

BRRING! CLICK. CRASH. That's the sound of an Internet connection dying when an incoming voice call activates call waiting. The caller will get through, all right—but there goes your 10MB file download. Some modems ignore the call-waiting signal, and you can always turn the feature off. But then you're back to missing calls, which is why you got call waiting in the first place. Fortunately, better options are at hand.

HARDWARE HELPERS

ON THE HARDWARE front, the newest arrival is Actiontec Electronics' 56K Call Waiting Modem. This V.90 unit rings when a call comes in and lets the user chat with the caller

much like Actiontec's modem, but if you have Caller ID service, it will also store the phone numbers of incoming calls.

Even better than these hardware devices are the new Internet call-waiting services, which let users screen calls and which cost about a third as much as a second phone line. (Customers must subscribe to call forwarding for busy signals.) The first of these services, Internet Call Manager, was developed by InfoInteractive of Halifax, Nova Scotia, and is the only service available throughout the United States and Canada. InfoInteractive sells its product directly to all consumers except those living in areas where it's offered by InfoInteractive licensees, which

at press time included GTE.net, Prodigy, and Cincinnati Bell.

When bought directly from InfoInteractive, Internet Call Manager costs \$5 a month (plus call-forwarding charges) and requires downloading a 900KB app that

runs in the background. If someone calls you while you're on the Net, a pop-up window displays the caller's name and phone number. By clicking on a button in the window, you can choose either to play a recorded message or to ignore the call, in which case the ring that the caller heard initially will turn into a busy signal.

Telephone companies and ISPs can further customize

Cincinnati Bell

Incoming Call

Tony Smith
513-123-4567

512021659

Answer

Transfer

Notify

Ignore

Cellular

Office

Home

NEW SERVICES let you manage incoming calls while you're online.

INTERNAL
version of
Actiontec's

\$100 56K Call Waiting Modem.

the service. For example, Cincinnati Bell's version lets a customer forward the call to another number. GTE's InfoInteractive-based service will soon be available to GTE.net and Prodigy subscribers in most major cities; and Bell Atlantic is conducting trials of a similar service.

Newer services use voice-over Internet Protocol—the technology that enables Internet phone calls—to let customers stay online and accept incoming calls. The first of these services, US West's Online Call Alert, is available now in limited areas; the company plans to expand the service to all areas where it also offers customers USWest.net Internet access. Online Call Alert forwards incoming voice calls to a special gateway where they're turned into Internet phone calls. Voice quality is not as good as it would be on a regular line, but the service (including call forwarding) costs just \$10 per month.

Similar voice-over IP fea-

tures are included in Lucent's Online Communications Center, which ISPs and telephone companies should begin offering by the end of the year. For anyone who wants a phone line to do double duty, these services may finally provide a no-fuss, affordable solution.

—Yardena Arar ■



SOME INTERNET call-waiting services log calls, including ones you chose not to answer.

for several seconds before deciding whether to end the Internet session. (An internal PCI unit costs \$100; the external serial model sells for \$120.) In my tests, a preproduction internal model proved tricky to install but worked as advertised. Another new product, Computer Peripherals Systems' \$189 Internet Caller ID/Call Waiting Manager, attaches to your computer and to your telephone line. It works

56K Call Waiting Modem

List price: internal PCI, \$100; Actiontec Electronics; 800/797-7001; www.actiontec.com

PRODUCT INFO NO. 732

Internet Caller ID/Call Waiting Manager

Street price: \$189; Computer Peripherals Systems; 800/888-0051; www.cpscom.com

PRODUCT INFO NO. 733

Internet Call Manager

\$5 per month or \$25 for six months; InfoInteractive; 877/463-6426; www.internetcallmanager.com

PRODUCT INFO NO. 734



67% of Gateway buyers have
purchased a Gateway™ PC before.



Thanks, Gateway owners, for making us #1
in customer loyalty.**



Gateway™
Connect with us.

* Source: AC/Nielsen Tech*Watch™ U.S. households owning a Gateway PC who purchased January - March 1999, 67.4% purchased another Gateway system.
** AC/Nielsen Tech*Watch™ October 1998 - March 1999



Gateway Essential 466c

The Gateway™ Essential Line: powerful PCs at practical prices.

Okay, maybe you don't need an astrophysics supercomputer. But you still want a fast processor and ample memory and drive space. Look no further than Gateway Essential PCs. With video, sound and Intel® processors—and affordable prices—they're compromise-free PCs. Each one includes a year on the Internet.¹ Pick a model, and we'll customize it the way you want.

Gateway Essential 400c

Intel® Celeron™ Processor 400MHz
with 128K Cache
32MB SDRAM
EV500 15" Monitor (13.9" viewable)
8MB AGP Graphics
6.8GB Ultra ATA Hard Drive
40X Max™ Variable CD-ROM
SoundBlaster® AudioPCI™ 64D
GCS-200 Speakers by Cambridge® SoundWorks
56K¹ Internet/Fax Modem
Micro-Tower Case
Microsoft® Windows® 98 Second Edition
Microsoft Works Suite 99
1-Year Parts, Labor & Limited Warranty
On-site Service*

1-Year gateway.net™ Internet Access¹

\$999

or as low as **\$28/mo.**
for 48 mos. through our
YourWare™ program**

All Gateway Essential PCs include:

3.5" Diskette Drive
Keyboard, Mouse
Year 2000 Compliance¹

Gateway Essential 466c

Intel Celeron Processor 466MHz
with 128K Cache
64MB SDRAM
EV700 17" Monitor (15.9" viewable)
8MB AGP Graphics
13.6GB Ultra ATA Hard Drive
40X Max™ Variable CD-ROM
SoundBlaster AudioPCI 64D
GCS-200 Speakers by Cambridge SoundWorks
56K¹ Internet/Fax Modem
Micro-Tower Case
Microsoft Windows 98 Second Edition
Microsoft Works Suite 99
1-Year Parts, Labor & Limited Warranty
On-site Service*

1-Year gateway.net Internet Access¹

\$1299

or as low as **\$37/mo.**
for 48 mos. through our
YourWare program**

Upgrade any system:

Add a Gravis™ GamePad Pro USB - \$19
Upgrade from EV500 15" to EV700 17"
Monitor (15.9" viewable) - \$115
Upgrade from EV700 17" to EV910 19"
Monitor (18" viewable) - \$130
Add a Hewlett-Packard DeskJet® 812C
Color Printer-\$199
Add a 100MB Iomega® ZIP BUILT-IN™
Internal Drive w/1 ZIP Disk - \$79

Gateway Essential 450SE

Intel Pentium® III Processor 450MHz
with 512K Cache
64MB SDRAM
EV700 17" Monitor (15.9" viewable)
16MB NVIDIA™ RIVA TNT™ AGP Graphics
13.6GB Ultra ATA Hard Drive
40X Max™ Variable CD-ROM
SoundBlaster AudioPCI 64D
GCS-200 Speakers by Cambridge SoundWorks
56K¹ Internet/Fax Modem
Mid-Tower Case
Canon Color Printer
Microsoft Windows 98 Second Edition
Microsoft Works Suite 99
3-Year Parts & Labor, 1-Year Limited
Warranty On-site Service*

1-Year gateway.net Internet Access¹

\$1499

or as low as **\$42/mo.**
for 48 mos. through our
YourWare program**

Upgrade to a DVD-ROM Drive - \$80
Upgrade to a Boston Acoustics® 3-Piece
Speaker System - \$30



Get in touch with us for more information, and for the most current pricing.

CALL
1.800.846.5257

CLICK
www.gateway.com

COME IN
Gateway Country®

Gateway's Solutions and Your:Ware™ Program:

Choose any Gateway Essential or Gateway Performance PC, and you can customize it with the following solution packages. We test out software titles and accessories to find the best products, and package them for better value. It's a great way to save on a computer for back-to-school.

KidBuilder® '99 Preschool-Kindergarten

CTW/Sesame Street®: Toddlers Deluxe
Reader Rabbit's® Kindergarten
Dr. Seuss Preschool
Schoolhouse Rock® Thinking Games
CTW/Sesame Street:
Elmo's Preschool Deluxe
Dr. Seuss: The Cat in the Hat
Reader Rabbit's Reading

\$99

KidBuilder® '99 Grades 1-4

Reader Rabbit's 1st Grade
Super Solvers® Mission T.H.I.N.K.™
The ClueFinders™: 4th Grade Adventures
Reader Rabbit's Math Ages 5-9
Arthur's™ Computer Adventure
Schoolhouse Rock: Grammar Rock®
Madeline™ Thinking Games Deluxe

\$99

KidBuilder® '99 Grades 5-8

The Oregon Trail® 3rd Edition – Pioneer Adventures
The Princeton Review Algebra 1
Compton's® 3D World Atlas Deluxe™
BodyWorks® 6.0
Super Solvers Reading Ages 9-12
Where in the World is Carmen Sandiego?® Deluxe Edition

\$99

Learning 2000™ Software

This massive library of multimedia educational software incorporates interactive video, audio, text and illustrations to teach kids core learning skills: reading, writing, math and algebra. It is the ultimate resource for students from ages 8-18.

\$99

for a limited time with system purchase.***
(\$599 retail value)

Total Travel Package

Rand McNally® TripMaker™ Deluxe 1999 Edition
Rand McNally StreetFinder™ Deluxe
Rand McNally wire-bound Road Atlas & Travel Guide
Mindscape's® World Atlas & Almanac
1-year prepaid basic membership to AAA† (for Gateway clients who are already AAA members, the monies would be applied to renewal)

\$129 (\$199 with Global Positioning Satellite)

Family Entertainment Package

SketchBoard™ Drawing Tablet
Hasbro Interactive™ Classic Games
Pictionary®, Boggle®, Scrabble®, Sorry!®, Ultimate Yahtzee®, Clue®, Murder at Boddy Mansion, The Game of Life®

\$149 (\$119 after \$30 SketchBoard mail-in rebate)

Deluxe Reference Bundle

PrintMaster® Deluxe 7.0
1999 Grolier Multimedia Encyclopedia® Deluxe Edition
Rand McNally TripMaker® Deluxe 1999 Edition
Rand McNally StreetFinder® Deluxe 1999 Edition
Mindscape's® World Atlas & Almanac
Home Medical Advisor

\$99

What is the Your:Ware™ program and why is it for you? Your:Ware is our way of helping you personalize your order in every way. First, choose a model from any of our lines of PCs. Then add on any peripherals, accessories or solution packages (like the ones above) to get exactly the right computer. Then we'll help you decide which service option and financing plan are best for you. And finally, you can trade in your Gateway PC toward the purchase of a new one after two years.* The Your:Ware program is how we get your computer to fit you perfectly.

Check out www.gateway.com and choose from over 30,000 hardware accessories and software titles.

Ad Code # 000256

*Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. **Loan financing available on approved credit through independent lender. Payments based on 48-month term and an Annual Percentage Rate as low as 14.9%. Your APR may be higher. 2% access check fee (\$2min / \$15max.); not applicable to Gateway purchases. Gateway purchases will qualify for the Your:Ware program by: 1) financing through a Gateway authorized lender; 2) purchasing an additional software or solution bundle; or 3) purchasing support package upgrades. Trade-in available between the first day of the 24th month and the last day of the 49th month after delivery of Your:Ware product. Gateway will give you the average wholesale value for the product in good condition using the then current Union Blue Book or similar commercially reasonable industry standard as determined in Gateway's sole discretion. Other terms and conditions apply. Call for details. ***Offer expires 9/30/99. TAAA membership subject to rules and membership approval of local AAA club in your area. If your membership is not approved by your local club, the national AAA office will issue you a refund in the amount of a one year basic membership for that local club.



Gateway Performance 500

The Gateway™ Performance Line: serious computers with serious components.

Looking for a PC that's not fooling around? One with blazing processor speeds that's tricked out with the highest-end components? Bring on the Gateway Performance PCs—our line of top-tier machines. With the latest processor technology, lots of room to expand and intense multimedia prowess, they're dialed up to power-user levels.

Gateway Performance 500

Intel® Pentium® III Processor
500MHz with 512K Cache

128MB SDRAM

EV700 .28 Screen Pitch 17" Monitor
(15.9" viewable)

16MB 3Dfx® Voodoo™3
3000G AGP Graphics

13.6GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG2 Decoder

SoundBlaster® AudioPCI™ 64D

Boston Acoustics® BA735™ Digital
Speakers w/Subwoofer

3Com® U.S. Robotics® 56Kⁱ
PCI Voice WinModem®

8-Bay Mid-Tower Case

Microsoft® Windows® 98
Second Edition

MS® Works Suite 99 Software

\$1699

or as low as \$148/mo.
for 48 mos. through our
YourWare® program*

All Gateway Performance PCs include:

3.5" Diskette Drive

MultiFunction Keyboard, Mouse

Year 2000 Compliance⁴

3-Year Parts & Labor Limited
Warranty / 1-Year On-site Warranty
Service**

Gateway Performance 550

Intel Pentium III Processor 550MHz
with 512K Cache

128MB SDRAM

VX900 .26 Screen Pitch 19" Monitor
(18" viewable)

32MB NVIDIA™ RIVA TNT2®
AGP Graphics

13.6GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG2 Decoder

SoundBlaster AudioPCI 64D

Boston Acoustics BA735 Digital
Speakers w/ Subwoofer

3Com U.S. Robotics 56Kⁱ
PCI Voice WinModem

8-Bay Mid-Tower Case

Microsoft Windows 98
Second Edition

MS Works Suite 99 Software

\$2199

or as low as \$62/mo.
for 48 mos. through our
YourWare program*

Upgrade any system:

Add a 100MB Iomega® ZIP BUILT-IN™
Internal Drive w/1 ZIP Disk—\$79

Upgrade from EV700 17" to EV910
19" Monitor (18" viewable) - \$130

Upgrade from EV700 17" to VX900
19" Monitor (18" viewable) - \$230

Upgrade from 16MB 3Dfx Voodoo 3
3000G to 32MB NVIDIA RIVA TNT2
AGP Graphics - \$70

Gateway Performance 600

Intel Pentium III Processor 600MHz
with 512K Cache

128MB SDRAM

VX900 .26 Screen Pitch 19" Monitor
(18" viewable)

32MB NVIDIA RIVA TNT2
AGP Graphics

20.5GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG2 Decoder

SoundBlaster Live!Value
with Digital Audio Output

Boston Acoustics BA735 Digital
Speakers w/Subwoofer

3Com U.S. Robotics 56Kⁱ
PCI Voice WinModem

Intel® AnyPoint™ Home Networking

8-Bay Mid-Tower Case

Microsoft Windows 98
Second Edition

MS Works Suite 99 Software

\$2399

or as low as \$67/mo.
for 48 mos. through our
YourWare program*

Upgrade to a 10-Bay
Tower Case - \$50

Upgrade to MS Office 2000
Small Business Software - \$199

Add 1-Year gateway.net™ Internet
Access¹ - \$129

Gateway Performance 600XL

Intel Pentium III Processor 600MHz
with 512K Cache

128MB SDRAM

VX900 .26 Screen Pitch 19" Monitor
(18" viewable)

32MB NVIDIA RIVA TNT2
Ultra AGP Graphics

TV/FM Tuner Card

27.3GB Ultra ATA 66 7200 RPM
Hard Drive

6X DVD-ROM Drive & MPEG2 Decoder

Philips® CD-RW (CD-Rewritable) Drive
with Media

SoundBlaster Live!Value
with Digital Audio Output

Boston Acoustics Digital
MediaTheater™ Dolby® Digital
Speakers w/Subwoofer

3Com U.S. Robotics 56Kⁱ
PCI Voice WinModem

Intel AnyPoint Home Networking

10-Bay Tower Case

Microsoft Windows 98
Second Edition

MS Office 2000 Small Business
Software

\$2999

or as low as \$84/mo.
for 48 mos. through our
YourWare program*

Ask us for details about software training offered at our Gateway Country® stores.



Gateway's Solutions and Upgrades: after you pick your computer, give it something to do.

Choose any Gateway Essential or Gateway Performance PC, and you can customize it with the following solution packages:

Additional Upgrades

1-Year gateway.net™ Internet Access* - \$129

Gravis™ Game Pad Pro USB - \$19

Thrustmaster® Reflex USB™ 3-D Joystick - \$49

Philips® CD-RW Recordable/
Rewritable Drive w/Media - \$199

Olympus® D-340R Digital Camera - \$399

Epson® PhotoPC® 750Z Digital Camera - \$699

Epson Stylus® COLOR 640 Ink Jet
Printer - \$149 (after \$30 mail-in rebate)

Epson Stylus COLOR 740 Ink Jet Printer - \$249

Hewlett-Packard DeskJet® 882Cse
Color Printer - \$299

Hewlett-Packard LaserJet® 1100se
Laser Printer - \$399

Visioneer® One Touch™ 7600 USB
Scanner - \$149

Hewlett-Packard ScanJet 4200Cse
Scanner - \$199

Complete Gamers Package**

Microsoft® SideWinder® Precision
Pro Joystick

Extreme Gaming I Software (Hexen II,
Heavy Gear,™ Quake II,™ and Battlezone™)

Extreme Gaming II Software (Unreal,
Forsaken,™ The House of the Dead™
and Turok™ Dinosaur Hunter)

\$149

The Strategy Collection

Tomb Raider™ III

Thief™: The Dark Project

Railroad Tycoon II™

Tomb Raider II

Commandos: Behind Enemy Lines™

Gangsters: Organized Crime™

\$99

Electronic Photo Album Package

Everything you need to scan, store and
organize a lifetime's worth of memories.

Visioneer OneTouch 7600 USB Scanner

Philips CD-RW Recordable/Rewritable Drive

2 One-Time Recordable CDs, 1 Rewritable CD

CD Stomper™ Pro CD Labeler

\$369

Intel® AnyPoint™ Home Networking Packages

Connect up to 10 PCs and share the
Internet, using a single ISP account and
one phone line.

\$69 for 1 PC card
(1 PC)

\$138 for 2 PC cards
(2 PCs)

Web Page Creator Software

Adobe® PageMill® 3.0,
Micrografx® Webcity™ 2

\$129

Check out www.gateway.com™ and choose from over 30,000 hardware accessories and software titles.

Get in touch with us for more information, and for the most current pricing.

CALL
1.800.846.5257

CLICK
www.gateway.com

COME IN
Gateway Country®



*Loan financing available on approved credit through independent lender. Payments based on 48-month term and an Annual Percentage Rate as low as 14.9%. Your APR may be higher. 2% access check fee (\$2min/\$15max), not applicable to Gateway purchases. Gateway purchases will qualify for the Buy/More program by: 1) financing through a Gateway authorized lender; 2) purchasing an additional software or solution bundle; or 3) purchasing support package upgrades. Trade-in available between the first day of the 24th month and the last day of the 48th month after delivery of your Gateway product. Gateway will give you the average wholesale value for the product in good condition using the then current Orion Blue Book or similar commercially reasonable industry standard as determined in Gateway's sole discretion. Other terms and conditions apply. Call for details. **Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. ††Content suitable for ages 17 & up.



Gateway Solo 9150XL

Gateway™ Portable PCs: like a desktop PC, when the desk is your lap.

Solo® 2500SE

12.1" SVGA TFT Color Display
Intel® Celeron™ Processor 333MHz
32MB SDRAM (expandable to 288MB)
2MB Graphics Accelerator
with 64K Colors
Integrated 10X min/24X max
CD-ROM Drive & 3.5" Disk Drive
4GB Ultra ATA Hard Drive
NiMH Battery & AC Pack
NTSC/PAL Video Output
EZ Pad® Pointing Device
Starting Weight: 7.1 lbs.⁵
Microsoft® Works
Suite 99 Software
1-Year Parts & Labor
Limited Warranty**

\$1499 or as low as \$42/mo.
for 48 mos. through our
YourWare™ program*

Solo 2500LS

13.3" SVGA TFT Color Display
Intel® Pentium® II Processor 333MHz
32MB SDRAM (expandable to 288MB)
2MB Graphics Accelerator
with 64K Colors
Integrated DVD-II Drive
& 3.5" Disk Drive
4GB Ultra ATA Hard Drive
Lithium Ion Battery & AC Pack
NTSC/PAL Video Output
V.90 56K Modem
Casual Case
EZ Pad Pointing Device
Starting Weight: 7.1 lbs.⁵
MS® Office 2000 Small Business
Software
1-Year Parts & Labor
Limited Warranty**

\$2299 or as low as \$64/mo.
for 48 mos. through our
YourWare program*

Solo 9150SE

15.1" XGA TFT Color Display
Intel Pentium II Processor 333MHz
64MB SDRAM (expandable to 384MB)
2X AGP 3-D ATI® RAGE™ LT PRO
with 8MB SGRAM
Removable Combo DVD-II Drive
& 120MB SuperDisk™ Drive
6GB Ultra ATA Hard Drive
Lithium Ion Battery & AC Pack
NTSC/PAL Video Input & Output
Integrated V.90 56K Modem
Deluxe Leather Case
EZ Pad Pointing Device
Starting Weight: 8.6 lbs.⁵
MS Works Suite 99 Software
1-Year Parts, Labor Limited Warranty
& On-site Service**

\$2649 or as low as \$74/mo.
for 48 mos. through our
YourWare program*

Solo 9150XL

15.1" XGA TFT Color Display
Intel Pentium II Processor 400MHz
256MB SDRAM (expandable to
384MB)
2X AGP 3-D ATI RAGE LT PRO
with 8MB SGRAM
Removable Combo DVD-II Drive
& 120MB SuperDisk Drive
14GB Ultra ATA Hard Drive
Two Lithium Ion Batteries & AC Pack
NTSC/PAL Video Input & Output
Integrated V.90 56K Modem
Deluxe Leather Case
EZ Pad Pointing Device
Port Replicator & External
Battery Charger
Starting Weight: 8.6 lbs.⁵
MS Office 2000 Small Business
Software
1-Year Parts, Labor Limited Warranty
& On-site Service**

\$4599 or as low as \$128/mo.
for 48 mos. through our
YourWare program*

All Solo Portable PCs include:

USB Port, CardBus
Zoomed Video Support
EZ S.M.A.R.T.™ Hard Drive
Monitoring Protection Service
Integrated 16-Bit Sound &
Stereo Speakers

Microsoft Windows 98 Second Edition
LapLink® V.7.5 Protection for
Windows 98
McAfee® VirusScan
Year 2000 Compliance⁴

Upgrade any system:

Add a Kensington® Masterlock
Security Cable - \$39
Add an Auto/Airline Adapter - \$99

CALL
1.800.846.5257

CLICK
www.gateway.com

COME IN
Gateway Country®

Toll Free from Mexico 95-888-888-0074 Toll Free from Puerto Rico 800-846-3613 Toll Free from Canada 800-846-3609

Gateway™
Connect with us.

Ad Code # 000256

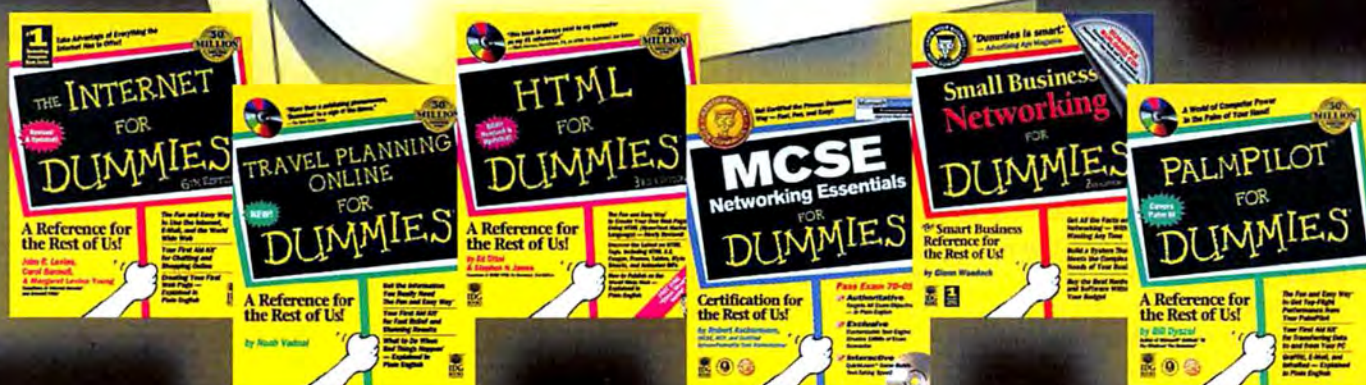
© 1999 Gateway, Inc. All rights reserved. Gateway, gateway.net, Solo, the Gateway stylized logo, Gateway Country, EZ Pad and YourWare are trademarks or registered trademarks of Gateway, Inc. The Intel Inside Logo, Intel and Pentium are registered trademarks, and Celeron is a trademark of Intel Corporation. All other brands and product names are trademarks or registered trademarks of their respective companies. Many products are engineered to Gateway specifications, which vary from retail versions. *Loan financing available on approved credit through independent lender. Payments based on 48-month term and an Annual Percentage Rate as low as 14.9%. Your APR may be higher. 2% access check fee (\$2min./\$15max.); not applicable to Gateway purchases. Gateway purchases will qualify for the YourWare program by: 1) financing through a Gateway authorized lender; 2) purchasing an additional software or solution bundle; or 3) purchasing support package upgrades. Trade-in available between the first day of the 24th month and the last day of the 49th month after delivery of YourWare product. Gateway will give you the average wholesale value for the product in good condition using the then current Orion Blue Book or similar commercially reasonable industry standard as determined in Gateway's sole discretion. Other terms and conditions apply. Call for details. **Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. 1. No monthly fee 1st year. Rural access \$3.95/hour. Local access \$1.50/hour over 150 hours per month. 12 months from delivery. Must register w/ 30 days of delivery. 2. 40X max./13X min. 3. Maximum data transfer rate dependent upon variables, including particular modems with which you are communicating, telephone lines, communications software and communications protocols. 4. All Gateway Intel processor-based systems are qualified to carry the "NISTL Hardware Tested Year 2000 Compliant" logo because they have successfully completed the NISTL YMARK2000 test. These systems have also passed the Microsoft Millennium Year 2000 test suite. Gateway cannot be responsible for third party software that improperly sets, resets, or calculates dates. These issues are not related to the hardware and operating system, and cannot be corrected by Gateway. Complete details on Gateway's Year 2000 support can be found at www.gateway.com/year 2000. 5. Weight varies based on configuration.

What do you want to do today?



TO DO:

- ☐ SEND AN E-MAIL GREETING CARD
- ☐ PLAN DREAM VACATION (W/IN BUDGET)
- ☐ CODE FOR E-COMMERCE
- ☐ PASS MCSE CERTIFICATION EXAMS
- ☐ NETWORK NEW OR USED PCs
- ☐ PLAN YOUR DAY ON YOUR PALM
- ☒ PICK UP DUMMIES BOOKS™



visit us at www.dummies.com

Every Day... THE DUMMIES WAY!

Hundreds of technology titles to meet your every need

Available wherever books are sold

The IDG Books Worldwide logo is a trademark under exclusive license to IDG Books Worldwide, Inc. from International Data Group, Inc. Dummies Man, the ...For Dummies logo and Dummies Way are trademarks and ---For Dummies is a registered trademark of IDG Books Worldwide, Inc.



Write away!

Introducing the portable HP CD-Writer Plus M820e.



The HP CD-Writer Plus M820e lets you write, re-write, and store data at your desk or away. It fits easily in your briefcase, so you can take work home — edit or change documents while traveling — modify presentations and proposals right in a client's office — and more. Store up to 650 MB of data per CD. HP has made it easy to create, edit, and share in the office or away!

Win a free HP CD-Writer Plus M820e

HP will give away eight HP CD-Writer Plus M820e's at the end of January 2000. You could be the lucky winner! Visit www.hpcdwriter.com/go/pcw to enter the sweepstakes. For complete sweepstakes rules and an alternate method of entry, see page in the Marketplace section of this magazine. No purchase necessary.



 **HEWLETT
PACKARD**
Expanding Possibilities

Find out more about the HP CD-Writer Plus M820e. Visit the web site right away so you can write away!

© 1999 Hewlett-Packard Company

THE
MOBILE
MANAGER
SERIES
PART 4

the MOBILE MANAGER

HAVING THE RIGHT CONNECTIONS

Productivity for mobile workers today means being connected to your office, your colleagues, and your customers around-the-clock and around-the-globe.



Andrea McCormick, in her showroom in Boston's Back Bay, depends on portable technology to run her antiques business.

TODAY, MOBILE WORKERS are like the fabled mountaintop oracle who knew the answers to Truly Significant Questions. Unfortunately, the oracle was so hard to find that no one got the chance to ask their questions.

Welcome to the wired world. We've come a long way since the time when mobile devices were designed to allow travelers to convert idle hours spent in planes and hotel rooms into productive time. Today, to be productive means that you keep connected to your office, your colleagues, and your customers around-the-clock and around-the-globe.

"In today's business climate, you need technology that keeps pace with you," says Jeff Zbar, a South Florida-based remote connectivity consultant and author of the book, "Home Office Know-How" (Upstart Publishing Co.). Zbar relies on his IBM "it's old but it's a workhorse" 300 series ThinkPad plus a Palm III PDA. Summarizing portable technology's role in helping businesses



HP's M820e CD-Writer Plus drive records at 4X and plays at 20X speeds.

THE MOBILE MANAGER SERIES PART 4



HotOffice's Web-based virtual office offers a secure place to collaborate anywhere, anytime.

to expand their boundaries, Zbar says, "It's technology that makes it possible for us to do what we do."

Portable technology's combination of convenience, capability, and "can-do" is driving sales skyward. According to International Data Corp., a market research firm, based in Framingham, Mass., worldwide sales of smart handheld devices will reach 11.4 million units worth \$5.7 billion by 2001, up from 1998's sales of 1.9 million units worth \$1.2 billion.

IDC analyst Diana Hwang attributes the increase to the mobile workers' need for improved communication, "as well as corporate adoption of smart handheld devices in the enterprise to access the Web, and the rise in Internet email."

But it's not enough to simply possess an array of portable devices. In order to grow your business from commonplace to first place, you need these devices to communicate with each other as well as with your business contacts.

While mountain-dwelling sages could use only words to communicate knowl-

edge, today's communicators are not so limited thanks to advances in portable display technology, such as the new and easily affordable S120 active-matrix LCD projector from Mitsubishi Electronics America, Inc., Cypress, Calif. The projector's SVGA 800 x 600 resolution helps you get your points across brilliantly. Among the advanced features designed with the traveler in mind, are the S120's PC Card input. Using PC Cards eliminates the need for a computer by playing back pre-

recorded presentations. Going on an extended road trip? Just bring along several PC Cards containing customized presentations for each client and avoid

limited technical resources.

One of the leading online office vendors, Boca Raton, Fla.-based HotOffice Technologies Inc., offers its customers a secure, shared workspace on the Web, thereby enabling remote employees or business partners "anytime, anywhere" access to review and edit documents, send email, plus leave messages for one another. And just as you would expect to have access to a variety of business services while at the main office, such as package tracking, travel planning, contact management, and faxing, so then will you find them in HotOffice.

For those times when you do not or cannot attend a remote sales meeting, HotOffice's Viewer is just the ticket. Of special interest to outside sales person-

"Lugging is for technological Neanderthals."

Jeff Zbar, consultant and author, "Home Office Know-How."

the "will it or won't it" uncertainty that plagues so many computer-based presentations. Other innovations that make this unit ideal for use domestically as well as overseas include an auto sensing voltage regulator that adjusts to 110 and 208/220 volt sources, and an onscreen graphic interface in seven languages.

Meet You Where?

Fortunately, the range of connectivity products and services is expanding as fast as the demand. One of the newest products utilizes the Internet's universal presence to create a virtual office—one that exists in a server instead of in a building. These online collaborative computing products work well for smaller, geographically diverse companies that have

nel and presenters, the Viewer enables individuals and small groups to view a self-running presentation online without downloading it.

On the other hand, when the situation calls for a full-featured presentation to an audience, road warriors can light up the room with their ideas and their projector. Designed for easy portability, the new sub-nine pound VPL-PX1 LCD projector from Sony Electronics, Park

Ridge, N.J., delivers an outstanding 1,000 ANSI lumen brightness in native XGA resolution. The PX1 is capable of producing sharp, clear images even in ambient light. A Sony innovation, one-button Auto Pixel Alignment forever eliminates complicated set-up and alignment procedures. In addition, Sony's Advanced Scan Conversion technology provides excellent im-

Continued on page 8

SUPPLEMENT SPONSORS:

HEWLETT-PACKARD CO. www.hp.com

HOTOFFICE TECHNOLOGIES INC. www.hotoffice.com

IMATION CORP. www.imation.com

LG ELECTRONICS www.lgeus.com

TWINHEAD CORP. www.twinhead.com

XIRCOM INC. www.xircom.com



Mobile users can keep large files off their hard drives with the 120 Mbyte SuperDisk from Imation Corp.

Dongle caught in your zipper?

For info on network connectivity for Win CE handheld devices visit www.xircom.com/hhmc

Computing on the move can be painful. When you break or lose your dongle, you're cut off. That'll never happen with the family of RealPort™ Integrated PC Cards. There's nothing to break. Nothing to lose.



RealPort™
The Integrated PC Card
Nothing to Break. Nothing to Lose.

After years of dealing with external LAN and modem cables, we came up with a better way. We got rid of them.

With RealPort Integrated PC Cards, you will reduce your downtime and end your

worries and frustrations over lost dongles or broken pop-out jacks.

The revolutionary RealPort Integrated PC Card family provides you with:

- The most reliable cable-free connectivity available
- The fastest 10/100Mbps Ethernet and 56K modem speeds supporting V.90 and K56flex standards
- Flexible options including LAN+modem, LAN-only and modem-only cards
- Wireless GSM and AMPS cellular capabilities for anytime, anywhere communications

Don't get caught without one. Visit our Web site or call for information regarding Xircom's:

- Trade-in Promotion
- Evaluation Unit Program

www.xircom.com/pcworld
toll free: 877-RealPort (877-732-5767)

Xircom

Get mobile. Stay connected. Go places.

THE MOBILE MANAGER SERIES PART 4

CHINA odyssey

IT'S A WONDER THAT ANDREA MCCORMICK'S shadow ever catches up with her. Well, even if her shadow doesn't, at least her messages and customers do.

Andrea and her husband Lynde buy and sell antique Chinese furniture. With the domestic demand far outstripping domestic supply for quality pieces, Andrea travels from Boston to China for two-week-long buying trips four times per year. "After

all," she notes with reserved Yankee humor, "the best place to find Chinese furniture is in China."

In a contemporary interpretation of the classic yin and yang balance, she uses today's newest technology to help her acquire and sell yesterday's finest furniture.

Whether traveling in the Far East or to a northeast antique show, she and Lynde carry a laptop and a digital camera. Together, the camera and laptop serve as a virtual warehouse allowing them to show potential customers what other pieces the McCormicks have in their studio in Boston's Back Bay neighborhood, but did not bring with them.

A recent sale points up the benefits of using technology. "A decorator in Long Island saw a table we sold to someone else," says Andrea. "She called to say she need-

Andrea and Lynde McCormick use portable technology to help them buy and sell Chinese antiques, as well as cut their travel time and expense.



MARK WILSON



**MORE
PORTABILITY,
MORE
PERFORMANCE,**

**MORE
POWER
TO
YOU!**

Introducing the most powerful generation of multimedia notebooks ever, Slimnote-GX, Slimnote VX and PowerSlim. Twinhead offers a range of notebooks, from entry level to full on desktop replacement units. They provide users with rich accelerated graphics in an incredibly portable package. Enjoy all the functions of a powerful desktop multimedia system in a compact lightweight notebook format. Take your show on the road without sacrificing any of the convenience and clarity you've come to expect from much larger and bulkier notebook computers. All Twinhead products are backed with our exclusive ExpressCare program, providing you with 48-hour service and toll-free tech support. View the features and you'll see why Twinhead, a true notebook manufacturer, offers More Power to You!

West Coast: 1-800-995-8946
48295 Fremont Blvd.
Fremont, CA 94538

East Coast: 1-800-552-8946
55 US Highway 46, Unit 404
Pine Brook, NJ 07058

Twinhead

The true source for notebooks
Fax: 510-492-0820
www.twinhead.com

Slimnote-GX features:

- Intel® Pentium® II Processor 366MHz
- 14.1" TFT screen with 4MB SGRAM
- 256 MB of RAM
- AGP support
- DVD, LS-120



© PowerSlim is a trademark of Twinhead Corporation. Intel, the Intel Inside Logo and Pentium are registered trademarks of Intel Corporation. All other trademarks are the property of their respective owners.

Circle 240 on card or go to www.pcworld.com/productinfo

THE MOBILE MANAGER SERIES PART 4

ed similar tables for her clients. Rather than ask her to come to Boston, or for us to bring our inventory to Long Island, Lynde photographed all the tables in our showroom and we emailed the images to her." On occasion, they receive

Lynde estimates that about 25% of their business results from their Web site plus the use of digital imaging and email.

emailed images of furniture from customers seeking to sell or trade pieces they own.

Having a Web site (www.countrychineseantiques.com) that includes photographs of their available pieces furthers their ability to trade electronically. "A decorator called who saw images of cabinets on the site that interested her," says Lynde. "She asked for more details, so we emailed additional images of the cabinets. Based on those images she bought the pieces." Lynde estimates that about 25% of their business results from their Web site plus the use of digital imaging and email. "That's a significant portion of our revenue," comments Lynde, "and it would not be there without technology."

COST-EFFECTIVE STRATEGY

Now comfortable with the power of digital imaging, and convinced of its potential for savings, Andrea plans to transmit images, via the Internet, directly from China on her next trip. This cost-effective strategy will enable Lynde to see the furniture that Andrea is considering buying, an improvement over costly long distance phone calls. To limit shoulder strain, Andrea plans to purchase a CE handheld device that offers a mating digital camera.

Despite the convenience and cost savings of buying antiques through images, Andrea emphatically insists on seeing every piece she purchases abroad in person. "We deal in genuine antiques, never reproductions," she says. "I insist on seeing all pieces unrestored, in the condition they were when the dealers removed the pieces from the owner's house."

"That's the only way to get an authentic piece," she cautions. If a dealer has already retouched the piece, she adds, "it's almost impossible to deter-

mine the piece's true age and condition since they [the dealers] are experts at making any furniture look old." Andrea limits her buying to mainland China, and she prefers pieces that come from the central and northern reaches. "Most of the antique furniture available in Taiwan or Korea is not of the same quality."

Because they conduct so much of their business while on the road, they have developed some other techniques to make the best use of their time away from home. "We take a laptop to every show," says Lynde. "It allows me to complete all the bookkeeping chores associated with a sale at the time of the sale. We enter the information directly into

Quicken, immediately print the invoice, and accept payment. Both the laptop and the printer exchange information by infrared, so we don't bother with cables." They also use

the printer, a photo quality inkjet, to generate photos of the pieces they have in stock but not at the show.

UNLIKE MANY countries with laws governing the sales of antiques, China places few export restrictions on antiques. What duty charges they do assess on exports, are ironically waived if the piece is more than 100 years old.

FREEDOM FROM ROTE

The antiques business takes all of Andrea's time, and then some. For Lynde, however, it has been a part-time activity, until recently. As an editor for the *Christian Science Monitor*, Lynde says, "The laptop let me dial up the newsroom while I was traveling, or at the shows with Andrea, and review and edit the entire issue's layout. That included every page, story, and picture. Having that ability to work from a remote location gave me the freedom to leave the office and still get my work done."

With the antiques business growing, in large part due to the added business that results from their successful adoption of technology, Lynde recently decided to work in the business full-time with Andrea. Mobile technology, combined with remote access, will continue to offer the duo freedom from rote. +

The McCormicks put photos of available pieces on their Web site so their customers can trade electronically.





Your team
may be all over the map,

but their work
doesn't have to be.

Your all-in-one
small business weapon:

- Document Sharing
- Group Calendar
- Group Contact Manager
- Private Bulletin Boards
- Company Chat Rooms
- Web-based e-mail
- And much more

Working together seamlessly is a must for small businesses. And there's no better collaboration and communication tool than HotOffice 2.0. No matter where team members are, everyone can securely access vital information, day or night, from any Web connection. Even better, HotOffice is a Web-based intranet service. There's no hardware or software to buy. Just one low monthly price. Check out what HotOffice can do for your business with a 30-day free trial. 1-888-4HOTOFFICE.

 **hotOffice**[™]
Anytime Anywhere Officing[™]

**30-DAY
FREE TRIAL**

www.hotoffice.com/trial30

Circle 125 on card or go to www.pcworld.com/productinfo

THE MOBILE MANAGER SERIES PART 4

Continued from page 2

age quality across a range of image resolutions.

While most connectivity products are designed primarily to enable staffers to stay in touch while on the road, other connectivity options become available when a network connection is available.

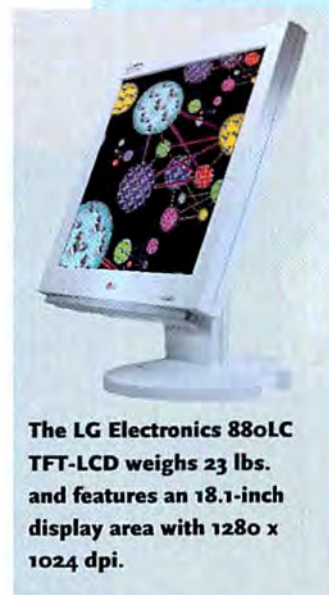
One of the newest LAN connectivity options for handheld CE devices comes from Thousand Oaks, Calif.-based Xircom. The company's Ethernet 10 card enables CE devices with Type II CompactFlash card slots to set up instant LAN-based communications with servers and desktop computers at speeds up to 200 times faster than with a 56K dial-up modem. Since it is designed specifically for use with CE devices, the card requires minimal power during use, and none at all when disconnected from the network cable. For extra versatility, Xircom's CardCaddy allows the card to be used in laptop and desktop computers with full-sized PCMCIA slots.

Xircom's Ethernet card makes especially good sense if you use your notebook computer as a replacement for your desktop machine. For example, the multimedia-enhanced Slimnote GX notebooks from Twinhead Corp., Fremont, Calif., weigh in at a very portable 7.5 pounds and still deliver more than enough power and performance to meet your office, home, and on-the-go computing needs. Packed into its trim 1.6-inch profile, are a 14.1-inch crystal-clear display, an Intel Mobile Pentium CPU (up to 400MHz), and your choice of a standard floppy or the optional LS-120. Twinhead's integrated architecture eliminates the need for you to carry around extra modules. The hard drive, diskette, and your choice of a 24X CD-ROM or a DVD-ROM are built into its "three spindle" design.

thin's in

ANYONE WHO TRAVELS for business knows firsthand the value and the difficulty of a good design, be it in creating a first-rate presentation, proposal, or product.

Just as you labored on to polish your presentation or pitch, so then when the time comes to stand and deliver it to an expectant audience, you want the best projector hardware available. For other times when you're pitching your ideas to a smaller group, you may just have the luxury of connecting your laptop to one of the award-winning flat panel displays from LG Electronics Inc., Englewood Cliffs, N.J.



The LG Electronics 880LC TFT-LCD weighs 23 lbs. and features an 18.1-inch display area with 1280 x 1024 dpi.

LG Electronics' newest thin panel monitor, the 880LC TFT-LCD, delivers a generous 18.1-inch display area with resolutions up to an outstanding 1280 x 1024 dots per inch. Weighing in at a trim 23 pounds, the monitor's fine .28 dot pitch gives you crystal clear images of exceptional brightness and clarity. For the utmost in ease of connectivity, the 880LC's twin Universal Serial Bus inputs make for easy connections to a pair of PCs. In addition, front panel controls and digital onscreen settings eliminate the fumbling of time-consuming setups that could infringe on your limited time with busy clients. Another example of the unit's advanced features and low cost of ownership design is the use of four user-replaceable long-life backlight lamps.

Advanced products like the 880LC result from LG Electronics' ability to leverage its huge research and development capabilities. This research is carried out daily at 25 R&D facilities worldwide where engineers and scientists, just one segment of the company's 35,000 workers, achieve major advances in liquid crystal displays, audio and video systems, as well as multimedia products. This commitment to research led to LG Electronics receiving the coveted *PC World* Top 10 award for monitor manufacturers. Celebrating its 42nd year, the \$11 billion company is the number one maker of high-resolution TFT-LCDs for larger monitors, commanding more than half the market for 18-inch TFT-LCDs, a market doubling in size annually.

So if you're thinking thin, think big and think smart, too—look to LG Electronics.+

But you may not be the only one enamored of your Twinhead notebook. Traveling with technology has never been easier, but disaster awaits around the virtual corner if you don't remain cautious.

Annual surveys performed by Safeware, The Insurance Agency, Inc., a

Columbus, Ohio, technology insurance firm, reveals that thefts of laptops increased 17% in 1998 over 1997. Owners reported a total of 837,000 cases of damage totaling \$1.6 billion. "Every time a computer is thrown into a briefcase or pulled from an overhead rack, there's an



LG *is* TECHNOLOGY

www.lgeus.com



Computer Monitors

What exactly can 35,000 people in over 120 countries do? Just about anything

they set their minds to. Such as create the next generation of TFT-LCD flat panel displays.



PC Cameras

Or develop tomorrow's DVD and CD ReWritable drives. Today's LG

is all of this and more. As one of the world's largest

electronics companies, we are using our knowledge and resources to

push the limits of what's possible. Making the things that make every

new day a little better than the day before.

LG is innovation. LG is performance.

LG is technology.



Optical Disc Storage



CD REWRITABLE
DRIVES

PC CAMERAS

DVD-ROM
DRIVES

MONITORS

CD-ROM
DRIVES



© 1999 LG Electronics U.S.A., Inc. All trademarks and registered trademarks are property of their respective owners.

Circle 96 on card or go to www.pcworld.com/productinfo

(800) 243-0000

THE MOBILE MANAGER SERIES PART 4

accident claim waiting to happen," says David K. Johnston, the agency's CEO.

Replacing a lost computer is, at least, a problem that money can solve. But what do you do when your data disappears due to a virus attack, hard drive failure, or other mechanical damage?

One of the savviest ways to prevent the loss of data is with a CD-rewritable drive. Holding 650 Mbytes per disk, the external M820e CD-Writer Plus drive from Hewlett-Packard, Palo Alto, Calif., connects to your laptop through a Type II PCMCIA card.

Barely larger than the CD disk it uses, the compact drive records at 4X and plays at 20X speeds. Its multi-session design lets you write, rewrite, and store

lates to the entire *Encyclopedia Britannica*, or more than 10 PowerPoint presentations, or the contents of 83 floppy diskettes. And SuperDisk diskettes with Secured Encryption Technology let you automatically encode files as you save them. Both internal and external SuperDisk drives are available. You can give your notebook computer SuperDisk capabilities with an internal upgrade or a plug-and-play PCMCIA drive.

No More Neanderthals

For the mobile user, having to find a hard-wired phone line to connect will soon follow rotary phones into oblivion.

Continuous information sharing is vital, according to Gordon L. Dorworth,

"With a little preparation and the right equipment, road warriors can reliably connect all their toys and tools while away from the office."

Gordon L. Dorworth, CEO and president, Stampede Technologies Inc.

an unlimited number of documents, graphics, presentations, and audio files. And because it's multi-session, you can start and stop recording at any time, which is an appealing benefit for travelers.

Since the CD-Writer Plus creates standard disks, it is compatible with all CD players, so you can conveniently share your disks, and your data, with colleagues. And, for those times when you need a break from the stress of life on the road, play a relaxing music CD and recharge your personal batteries.

For mobile users who want to keep large applications and files off their hard drives, the SuperDisk from Imation Corp., Oakdale, Minn., holds 120 Mbytes—that trans-

CEO and president of Stampede Technologies Inc. in Dayton, Ohio, a specialist in the remote access needs of corporations. "With a little preparation and the right equipment, road warriors can reliably connect all their toys and tools while away from the office," says Dorworth.

Since life's difficult enough while traveling on business, Dorworth recommends using wireless connectivity for

maximum convenience in replicating and synchronizing data between all your mobile and desktop devices.

"When is the last time you were in an airport cafe trying to check your email messages and all the phones were in use?" asks



The Slimnote GX notebook from Twinhead weighs 7.5 pounds and comes with an Intel Mobile Pentium CPU.

Dorworth. "How about trying to send email from a hotel at 8:30 a.m. and all you get for an hour is a busy signal because the hotel's PBX is saturated?" With a CDPD (Cellular Digital Packet Data) wireless card in your laptop, a little performance acceleration software, and a wireless gateway

backend, you're in business no matter where you are.

As consultant Zbar candidly puts it: "If I'm spending the day working at the park or the beach I want true mobility. I want wireless. The last thing I want is to haul around a bunch of extra stuff. Lugging is for technological Neanderthals."

Dorworth, too, heralds the movement toward wireless. "The investments being made in wireless technology, middleware, and infrastructure will change the landscape for mobile users," he predicts.

The vast array of today's portable tools and toys can be like a candy store for the gadget-lover in us. However, the real judge and jury will be how well-connected these devices ultimately are. To get the most value from your portables, make sure they have quick and spontaneous connectivity so you and your colleagues need to just scale molehills, not mountains, to get sage advice.+



Xircom's Ethernet 10 card enables CE devices to set up instant LAN-based communications.

**With a SuperDisk™ Drive
built into your notebook,
you get more room than Zip®.
And floppies fly free.**

With a slim SuperDisk Drive built into your notebook, standard floppies and 120MB SuperDisk Diskettes share the same internal drive. So you can leave the add-on hardware behind and really travel light. Check out SuperDisk in Acer, Compaq, Gateway, Hewlett-Packard, IBM, NEC, Toshiba and other great notebooks. If you spend a lot of time on the road, it's the only way to fly. Save a little. Save a lot. Save the world.



Get a
SuperDisk
Drive
built in!



**SUPER
120MB DISK™**

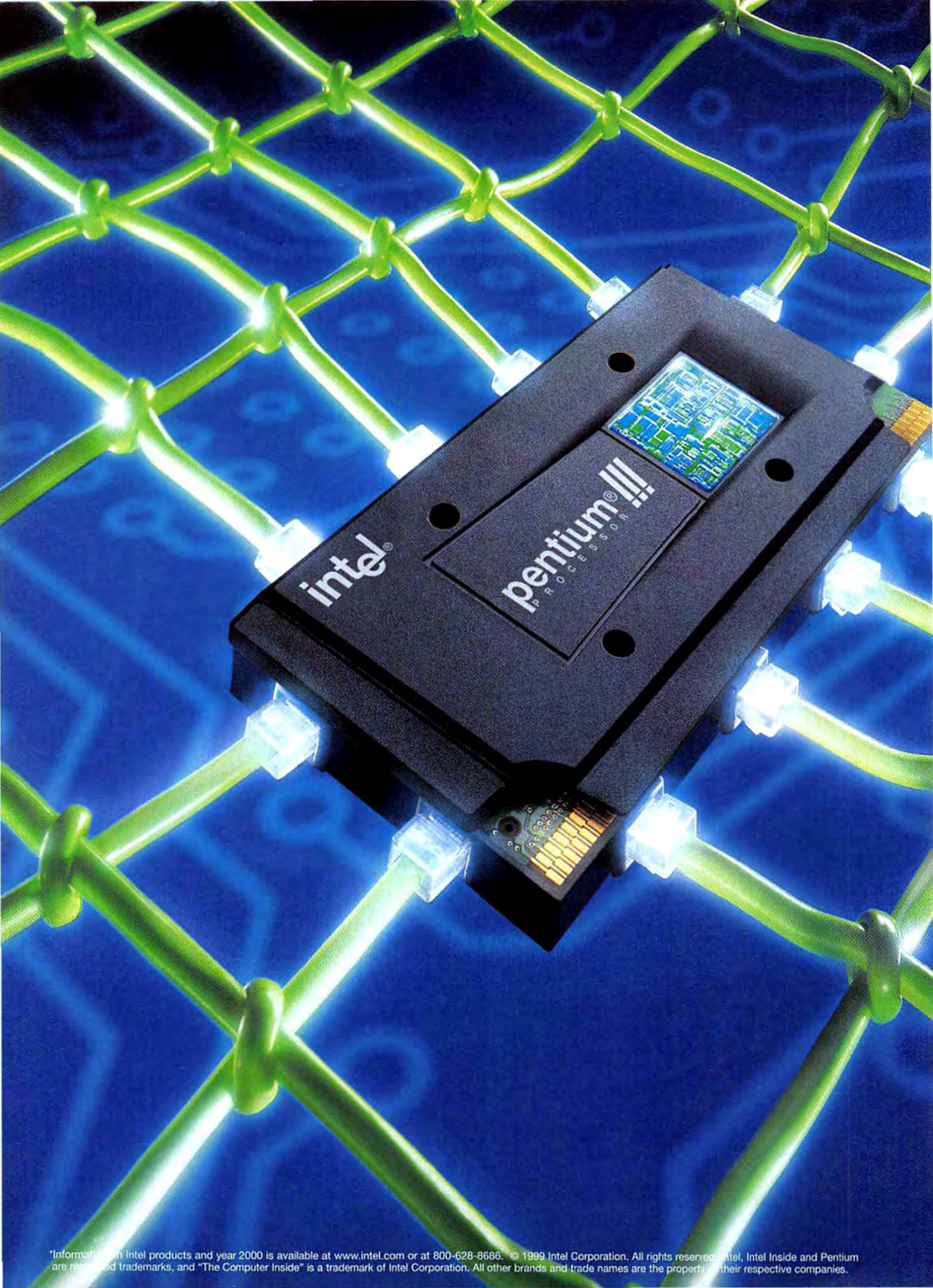
**www.superdisk.com
1.888.222.2294 ext.120**




SuperDisk, the SuperDisk logo, the SuperDisk and Floppy Disk characters, compatibility symbol, Imation and the Imation logo are trademarks of Imation Corp. All other trademarks are properties of their respective companies. This advertisement does not contain and in no way implies an offer to give away free diskettes. © Imation 1998.

 **IMATION**

Circle 119 on card or go to www.pcworld.com/infonet





Is your e-business walking a tightrope?

The power of the Pentium® III processor.
Your safety net in the Internet economy.



It's a fact. Doing business through the Internet exposes your company to viruses, unauthorized access, and potentially overwhelming network

traffic loads. Your safety net? The Intel® Pentium® III processor. It has the power to run sophisticated compression, encryption and anti-virus software behind the scenes, without compromising performance. So you work faster and safer. And to add an even higher level of control, each processor can help to better identify and manage your vital assets. To learn more about the Pentium III processor, visit us on the Web, where you'll also find information on Intel® products and the year 2000.*

▶ www.intel.com/PentiumIII

intel®

The Computer Inside.™

NEW PRODUCTS

Flat-Panel PCs Offer More Style Than Substance



SLENDER PROFILE:

Flat-panel PCs from NEC (left) and Gateway pack an entire system into a case only slightly thicker than a 15-inch LCD.

DESKTOP PCs

CROSS A TYPICAL desktop computer with a notebook, and you get a strange new species of machine: the all-in-one flat-panel computer. Think of these systems as LCD monitors that have somehow sprouted drives and a CPU without adding much bulk. With their small footprints and shallow profiles, these svelte PCs look terrific on your desk. But their stylish exteriors are offset by high prices, so-so performance, and limited expansion options.

The flat-panel desktop is not really a new beast (Compaq tried it a while back and then bailed out), but Gateway and NEC have broken new ground in shrinking its size to an absolute minimum. In my tests of preproduction units, both the **Gateway Profile** and the **NEC Z1**, with their big, sharp 15-inch LCD screens, were wonderful to look at.

HEAD TURNERS

THE NEC Z1 is a dazzler. Its LCD panel is framed by a two-tone silver-and-gray bezel with

gently curved edges. Below the screen, a wide silver panel holds the stereo speakers, the floppy drive, the DVD-ROM drive, and power switches. The wireless keyboard adds a small, round, rocker-style pointing device, plus dedicated buttons for launching applications, controlling the CD-ROM drive, and adjusting the volume. My preproduction unit's keyboard felt somewhat cheap and flimsy.

Gateway gave its Profile system a decidedly more conservative image. In fact, when

viewed straight on, the PC looks very much like a standard 15-inch LCD monitor. The Profile's minimalist front panel contains only power and display-adjustment switches. But the system's compact, streamlined design makes it every bit as aesthetically appealing as the NEC Z1.

NO VACANCY

NOT SURPRISINGLY, both of these slimmed-down systems lack room to grow. The Z1, for instance, has no open drive bays or PCI card slots. So any peripheral you add, such as a Zip drive, will have to sit on your desk next to the Z1. You will, however, find plenty of ports for peripherals. In addition to the usual assortment of connectors (parallel, serial, and so on), you'll find a 56-kbps modem, an ethernet network jack, and four Universal Serial Bus ports—handy for adding external devices. The Z1 also comes with two PC Card slots.

One of the Z1's most unusual features is its removable display—the whole LCD assembly slides up and off the case, making it easy to replace. (NEC plans to offer an 18-inch panel upgrade late this year, but the company won't give you a trade-in credit for the original display.) NEC also took a novel approach to hard drive upgrades—you dock the new drive to a special port. You can use the same connec-

Gateway Profile

PRO: Clean, simple design; screen displays sharp, colorful graphics; exceptionally small footprint.

CON: Performance could be better; DVD-ROM drive's placement makes discs hard to load.

VALUE: The desktop system we'd all want—if it were faster and more easily expandable.

Street price: \$2299

Gateway

800/315-2536

www.gateway.com

PRODUCT INFO NO. 723

NEC Z1

PRO: Eye-catching design, wireless keyboard, upgradable hard drive.

CON: Fairly expensive, slow for its processor class.

VALUE: Might be the PC for you if style is a top priority.

Street price: \$2499

Packard Bell NEC

800/733-1388

www.nec-z1.com

PRODUCT INFO NO. 724



THESE PRODUCTS have been evaluated using tests designed by the PC World Test Center.

the front of the machine. And the Profile's DVD-ROM drive is mounted on its side in the right edge of the case, so you must load discs carefully.

Neither system offers blazing performance. The Z1, powered by a Pentium III-450, turned in a PC WorldBench 98 score of 202, a bit below the 214 average for desktops with the same CPU and memory. The Profile, with its AMD K6-2-400, scored 151—14 percent below average for similarly configured PCs.

Would I buy one? Not as my primary PC. But as a second system, either flat-panel machine would be very tempting.

—T. Capen

tor for a second, external drive.

Gateway's Profile has most of the same ports and drives as the Z1, but the location of its floppy and DVD-ROM drives

make them somewhat harder to use. For instance, the floppy drive sits in the left edge of the LCD panel, whereas the Z1's is placed conveniently in

- 88 Gateway Profile, NEC Z1
- 89 Peachtree Complete Accounting 7 software package
- 90 Macintosh PowerBook G3/333; Adobe Photoshop 5.5
- 92 Psion Series 5mx; Palm IIIe
- 94 PlexWriter 8/2/20; Sharp VN-EZ1 Internet ViewCam
- 96 McAfee Office 2000 utilities; Vizact 2000 Web design app
- 100 Micrografx IGraph Professional graphics software; Animax Dr. Mouse input device
- 102 Rand McNally GPS Receiver and Streetfinder Deluxe 1999 Software; Xerox ClearFax
- 104 NDC Communications Cable-Free Home Desktop Starter Kit; Compaq 2 mbps Wireless LAN; Pagis Pro 3 Scanning Suite; Eudora Pro Email 4.2

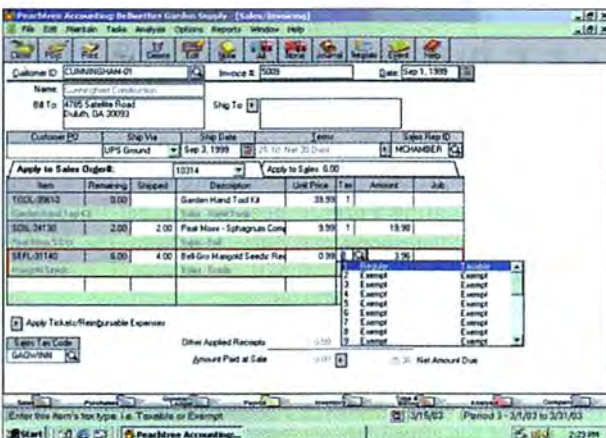
Easy E-Commerce for Small Businesses

ACCOUNTING

AN ESSENTIAL UPGRADE for Peachtree users, **Peachtree Complete Accounting 7** has a redesigned interface and several new accounting tools. In addition, the package's PeachLink 2 applet, an outstanding e-commerce aid, makes setting up shop on the Web a snap. I tested a shipping copy.

PeachLink 2 guides you through the process of building a Web commerce site with an online catalog of more than 1000 products on up to 100 Web pages. Peachtree will also host your transaction-enabled site (via Harbinger, an e-commerce service provider) for \$50 per month.

Peachtree Accounting has always had an attractive interface. But now it looks even better, thanks to redesigned icons and windows that give the program a cleaner, less



ONLINE INVOICE: Peachtree Complete Accounting 7 provides all the tools you need to create electronic forms such as sales invoices.

cluttered look. Release 7 also includes seven new reporting tools, including Financial Manager, which provides an easy-to-read summary of your business's profit margin, sales expenses, and other key information. You can also send accounting data directly to Microsoft Excel by clicking

Peachtree's *Excel* button. The program triggers the launch of Excel 97 or 2000, and then posts your data in a worksheet.

Although Peachtree isn't as easy to use as Intuit's QuickBooks, its new collection of wizards for payroll, company setup, and data backup makes these complex tasks some-

what less daunting. And while Peachtree may be overkill for businesses with fewer than five employees, it's still a good fit for those with 5 to 25 workers—particularly those looking to make the leap online.

—Richard Morochov

Peachtree Complete Accounting 7

PRO: Good tools for starting an e-commerce site, cleaner interface, new wizards for complex tasks.

CON: Feature-laden package might be too complicated for the smallest of businesses.

VALUE: A powerful accounting package for small to medium-size businesses.

Street price: \$229

Peachtree Software

800/228-0068

www.peachtree.com

PRODUCT INFO NO. 725



FOR MORE PRODUCT news and the latest announcements, check out the PC World Daily News Service at www.pcworld.com/news.

PowerBook Sheds Pounds, Adds Battery Life

NOTEBOOK

PREVIOUS Apple PowerBooks were more like PowerDictionaries—they weighed about as much as an unabridged Webster's. The new **Macintosh PowerBook G3/333** is leaner,

but still expensive. Weighing 5.9



APPLE'S Macintosh PowerBook G3/333 is significantly slimmer than its predecessor, but it has no floppy drive.

pounds, the G3/333 is about 20 percent slimmer than its predecessor, the G3/300. Unfortunately, the new notebook isn't quite as sturdy: The lid is flimsier, and the keyboard feels mushy. And in the take-it-or-leave-it tradition of the iMac, the G3 lacks a floppy drive—even as an option.

I tested a shipping unit of the \$2499 G3/333, with a luscious 14.1-inch active-matrix display, a 333-MHz PowerPC

G3 CPU, a 4GB hard

drive, 64MB of RAM, and a 24X CD-ROM drive. (A loaded PowerBook G3 with a 400-MHz G3 chip and a DVD-ROM drive costs \$3499.) Two USB ports, which replace the venerable Apple Desktop Bus and serial interfaces, are handy for adding a much-needed external floppy or Zip drive. You'll also find an ethernet port for easy networking, a 56-kbps modem, and a connector for SCSI peripherals.

In our tests, the G3/333 was only incrementally faster than the G3/300. Its additional video memory (8MB versus the G3/300's 4MB) lets the system display or extend the screen image on an external monitor—a feature left off of

recent Apple portables. Battery life is very good—about 3.5 hours in our tests. But Windows 98, running via Connectix's VirtualPC emulation program (not bundled), was slow.

All in all, with its lighter weight, outstanding display, and long battery life, the new PowerBook is a good read.

—Alan Stafford

Macintosh PowerBook G3/333

PRO: Slim design; lightweight; great display.

CON: No floppy drive, slow Windows emulation, pricey.

VALUE: A speedy and attractive Mac for the road or the desktop.

Street price: \$2499

Apple Computer

800/538-9696

www.apple.com

PRODUCT INFO NO. 726

Adobe Photoshop 5.5 Bundles Web Design App

IMAGE EDITOR

A DOBE CUSTOMERS once had to buy two applications for two distinct tasks: Photoshop for print graphics, ImageReady for Web pages. **Adobe Photoshop 5.5** changes all that. The venerable image editor now includes the newly updated

ImageReady 2, which will no longer be sold separately.

But after installing a pre-release copy of Photoshop 5.5 (which gobbled up a whopping 125MB of hard disk space), I had two image editors with several overlapping features on my hands. Adobe has, however, attempted some integration. Each program, for instance, has a "jump-to" button that saves the current file and opens it in the other program. That's a good start, but not as handy as a single app for print and Web graphics.

New Photoshop tools let you erase backgrounds, easily extract and place objects before other backdrops, and display images in thumbnail form for print or Web presentation.

ImageReady 2 lets you preview compressed thumbnails next to original images in order to achieve the desired balance of graphic quality and file size. I mashed a 490KB graphic down to a 25KB file

that loaded in 10 seconds via a 28.8-kbps modem.

Hopefully, Adobe will someday merge Photoshop and ImageReady into one streamlined app. For now, Photoshop 5.5 is a worthy upgrade if you need to design pages for both print and the Web.

—John Goddard ►

Adobe Photoshop 5.5

PRO: Sophisticated image editing and file compression tools.

CON: Redundant features hog disk space, tricky to learn, pricey.

VALUE: Good professional image editor for print and Web use.

Street price: \$610; upgrades from \$129 to \$199

Adobe Systems

800/492-3623

www.adobe.com

PRODUCT INFO NO. 727



OPTIMIZE WEB GRAPHICS or craft slick animations and interactive buttons using Photoshop 5.5's new ImageReady 2 component.

ThinkPad® 570



the new thinkpad 570.(dramatization)

transformer

ultrabase

notebook

price

This is how it works. Slip the ultralight, superthin ThinkPad 570 into an optional UltraBase and it transforms into an all-in-one desktop ready for the office or the road. ibm.com/thinkpad 800 426 7255, code tp160

holds floppy drive or extra battery and options like CD, DVD, Zip, extra hard drive,² or SuperDisk LS-120

1" thin³ / 4.0 lbs² / 12.1" or 13.3" active matrix display
4.0gb or 6.4gb hard drive / 64 - 192mb sdram
mobile Pentium® II processor 300PE / 333 / 366 mhz

from
\$2,699¹



Estimated reseller price for model 570/2AU. Price excludes UltraBase and other options. FDD/battery included. Actual prices may vary. ¹Actual weight/thinness may vary due to vendor components, manufacturing process and options. Weight includes battery, excludes FDD and other options. ²Adapter required. mhz denotes microprocessor internal clock speed only, other factors may also affect application performance. gb = 1 billion bytes for HDD capacity. PCs referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

e-business tools

Psion Series 5mx: Petite Powerhouse

P D A

EXCEPT FOR ITS chic silver case, Psion's **Series 5mx** palmtop is a dead ringer for its two-year-old predecessor, the Series 5. That's not a



PSION'S Series 5mx retains its predecessor's outstanding keyboard.

bad thing—the \$549 5mx shares all of the Series 5's standout features, including excellent built-in software and desktop PC connectivity, and the best palmtop keyboard ever designed. The Series 5mx's improvements on its predecessor are evolutionary rather than revolutionary, but they are more than enough to make the 5mx a worthy rival to Windows

CE machines and 3Com's Palm organizers.

At 6.7 by 3.5 by 0.9 inches and 12.5 ounces, the Series 5mx is one of the few keyboard-equipped handhelds that's (just barely) pocketable. It has 16MB of RAM—twice as much as before and enough to handle a gaggle of data files and extra software. The 5mx is also faster than the already-speedy Series 5—almost everything happens instantly, no hourglass icon required.

Windows CE could learn some tricks from the Psion's feature-rich, easy-to-use EPOC

Series 5mx

PRO: Comfortable keyboard, rich suite of built-in software, compact size, long battery life.

CON: Monochrome screen could be clearer, a modem is a very expensive external option.

VALUE: One of the best palmtops on the market, as long as you don't need a color screen.

List price: \$549

Psion

978/371-0310

www.psionusa.com

PRODUCT INFO NO. 700

operating system and suite of built-in applications, nearly all of which have been upgraded for the Series 5mx. For instance, the word processor now provides an outline, the calendar has a monthly view, and the Web browser supports frames and cookies.

What's missing? Color, for one thing. While the 5mx's 640-by-240-resolution monochrome screen boosts battery life (testing a preproduction unit, I got an impressive 20 hours on two AAs), it's also murkier than the monochrome displays of 3Com's Palm units. Adding a modem is a costly hassle: You must buy a PC Card modem and a \$139 external adapter, bringing your added expense to about \$240 or more. And the device's limited support for Java is mostly a theoretical benefit—none of the half-dozen apps I tried worked properly, and Psion recommends that Java developers create EPOC-specific versions of their programs. All in all, though, Psion's latest palmtop packs plenty of power at a reasonable price.

—Harry McCracken ►

Palm IIIe: Better Screen, Less Dough

P D A

THE PALM FAMILY of handheld PCs rules the PDA realm, but they're no bargains, with street prices ranging from \$300 for a sturdy Palm IIIx to \$599 for an Internet-ready Palm VII. The newest member of 3Com's Palm Computing family, the **Palm IIIe**, targets new users who'd like to jump on the Palm bandwagon without spending quite so much money. Its \$229 price tag,

while not quite bargain basement, is a good deal for a PDA that acts a lot like the pricier Palm IIIx.

The Palm IIIe includes version 3 of Palm's desktop software, along with all the basic, easy-to-use Palm applications: address book, datebook, memo pad, to-do list, and expense tracker. Like the IIIx, it has a cradle from which you sync it with a PC, and an infrared port for beaming data to other devices. My shipping IIIe also had the bright monochrome touch screen and easy-to-read larger fonts found on higher-end Palms.

Drawbacks? The Palm IIIe has 2MB of RAM (the IIIx has 4MB) and lacks an expansion slot for flash memory, a pager



PALM LITE: The Palm IIIe looks like the IIIx but is about \$70 cheaper and less expandable.

card, or another device.

Some Web retailers are selling the original Palm III (with its inferior screen) for less than \$175, but the Palm IIIe's brighter display alone makes it worth the extra \$50. The IIIe looks like a winner—not only for Palm newcomers but also for owners of older Palm Pilots who want to upgrade.

—Yardena Arar

Palm IIIe

PRO: Palm IIIx look-alike at a cut-rate price.

CON: Less memory than a Palm IIIx, no expansion slot.

VALUE: Great choice for PDA novices and Palm Pilot upgraders.

List price: \$229

Palm Computing

800/881-7256

www.palm.com

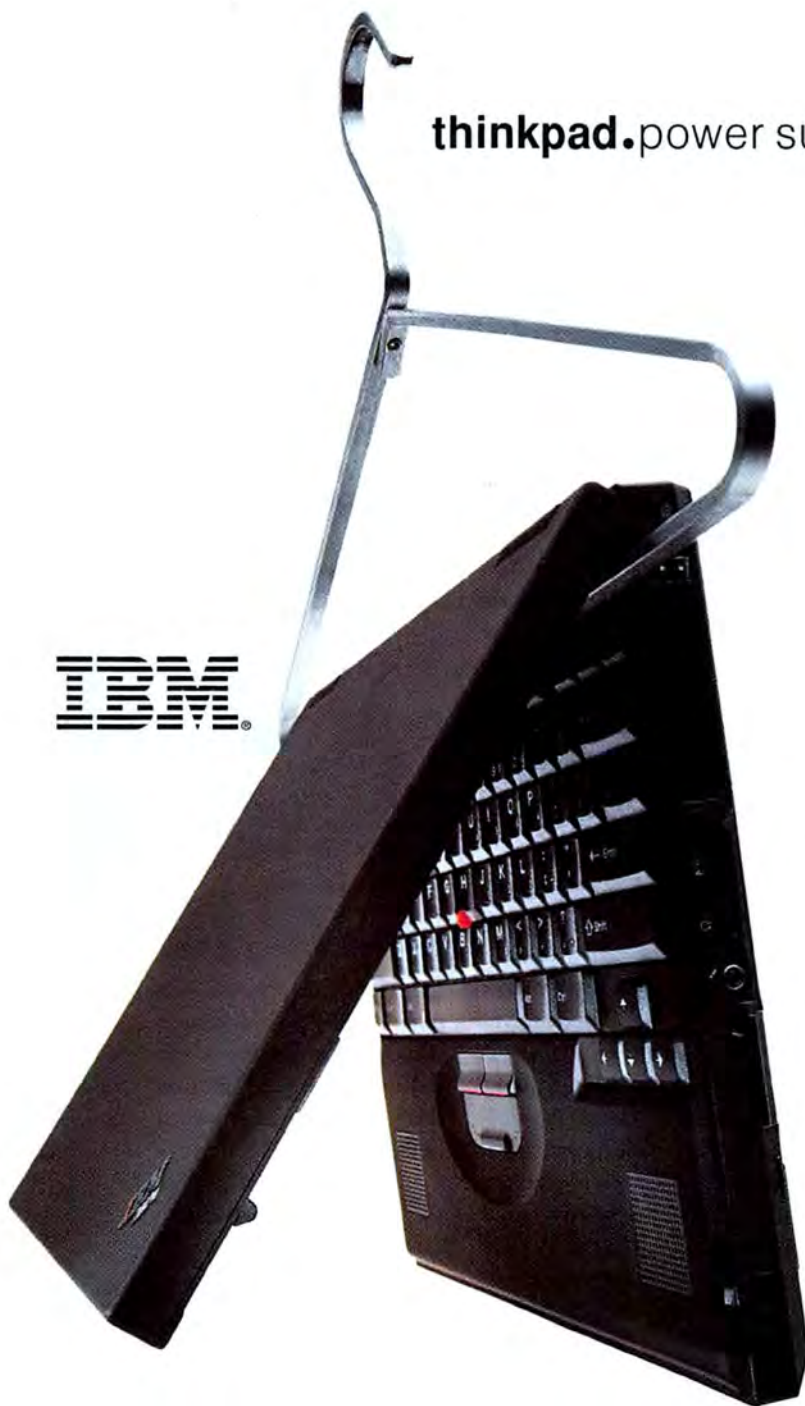
PRODUCT INFO NO. 701



*Estimated reseller price for model 600/3AU. Actual prices may vary. Actual weight/thinness may vary due to vendor components, manufacturing process and options. Includes battery (and travel cover on ThinkPad 600 models) and excludes external diskette, cd/dvd drives, if applicable. mhz denotes microprocessor internal clock speed only; other factors may also affect application performance. gb=1 billion bytes for HDD capacity. PCs referred to in this ad include an operating system. IBM product names are trademarks of International Business Machines Corporation. Intel Inside and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

thinkpad.power suit

IBM



ThinkPad® 600

price	power	bytes	media	design	e _{business} tools
from \$2,799*	mobile Pentium® II processor 300/300PE 366/400 mhz	up to 10gb hdd up to 64mb memory	13.3" TFT display cd or dvd, SRS 3-D sound option: port replicator	ThinkPad 600. Light weight and high performance, in a 4.9 lb design statement a mere 1.4" thin! www.ibm.com/thinkpad or call 800 426 7255, code tp170	

Plextor's CD Writer Handles Many Formats

CD-RW DRIVE

IF YOU WRITE CD-Recordable discs, chances are you use the CD-Rewritable format too. (The data you write on CD-R discs is permanent, but you can erase and rewrite CD-RW discs.) But until now, if you used an 8X CD-R writer, you had to forgo the CD-RW format—or buy a separate CD-RW unit. Thanks to Plextor's \$569 **PlexWriter 8/2/20** (that's 8X CD-R, 2X CD-RW, and 20X CD-ROM), you can do it all with one drive.

The speedy, SCSI-based PlexWriter can write a full CD in less than 9 minutes, and it multitasks so efficiently that I often forgot it was working while it formatted, read, and wrote files. Its only downside is that it rewrites discs at just 2X: In an increasingly 4X world, that might just be too slow for your tastes.

In my tests of a prerelease unit, the PlexWriter 8/2/20 formatted and verified a CD-RW disc in about 50 minutes, and took a little over 7 minutes to write 100MB to disc. While those times are speedy for a 2X drive, a 4X drive theoretically would complete the

same tasks twice as quickly.

I was impressed by the software bundle. In addition to Adaptec's Easy CD Creator and DirectCD programs, you get Plextor's revamped Manager 2000, which enables you to copy tracks on an audio CD

and save them as .wav files. Its multimedia player/recorder tool can also write MP3 audio files to CD on the fly.

In addition, the bundle includes CD Res-Q, an application that can write an image of your entire hard drive onto a

bootable CD-R—a valuable tool for making backups or for recovering from hard drive catastrophes.

If writing CD-R or audio CDs is your primary focus and CD-RW is only an occasional concern, then Plextor's PlexWriter 8/2/20 is the best drive for your money.

—Jon L. Jacobi

Internet ViewCam Loses Focus

DIGITAL VIDEO

PUTTING VIDEO ON your Web site is no easy task. You have to ensure that the file size is small enough to make downloads feasible, without sacrificing image quality. Sharp's **VN-EZ1 Internet ViewCam** may help you with the first requirement, but it fails at the second.

The Internet ViewCam is a wallet-size digital video camera that uses on-the-fly MPEG-4 compression. The resulting file is about a third the size of an MPEG-1 movie, so it takes a third of the time to download. But even at its highest resolution (320 by 240 pixels, 5 frames per second), the quality is terrible. Frames skip, and the pixelation is aggravating. True, the limited bandwidth of today's World Wide Web has made blurry, choppy video the de facto standard, but a video-capture device should offer better. The camera also takes 640 by 480 JPEG still images, but it lacks a flash, so indoor and night images are poor.

Instead of using the generic MPEG-4 format, the camera saves video files in Microsoft's Advanced Streaming Format (.asf), a variant of MPEG-4



SHARP'S VN-EZ1, the first MPEG-4 video camera, delivers poor image quality and limited storage space.

"super-fine" mode, we could save 50 seconds of video that had lots of movement in it. But for a static-image video with no movement whatsoever,

that's playable only by Windows Media Player. And since you can't convert the files to other formats, you can't play them on other platforms such as the Mac.

The ViewCam stores video files on SmartMedia memory cards. Although the camera comes with a 4MB card, our demo unit had only 2MB of storage. Most movies destined for the Internet are short, but most users—who'll want to save more than one or two movies on the camera—will nevertheless find it necessary to buy an additional SmartMedia card.

MPEG-4 compresses action-packed video less effectively than it does static shots. In

our movie was twice as long.

The VN-EZ1 Internet ViewCam is the first of its kind, and future iterations will likely be much better. But this version is a pricey toy.

—Alan Stafford ▶

Sharp VN-EZ1 Internet ViewCam

PRO: Compact design; improved compression shrinks video files.

CON: Poor video quality, even at best setting; extremely limited storage capacity.

VALUE: Lousy image quality outweighs convenience.

List price: \$699

Sharp Electronics

800/237-4277

www.sharp-usa.com

PRODUCT INFO NO. 704

PlexWriter 8/2/20

PRO: First 8X CD-Recordable drive with CD-Rewritable capability.

CON: 2X CD-RW writing speed slower than that of today's 4X drives.

VALUE: Expensive, but worth the price for CD-R aficionados who occasionally dabble in CD-RW.

List price: \$569

Plextor

800/886-3935

www.plextor.com

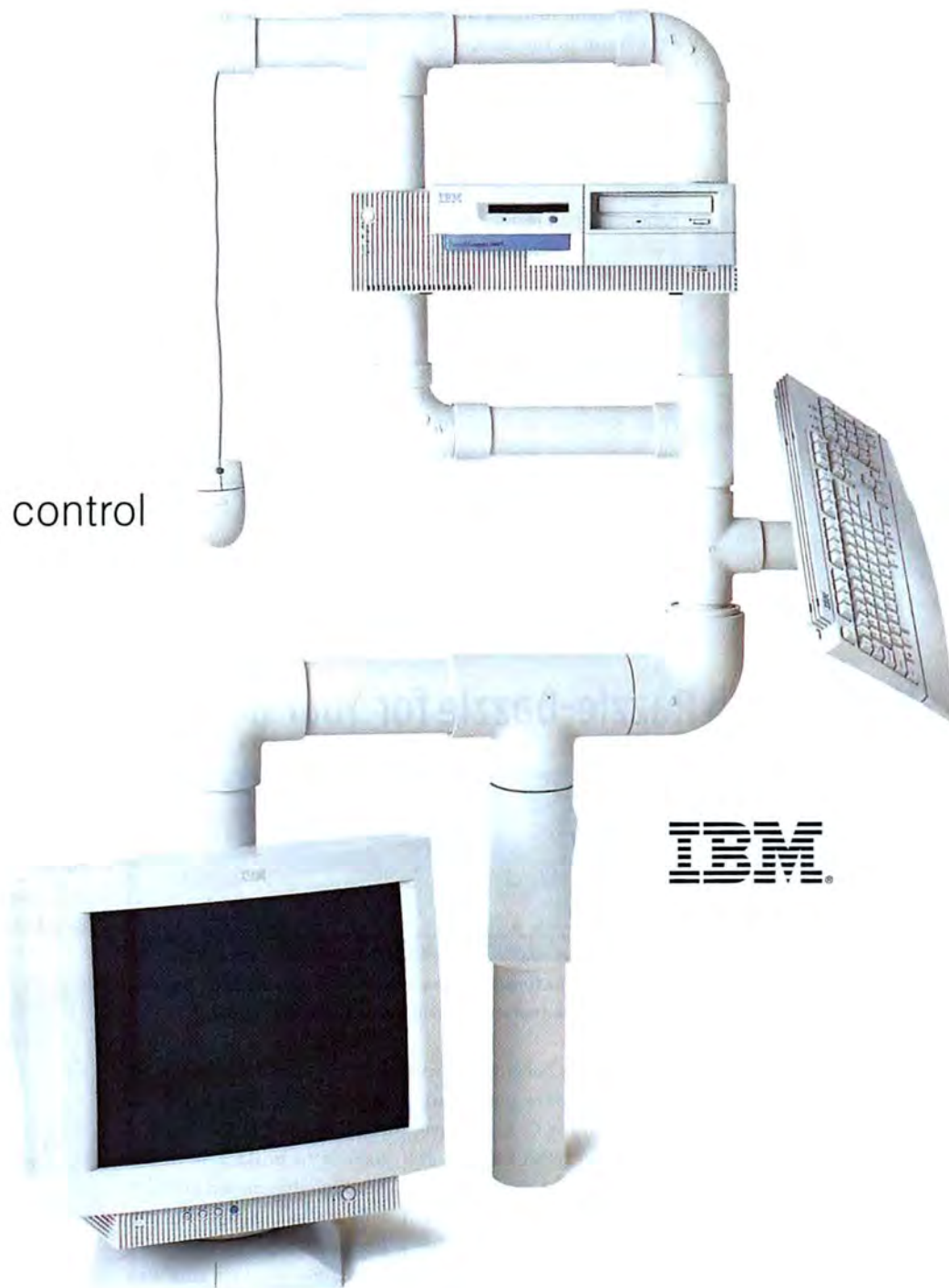
PRODUCT INFO NO. 703

PC 300PL

price	specs	options	control
from \$1,299*	Pentium® III processor (up to 550mhz) 3D AGP graphics (up to 8mb dram) up to 768mb memory / 20.4gb hdd integrated ethernet & audio	zip drive / cd rom 19" G96 monitor (17.9" viewable)	Imagine PCs you control from virtually anywhere – over the network or the Web. PCs that integrate easily into your enterprise management software. PCs with time-saving features like LANClient Control Manager. It's the IBM 300PL. It's the ultimate in remote control. www.ibm.com/ibmpc 800 426 7255, code pc 140

@business tools

remote control



IBM



* Estimated reseller price for model 6862-34U (CPU) and 6546OAN (15" monitor). Actual prices may vary. MHz denotes microprocessor internal clock speed, other factors may affect application performance. GB = 1 billion bytes for hard drive capacity. All PCs in this ad ship with an operating system. IBM product names are registered trademarks of International Business Machines Corporation. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. © 1999 IBM Corp. All rights reserved.

McAfee Office 2000 Improves Integration

UTILITIES

A WORTHWHILE utilities suite should be more than just a series of disconnected programs packed in the same box. It should provide a well-integrated, all-in-one solution to optimize your PC. Previous versions of Network Associ-

McAfee Office 2000

PRO: Much improved installation, integration, and documentation.

CON: Few upgrades to component programs.

VALUE: Good solution for users who want a reasonably priced, all-in-one utilities pack.

Street price: \$49

Network Associates

408/988-3832

www.mcafee.com

PRODUCT INFO NO. 702

ates' McAfee Office lacked true integration and a consistent look and feel, but the latest edition of the suite—the new **McAfee Office 2000**—provides a central interface for installing and accessing the suite's applications. So while the utilities themselves aren't better than before, the suite as a whole has taken a step in the right direction.

I tried a shipping version of the \$49 package, which offers virus protection (VirusScan), Y2K checking and updating (Y2K Survival Kit), system optimization and troubleshooting (Nuts & Bolts and First Aid), application removal (Uninstaller), and several nice extras sprinkled throughout the suite, such as encryption,

compression, file shredding, and crash protection. McAfee removed three products—PGP, Guard Dog, and Hurricane—that overlapped with some of the features included elsewhere in the suite. Most users won't miss them.

You'll find the suite's greatest improvement in the new McAfee Office Central Interface, which gives you easy one-click access to all seven products in the suite. Instead of installing each application separately, you load them all from this central location. And you can now automatically update all the suite components via a single update button instead of having to update each app individually. You'll also find better documentation—a de-

tailed manual, online help, and a quick-start guide.

Despite these integration improvements, the new suite isn't exactly a great leap forward. With the exception of the Y2K Survival Kit, individual utilities haven't been significantly updated or revised; you basically get the same version of each application that's already on store shelves.

Also, bear in mind that Symantec's competing Norton SystemWorks 2000 will be released this fall. Given that the suite's current version, SystemWorks 2, received *PC World's* World Class award for utility software (see www.pcworld.com/jul99/world_class), you might want to hold off on McAfee Office 2000 until you see how Norton's new suite stacks up.

—Cameron Heffernan

Vizact: Web Razzle-Dazzle for Your Docs

WEB DESIGN

MICROSOFT'S \$149 **Vizact 2000** allows you to develop dazzling Web documents that have the pizzazz of professionally scripted pages. Even if you can't write a line of HTML code, you can add spinning animations, sounds, movies, interactive bullets, and other special effects to standard HTML business documents, including Microsoft Office files. However, clients and colleagues will need Internet Explorer 5 to view your work. (Many HTML pages created by Office 2000 apps suffer from the same limitation.)

I tested a prerelease version of Vizact, which includes a copy of IE 5. Installation was



SEE IT NOW: The timeline toolbar in Microsoft's Vizact 2000 controls the sequence and duration of multimedia events on Web pages.

tricky, mostly because Vizact demanded more temporary space than my C: hard drive could deliver. But I was soon up and running.

Vizact 2000 is a stand-alone application that mimics the look and feel of Microsoft Office, right down to the familiar wizards and Format and Drawing toolbars. There's also a new toolbar for control-

ling the timeline, which manages the start time and duration of your animations; I used it to build a WordArt headline that moved horizontally across the page. But unless you have experience with animation software and Web design, Vizact 2000 takes some time to learn.

Vizact's biggest drawback is its IE 5 requirement. Neither

IE 4.x nor Navigator 4.x supports the new XML and VML page-description formats that are needed to view Vizact pages. Vizact does, however, offer a tantalizing glimpse into the future, when nonprogrammers will be able to create dynamic Web documents.

—Mary L. Rich ▶

Vizact 2000

PRO: Uses Office toolbars and conventions, lots of special effects.

CON: Resource-intensive, only Internet Explorer 5 users can view Vizact-generated pages.

VALUE: A good way for nonprogrammers to develop dynamic Web documents.

Street price: \$149

Microsoft

800/426-9400

www.microsoft.com/vizact

PRODUCT INFO NO. 705

Starting at \$99, it's power protection that pays for itself in seconds



APC Back-UPS Pro® 500:
"APC's latest plugs into a USB port,
making it completely painless to protect
your PC from power snafus and electrical spikes."
- PC Computing 4/99



Why 8 million computer users can't be wrong about APC power protection

System crashes, corrupted data, lost Internet connections and keyboard lock-ups (plus outright outages) are symptoms of power irregularities. According to IBM research, such power problems are the largest cause of data loss and occur up to 120 times per month. APC helps eliminate such interruptions and ensures your ability to get the job done.

An APC UPS gives you:

- Enough outlets to protect your computer plus displays, printers, scanners and more
- Emergency battery power for continuous uptime through brief power outages to help save your data
- Telephone/network surge suppression to maintain your online connection

- Auto-shutdown software which saves your files and data, even when you're away from your computer

APC safety and reliability benefits:

- User-replaceable batteries reduce service costs
- Easy overload recovery
- Site Wiring Fault Indicator

An APC Uninterruptible Power Supply (UPS) gives you two layers of protection in one unit. Memory cards and hard disks are shielded from damaging surges while back-up battery power enables you to shut down during an emergency without losing any data. APC units are backed by a \$25,000 equipment protection guarantee.¹ Visit your reseller or the listed retailers and try one today!

- Audible and visible alarms alert you to power events as they occur
- \$25,000 equipment protection guarantee (U.S. and Canada only)
¹See policy for details
- "Best in Class" longest runtime guarantee (5-40 minutes)

You can find APC power protection products at:



APC
Legendary Reliability™



Enter the "Are You at Risk" sweepstakes to win a PC.

Enter now: Visit <http://promo.apcc.com> Key Code m267z • Call 888-289-APCC x8675 • Fax 401-788-2797

©1999 American Power Conversion. All Trademarks are the property of their owners. BP2A9CF-US • PowerFax: (800)347-FAXX • E-mail: apcinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

Circle 45 on card or go to www.pcworld.com/productinfo





**In case you didn't see it here,
yes, it's on sale too.**

At Onsale.com you'll find low prices on not just one or two things, but on everything we sell — everyday. From systems to software to peripherals, we've always got the brand names you want on sale.

If it's computers, it's Onsale.

www.onsale.com

AOL Keyword: Onsale



Create Smarter Diagrams With IGrafX Pro

GRAPHICS

IF YOU LIKE your flowcharts and diagrams laden with graphics, check out Micrografx's **IGrafX Professional**, the successor to FlowCharter 7.

IGrafX Professional is a comprehensive business diagramming and modeling package for managers ranging

IGrafX Professional

PRO: Advanced tools for business diagrams; built-in intelligence.

CON: No wizards, could use additional templates.

VALUE: A fair price for advanced diagramming tools.

Street price: \$400

Micrografx

888/744-1210

www.micrografx.com

PRODUCT INFO NO. 706

from sales and finance experts to IT pros. It provides a familiar interface with numerous toolbars, and a gallery that offers quick access to libraries of shapes. IGrax Professional's best feature is built-in intelligence that helps create and revise complex diagrams. For example, shapes and connectors automatically grow or shrink as new shapes are added, deleted, or moved.

However, I needed a fair amount of time to master the robust set of features in my shipping copy. Veteran FlowCharters will find themselves on familiar ground, but novices—and users who are upgrading from IGrax Business—may yearn for more predesigned templates (only a

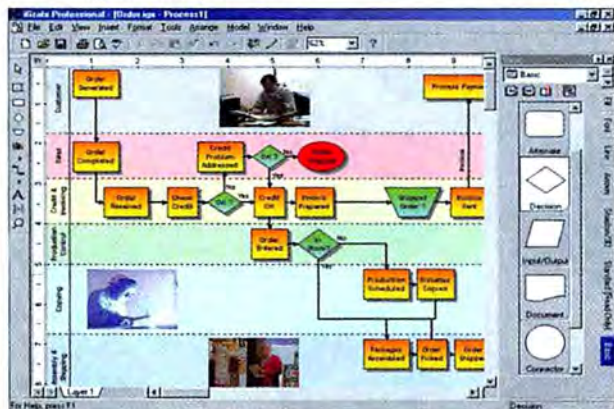
handful are provided) or diagrams. IGrax Professional also lacks wizards and a step-by-step visual toolbar.

The \$400 package does offer tools not found in archival Visio Professional 5.0, including the ability to auto-

matically number shapes, and connectors that link to other pages of a diagram.

You also get IGrax Business, a good graphics tool for novices. But IGrax Professional is best suited for those already familiar with complex diagrams. Others will find the learning curve too steep.

—Richard Jantz



NOT FOR NOVICES: IGrax Pro provides advanced tools for creating diagrams that illustrate specific tasks such as writing a sales order.

Dr. Mouse Mimics a Joystick—Awkwardly

INPUT DEVICE

IT MAY LOOK like a joystick, but Animax's **Dr. Mouse** is no gamer's toy. This sticklike pointer stands upright and is designed to reduce repetitive strain injuries by keeping the wrist in a natural position. But it's awkward to use and it may cre-

ate more arm discomfort than a conventional mouse. I tested a prerelease unit.

Standing about 3.5 inches tall, the \$40 Dr. Mouse is mounted on a circular piece of plastic and comes in two sizes, medium and large. You hold it as you would a joystick: hand on its side, thumb sitting atop two buttons (right and left mouse click). Since I normally use a touchpad, I had difficulty adjusting to Dr. Mouse. Although the instructions tell you to rest your whole forearm on the desk, Dr. Mouse felt comfortable only when I moved my forearm around.

Once you get used to double-clicking with your thumb, Dr. Mouse is as fast as any

other pointer. The bundled software offers generic ergonomic tips, a mouse-click tracker, and a customizable Quick Access Menu that provides fast access to your applications and recently used files. (However, I found it quicker to use **Start>Documents** to open my files.) The \$50 Pro version has an additional four-way scroll button you press with your fingers—handy for huge spreadsheets and long Web pages.

Dr. Mouse is priced lower than competing ergonomic pointers. If you're a left-hander, however, you're out of luck—for now, anyway. Animax says it's working on versions for lefties and children.

If a regular mouse strains your arm, you might want to check out Dr. Mouse. But beware: The forearm-on-the-desk suggestion didn't work for me; holding the joystick in a natural manner turned out to be far more comfortable.

—Aoife McEvoy

Dr. Mouse

PRO: Comfortable, innovative design; Pro version has convenient scroll button.

CON: Initial discomfort when learning to use the device.

VALUE: Worth a try if a regular mouse hurts your wrist.

Street price: \$40 for two-button standard model; \$50 for three-button Pro model

Animax International

818/882-1333

www.animaxusa.com

PRODUCT INFO NO. 707

DOCTOR,

DOCTOR: If a

standard mouse strains your wrist,

Dr. Mouse might cure what ails you.

Can your surge protector handle this?



If not, you may be plugged into a potential disaster.

You can find APC power protection products at:



*See policy for details. Model Pro8T2 shown in photo, which carries a \$10,000 Equipment Protection Policy.

©1999 American Power Conversion. All trademarks are the property of their owners. SANEBF-US • (800)347-FAXX PowerFax • E-mail: apccinfo@apcc.com • 132 Fairgrounds Road, West Kingston, RI 02892 USA

Circle 28 on card or go to www.pcworld.com/productinfo



APC SurgeArrest®
SurgeStation™

A typical computer is subject to more than 120 power problems a month.* More than

\$600 million worth of computer equipment was destroyed last year due to bad power.** -SOURCE: *IBM, **SafeWare

Utility power, by its very nature, fluctuates in strength, often with serious consequences. APC's SurgeArrest family prevents those surges from reaching your valuable equipment. The APC SurgeArrest SurgeStation offers high performance surge protection for small business/home office applications. The SurgeStation features eight outlets, including two "always on" outlets, transformer block spacing and a master on/off switch with a switch guard to prevent

accidental turn-off. With APC's Legendary Lifetime product warranty and up to \$25,000 Lifetime Equipment Protection Policy*, isn't it time you protected your electronic equipment with APC?

FREE The Complete Guide to Surge Protection.

Learn how to choose the right surge protection for your system.



Order now Key Code m312z
<http://promo.apcc.com>

888-289-APCC x8560 • Fax: 401-788-2797

APC
Legendary Reliability™

Rand McNally's Bargain GPS Bundle

MAPPING

AT JUST UNDER \$100, Rand McNally's **GPS Receiver and StreetFinder Deluxe 1999 Software** is the least expensive Global Positioning System device available. Despite some shortcomings, it's a great starter package for anyone who wants the real-time, pinpoint accuracy of GPS and street-level mapping software.

Like most trip-planning packages, StreetFinder Deluxe 1999 will map your excursion with address-to-address detail. You can customize your itinerary with stops for meals, lodging, and tourist attractions. One thing this package has that the others don't: a database of lodging and restaurant reviews from the *Mobil Travel Guide*. However, to get precise routing information, you need a Net connection to visit Rand McNally's Web site—not exactly convenient if you want to change plans while on the road.

Another drawback: The GPS receiver works only with note-

book PCs, connecting to serial and PS/2 mouse ports at the same time. (Competitors such as DeLorme's \$159 EarthMate work with Palm and Windows CE devices.)

The StreetFinder software activates the GPS device, locating the appropriate satellites and pinpointing your exact location (down to the street address) on a map. As your car

travels, StreetFinder displays your route with a moving red dot on the screen. But even after adjusting visibility settings in my shipping unit, I couldn't read the notebook display in bright sunlight (never mind the dangers of trying to read while driving).

You might need a GPS device to find your way through the software, too. Some fea-

tures, such as airport diagrams, are buried so deep I found them only by chance. The GPS receiver comes with basic printed instructions, and online help seemed spotty. Fortunately, the device is basically plug-and-play.

Despite its flaws, this inexpensive GPS-mapping-software combo saved me from having to stop at a gas station to ask for directions. For that alone, it's worth the price.

—Michael S. Lasky

ClearFax Gives Faxed Images a Face-Lift

FAX SOFTWARE

EVER TRIED using your PC's fax-modem software to send an image? If you tweak the settings enough, you may get—at best—a reproduction with a pronounced gridlike overlay; with default settings, you may simply get a black box. Xelax's **ClearFax** works with the most popular Windows 95/98 fax packages, including WinFax Pro and Microsoft Fax, to improve the appearance of your faxed images.

The program works with any Windows 95/98 application. It appears (alongside the names of your current fax package and printer) as an option in the Print dialog box. When you want to send a document with an image, simply print to ClearFax; the software converts the image to tiny black dots, then forwards it to your fax application, which does the actual faxing. The resulting received images are not quite photo quality (as Xelax claims) but look better than those produced by conventional fax software.



IMPROVE YOUR IMAGE: Used with WinFax Professional 9, ClearFax did a better job of reproducing a photo (left) than WinFax alone (right).

The trade-off is ClearFax's slow pace. In my tests with a preproduction copy, ClearFax took a couple of minutes to fax several color .jpg and .gif photos; WinFax Pro 9 with default settings did the same job in a few seconds. But the WinFax-generated images were completely black on the receiving end, and faxing time lengthened when I changed WinFax's graphics settings to obtain a recognizable copy.

For sending quality digital images, ClearFax is clearly no substitute for e-mail or other file-transfer options. But if you

must use a fax machine to send the best possible approximation of an image, ClearFax is worth its \$79 price tag.

—Yardena Arar ▶

ClearFax

PRO: An easy way to improve the quality of faxed images.

CON: Faxing takes much longer; image quality isn't that great.

VALUE: Useful for faxing images if high quality isn't mandatory.

Street price: \$79

Xelax

800/741-2861

www.clearfax.com

PRODUCT INFO NO. 709

GPS Receiver and StreetFinder Deluxe 1999 Software

PRO: Bargain GPS receiver with trip-planning software.

CON: GPS device doesn't work with Palm or CE devices, software requires Net connection to provide precise routing.

VALUE: For the price, a worthwhile introduction to GPS street-level mapping.

Street price: \$99

Rand McNally

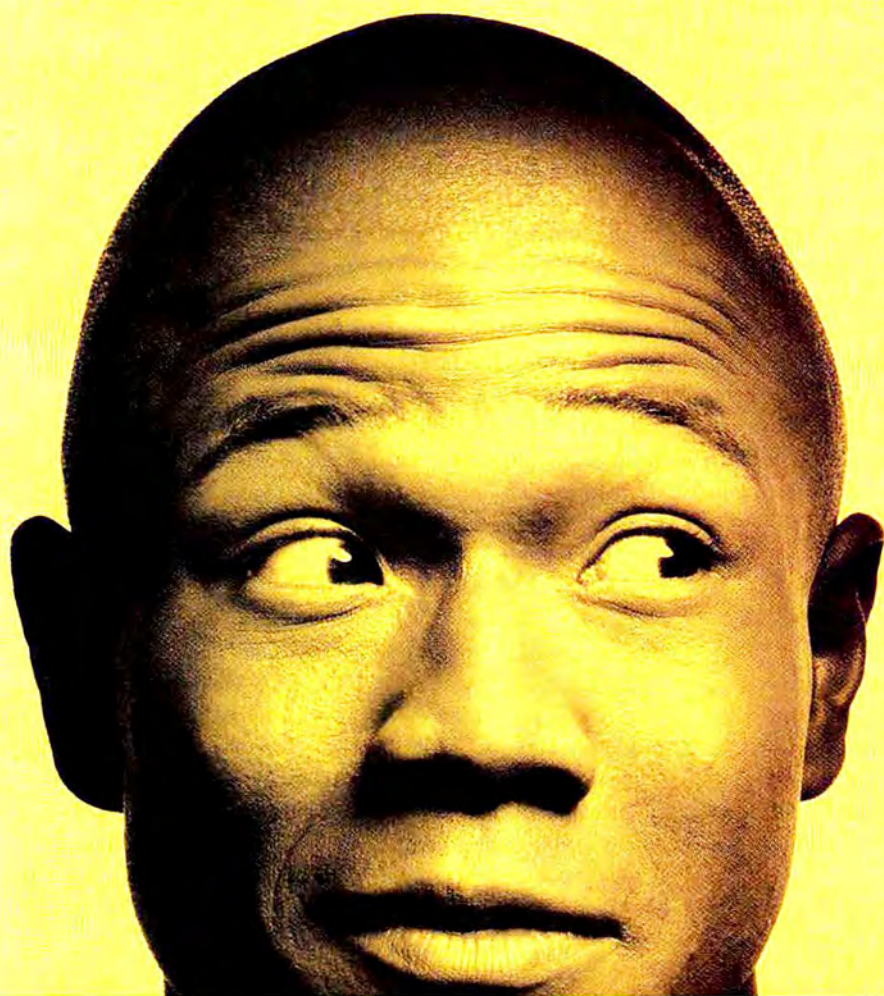
800/234-0679

www.randmcnally.com

PRODUCT INFO NO. 708

FREE!
\$25 start-up fee waived.
Call now. Offer expires 9/30/99.

We treat our customers with respect.
(This may feel awkward at first.)



REDISCOVER COMMON COURTESY

AND ENJOY OUR EASY SET-UP,

INCREDIBLY FAST CONNECTIONS,

KILLER 24/7 SUPPORT AND PRICING

FROM \$6.95 INCLUDING \$19.95/MO.

FOR UNLIMITED ACCESS. OUR

INTERNET SERVICES WERE

DESIGNED WITH YOU IN MIND.™



MindSpring
INTERNET SERVICES



www.mindspring.com

Call now 1-888-MSPRING

Circle 57 on card or go to www.pcworld.com/productinfo

New Wireless LANs Faster, Easier to Install

NETWORKING

NETWORK NEWBIES trying to connect PCs in their home or small office have a bunch of new options. Sure, they could try to wire their offices for traditional ethernet networks. But new SOHO networking kits let you get connected without stringing wires. If your building's wiring isn't suited for phone- or power-line LAN options, consider wireless. The latest wireless products are easier to use and cheaper than their predecessors, and deliver faster performance.

I tried shipping versions of two wireless kits: NDC Communications' **CableFree Home Networking Desktop Starter Kit** and Compaq's **2 mbps Wireless LAN**. Both offer speedier data transfer than the first generation of wireless SOHO kits (up to 2 mbps versus 1 mbps) and allow greater maximum distance between PCs (250 to 300 feet versus 150 feet).

Like other SOHO networking products, these kits allow you to share files and printers, a single ISP account, and a modem across your LAN.

CableFree Home Desktop Starter Kit

PRO: Easy setup, 3-foot cable lets you position antenna for best reception.

CON: Pricy compared to phone-line network products.

VALUE: Flexible configuration and easy installation make this wireless LAN a winner.

List price: \$399

NDC Communications
800/632-1118
www.sohoware.com

PRODUCT INFO NO. 710

ODD INSTALL: Compaq's 2 mbps Wireless LAN is competitively priced but suffers from a clunky, PC Card-based design.



the CableFree LAN on my two PCs (a 200-MHz Pentium and a PII-333). The \$399 CableFree costs about the

same as Compaq's offering; both are very expensive when compared to phone-line networks such as the \$99 Diamond Multimedia HomeFree Phoneline kit.

Compaq's kit takes a unique (and somewhat convoluted) approach to wireless: You install a PCI-based PC Card adapter into each desktop and then insert a wireless LAN PC Card into the adapter. (You can add these cards to notebooks as well.) Since this process involves a few extra reboots, installation took me about 30 minutes. It was awkward to crouch behind my PCs to insert PC Cards into the adapters, too. Compaq sells single-PC kits for \$199 each, but you'll need at least two to network, so the minimum you'll pay is \$398.

Price and performance being roughly equal, NDC's CableFree is your best bet. It's simpler to install, and its 3-foot antenna cables make it easier to adjust your LAN to suit your workspace. If you want to network a notebook, check out Compaq's kit.

—Dean Andrews ■

Both Compaq and NDC Communications also sell \$199 single-system add-on packs for adding more desktop or notebook PCs to your network.

To set up the CableFree kit, you first install an ISA card in each desktop, then attach a tiny pyramid-shaped antenna to the back of each card. Each antenna comes with a 3-foot-long cable so you can place the device high on a shelf (or a cubicle wall) for the best reception. A software utility helps you quickly locate active systems on your LAN. It took me only 20 minutes to configure

2 mbps Wireless LAN

PRO: Easy to use; adds a PC Card reader to your desktop; good for notebooks.

CON: Pricy; installation slightly more cumbersome than that of other SOHO LANs.

VALUE: Good starter LAN for hard-to-wire homes and offices.

List price: \$398 (for two \$199 starter kits)

Compaq Computer
800/282-6672
www.compaq.com

PRODUCT INFO NO. 711

Easy Scan Manager

IF YOUR multigigabyte hard drive is so packed with scanned images that you can't find what you need in a hurry, consider **Pagis Pro 3 Scanning Suite**. This one-stop scanning time-saver uses graphic thumbnails to help you visually manage all your scanned documents, images, and other electronic files. It also includes improved search and database manager tools. Bundled with complete versions of TextBridge Pro 9.0 and Adobe PhotoDeluxe Business Edition (valued at \$99 and \$69, respectively), the \$99 Pagis Pro 3 Scanning Suite is a worthy scanning solution for business and SOHO users. ScanSoft; 888/663-0658; www.scansoft.com.

PRODUCT INFO NO. 712

—Richard Jantz

Eudora Adds Features

A LEADING e-mail package for power users has added several features that even novices will appreciate. Qualcomm's **Eudora Pro Email 4.2** (\$50, free upgrade for users of Email 4.x) can automatically complete addresses by using entries in your address book—something Outlook, Netscape Messenger, and other e-mail programs have long been able to do—and the addressees of the most recent messages in your outbox. A spelling checker now highlights misspelled words in real time. If you create multiple e-mail identities using the Personalities feature, you can select the one you want for any outgoing message from a drop-down menu in the From field. The search feature offers more options and collects all results in one window. Qualcomm; 800/238-3672; www.eudora.com.

PRODUCT INFO NO. 738

—Yardena Arar

With a little drive, you can really go places.



The amazing Klik!™ PC Card drive and 40MB disks. Tiny laptop storage that goes a long way. We've just changed the shape of portable laptop storage. The new Klik!™ drive actually disappears right into your laptop's PC Card slot then accepts the 2" x 2", 40MB disks. This is portable storage at its best. Convenient, cordless, easy to carry, easy to use, and affordable. Plus, the included QuikSync software creates effortless real-time backup of your laptop files, anytime, anywhere. At \$199 for the drive (including 1 disk) and under \$10 per additional disk,* this little drive is going to be the next big thing. Grab your Klik! PC Card drive and disks wherever you buy computer products, or buy direct at: www.iomegadirect.com

iomega.
www.iomega.com

Buying a desktop on the Web is trickier than it seems—unless you've got help. We went comparison shopping to show you where to look, what to look for, and how to keep from getting burned.

YOU'VE HEARD the mantra: The Web is transforming the way we buy everything—including PCs. The Net makes retail stores unnecessary. Real live salespeople are passé. And prices are rock-bottom fantastic. Say goodbye to inflexible, impersonal, inconveniently distant computer superstores; say hello to a nation of happy shoppers ordering customized PCs from home at any hour of the day, in or out of their jammies.

Just look around. Most companies that sell PCs are counting on the Internet to boost sales. If you used to shop at Egghead stores and want to go back, it's now

WHERE TO GET THE BEST PC

the Web or nothing. And recently two huge direct PC sales specialists, Dell and Gateway, launched Gigabuy and SpotShop, respectively—Web stores furnished with everything from software to Zip disks.

Hey, anything that promises to eliminate schlepping across town and lingering in checkout lines holds the seeds of greatness. And we would certainly never ►

BY HARRY MCCracken

PHOTOILLUSTRATIONS BY GEOFF SPEAR



DEALS

ONLINE

miss circuitous touch-tone menus, cheesy on-hold music, and other tiresome trappings of catalog shopping.

But buying the right PC online isn't a simple matter of pointing, clicking, and typing in your credit card number. With dozens of sellers jumping into the game—from big-name behemoths like Compaq, CompUSA, and Dell to obscure little guys such as A2Z Computers and Virtual-world.com—it's harder than ever to decide where to spend your money. What's more, there's an unavoidable element of risk in buying a PC sight unseen. And some cheapo Web stores are making matters worse by rewriting the established laws of retailing to exclude niceties like presale advice and postpurchase tech support.

Whatever your level of PC proficiency, shopping for a system online is a new experience. The speeds and feeds are the same, but getting a box from point A (your Web browser) to point B (your desk) requires a road map.

We shopped for PCs at two kinds of Web outlets: stores run by PC manufacturers who sell their own goods directly to customers (Compaq, Dell, Gateway, IBM, IDot.com, Micron, and Quantex), and stores run by third parties who resell PCs manufactured by others (Buy.com, CDW, CompUSA Net.com, Egghead, Micro-Warehouse, NECX, Onsale AtCost, PC Connection, and PC Mall). We had good experiences and bad—and more often than not, we found ourselves resorting to old-fashioned tactics like online buying tip number one: Keep a telephone handy. A quick phone call is the ideal safety net when you can't get the help you need from the Web (for example, when you want good advice about which monitor is right for you).

On the following pages, you'll find more tips on how to select a Web store, save money, place an online order, and get service and support after the sale. We also highlight some of the best and worst features of the sites we visited with special picks and pans. No Web computer store is perfect. But some are closer than others.

The Web is wall-to-wall with PC merchants, every one of them only a URL away. Keep these tips in mind as you try to narrow the crowded field.

Buy Direct From a Manufacturer?

SHOULD YOU GET a computer built to order by the manufacturer, or should you buy an off-the-shelf model from a reseller? The Web adds a few new twists to this old dilemma.

If you're looking for the easiest way to tailor a PC to your needs and budget, go to the online stores operated by Dell, Gateway, Micron, Quantex, and other major direct vendors. Each site has a custom configurator that lets you add, subtract, and alter the components of your system. Hit a button and you'll see how your choices affect the overall price. None of the reseller sites we visited offer this level of configurability.

What's more, buyers who want bleeding-edge technology will appreciate that high-end PCs offered by direct vendors typically come loaded with the

latest processors, the beefiest hard drives, and other advanced components, from the day they're introduced. But systems equipped with these very same parts may take weeks to show up at reseller sites. During our shopping spree, all of the direct vendors we checked were already selling systems built with the latest Pentium III-550 CPU. The best we could do at reseller sites was to put in a back order for a PIII-550 speedster.

Best Comparison-Shopping Features

NECX provides lots of specs, side-by-side comparisons, and even reviews—and no, they're not always favorable. Just what you need to make an educated buying decision. Honorable mention: **PC Connection**, for its powerful System Selector shopping search engine.

SHOPPING OPTIONS

Find the Right Online Store



Buy From a Reseller?

DESPITE CUSTOM configurations and the latest gadgets, shopping online at the likes of Dell and Gateway has some drawbacks. For one, the lag between buying a PC direct and receiving it can be anywhere from a few days to several weeks while your system is built, tested, and shipped.

If you need your system immediately, order an in-stock model from a reseller like Egghead, NECX, PC Connection, or PC Mall. These stores often have buyers up and running as soon as the next day. They also sell many business-oriented PCs that you might have trouble finding at your local brick-and-mortar PC store.

Compared to most direct vendors (Dell and Gateway aim to be exceptions), resellers offer a wider array of third-party peripherals, software, and supplies. But the reseller Web sites we visited couldn't configure their off-the-shelf systems with

add-ons like extra memory, backup drives, and software. For that level of customization, you have to pick up the phone.

Two Ways to Buy the Same PC

SOME COMPANIES that have traditionally sold their systems through resellers—makers such as Acer, Compaq, Hewlett-Packard, and IBM—have launched direct sales operations on their Web sites, in effect competing with their own resellers. Which raises a question: Are you better off buying one of these manufacturers' PCs straight from the source or through a third-party reseller?

The answer depends on the type of system you're looking for. Many of these manufacturers still bend over backward not to poach customers targeted by their resellers. For example, the desktop sections of Acer's, IBM's, and HP's Web stores focus on home-oriented systems, while online resellers of these companies' PCs tend to market corporate models. Compaq's Web store does offer a full

making precise comparison shopping virtually impossible. (That said, the prices listed at Compaq's site tend to be in the same ballpark as those of its resellers.)

Furthermore, Compaq is the only hybrid direct vendor/manufacture for resale that offers to custom-build a PC for you. The others stock only a few standard configurations, eliminating a key reason for choosing to go direct in the first place. The bottom line: You may want to stop by these manufacturers' Web stores just to see what's available, but their direct sales efforts are unlikely to drive resellers out of business anytime soon.

Check the Specs

A CAR DEALER that didn't know what engine a certain model carried would be laughed out of the business. Things shouldn't be any different at an online computer store, but they are. PC resellers on the Web often have only rudimentary configuration details about

a particular system—and sometimes none at all. In our experience, Buy.com, MicroWarehouse, and Onsale AtCost were especially deficient in this respect. Most direct vendors' sites, meanwhile, supply a profusion of technical specs, as do a few particularly good reseller sites (notably, NECX and PC Connection).

1800-800-0099
Home
PC Connection
Business Login Home : System Selector : Features

System Selector
Select Features Items: 0 View/Checkout

What are your basic requirements? Matches:

Case Style:	Minitower	177
Processor Type:	<input type="checkbox"/> Celeron <input type="checkbox"/> Pentium or Equivalent <input type="checkbox"/> Pentium MMX or Equivalent <input type="checkbox"/> Pentium II or Equivalent <input type="checkbox"/> Pentium Pro or Equivalent <input checked="" type="checkbox"/> Pentium III or Equivalent	92
Processor Speed:	500 to 550 MHz	50
Hard Drive:	8 to 19 GB	136
Operating System:	Windows 98	137
Price:	1250 to 1750	106

Which manufacturers are you interested in?

☐ Search All Manufacturers 203
☒ Search the following Manufacturers:

<input type="checkbox"/> Acer	<input type="checkbox"/> Compaq Computer	<input type="checkbox"/> Digital
<input type="checkbox"/> EPIQ	<input type="checkbox"/> Hewlett Packard	<input type="checkbox"/> IBM
<input type="checkbox"/> Inteva	<input type="checkbox"/> Toshiba	

Total Matches: 5

WINNOW YOUR OPTIONS: Finding the right PC is easiest at sites like PC Connection that feature strong search tools.

pan Most Disjointed Shopping Experience

Gateway's direct PC sales site is plastered with ads for its SpotShop store, which stocks software and peripherals. But you can't plunk SpotShop purchases into the same virtual shopping cart with your Gateway PC, since the two stores are separate.

complement of product lines, but the models' standard configurations often differ slightly from those on sale at resellers,

Should You Buy Online

Buying PCs on the Web can save you money and labor. But it's not for everyone.

You'll be happiest online if:

You're a PC veteran. Online shopping is full of shortcomings that only self-sufficient types will be comfortable sorting out. For example, many sites don't offer much information about PC specs. So it helps to know how components differ.

You crave information. On the other hand, the best Web-based computer stores have tons of data about the systems. They let you view these stats in large tables. In the real world, informed comparison shopping is rarely so easy.

You can't find the right PC locally. Most systems you see at computer superstores are home-oriented. But online, you'll find it easy to purchase business PCs (such as Compaq Deskpros and HP Vectras) that are rarely in stock down the street.

Buying online may not be ideal if:

You need a new computer pronto. Ordering a custom-built PC online means wait-

ing days or weeks for it to arrive. If you need a system right now, even overnight delivery of an off-the-shelf system won't cut it. When time is of the essence, head to a (nonvirtual) store.

You could use a little advice. Not sure whether a particular graphics card is suited to your work? Few Web stores attempt to answer these questions. For help tailored to your particular situation, you need easy access to a salesperson.

You've got a great local dealer. The world is full of well-established mom-and-pop stores that sell good PCs and back them with fine service. If you're lucky enough to buy from one of these shops, why change?

Where the Deals Are Direct Versus Resellers

THE BEST TIP for finding a great deal on the Web: Do your homework. Or get someone else to do it for you. You can try an online price-comparison service (see "Buy Scouts," page 114) or take a gander at the tables below. We visited the top sites for buying PCs and looked for comparable configurations at each one.

What did we find? As you can see, direct manufacturers cut a pretty mean deal. In fact, their prices cover some extras not

included in the resellers' prices, such as application software. The Aptiva we priced at IBM's site, for instance, is expensive and can't be made to order—but it includes such enhancements as 96MB of RAM, a 13GB hard drive, and a DVD-ROM drive.

Among resellers, a gap of roughly \$300 in system prices separates the cheapest from the most expensive companies. Buy.com and Onsale AtCost have low prices, but we found better deals at NECX and MicroWarehouse on the specific IBM computer we were looking for. Keep in mind that the prices listed here do not include the cost of shipping, which may vary tremendously depending on which company you buy your system from and how quickly you want to receive it.

—Brad Grimes

ONLINE RESELLER	Compaq Deskpro EN ¹	IBM PC 300GL ²
Buy.com www.buy.com	n/a	\$1957
CDW www.cdw.com	\$1926	\$2105
CompUSA Net.com www.compusera.com	\$2117	\$2077
Egghead www.egghead.com	\$1808	n/a
MicroWarehouse www.warehouse.com	\$1869	\$1939
NECX www.necx.com	\$1885	\$1935
Onsale AtCost www.onsale.com	n/a	\$1987
PC Connection www.pcconnection.com	\$1878	\$2018
PC Mall www.pcmall.com	\$1888	\$1798

n/a = not available Prices are as of 6/10/99 and exclude shipping.

¹ Pentium III-500, 64MB of RAM, 6.4GB hard drive, 8MB of video RAM, network card, 17-inch ViewSonic G5771 monitor, Windows 95.

² Pentium III-500, 64MB of RAM, 8.4GB hard drive, 4MB of video RAM, 17-inch ViewSonic G5771 monitor, Windows 98.

ONLINE DIRECT VENDOR	Model ¹	Price
Compaq www.compaq.com	Compaq Deskpro EN (6.4GB hard drive)	\$2008
Dell www.dell.com	Dell Dimension XPS T500 (9.1GB hard drive)	\$1575
Gateway www.gateway.com	Gateway Performance 500	\$1652
IBM www.direct.ibm.com	IBM Aptiva 631 S (96MB of RAM, 13GB hard drive)	\$2378
IDot.com www.idot.com	IDot.com 500BXP3	\$1377
Micron www.micronpc.com	Micron Millennia Max	\$1732
Quantex www.quantex.com	Quantex QP6/500 SB-2 (8GB hard drive)	\$1478

Prices are as of 6/10/99 and exclude shipping.

¹ Unless otherwise indicated, each PC comes with a Pentium III-500 CPU, 64MB of RAM, an 8.4GB hard drive, 8MB of video RAM, a 17-inch monitor, Windows 98, and a network card.

If a particular store has relatively skimpy specs for a system, tread carefully. You can't make an informed decision about whether a computer is a good deal if you don't know what it offers. Call or e-mail the vendor for additional details, or surf over to the PC manufacturer's home site and check out its "products" section. In most cases you'll find extensive information on models and configurations there.

Virtual Stores, Virtually No Support

THE WEB HAS made possible a new breed of no-frills, bargain-basement merchants, among them Buy.com ("The Lowest Prices on Earth") and Onsale AtCost ("wholesale prices"). Their pricing claims

may be open to dispute, but these Web-only resellers are pretty darn cheap (see "Where the Deals Are," above). Most of these resellers that trumpet "prices so low we must be crazy" make no pretense of

PICK

Most Refreshingly Honest Advice

When we e-mailed CDW to ask whether it could preinstall FrontPage on a PC, a sales rep replied that it could, for \$60—but he advised against it, since installation was too easy to justify paying CDW to do the job. It takes a human being to be so candid.

providing technical support, online or otherwise. If you need help with a product you've bought from them, they'll simply refer you to the manufacturer. And depending on how much help you anticipate needing, that may be good enough for you.

On the other hand, such veteran resellers as CDW, MicroWarehouse, and PC Connection (which augment their online outlets with mail-order catalogs and the option to order by telephone) offer free tech-

nical support for the items they sell. When we ran into an audio problem with a computer we'd bought at PC Connection, we called that company's toll-free line, got through to a rep instantly, and received an answer that fixed the trouble within minutes. So if you buy, say, a Compaq from CDW, you get access to support from both companies, improving your odds of getting a problem solved.

Frequently Unanswered Questions

IF YOU KNOW exactly what you want, Web stores can be a breathtakingly efficient way to buy a PC. Got a question or two about a system? Then be prepared for the process to drag on for days. True, nearly every site we visited (with the notable exception of Onsale AtCost) provided some mechanism for submitting presales questions to the vendor by e-mail. But we usually had to wait—anywhere

from a few hours to a couple of days—for a reply to arrive, and some of the responses we did eventually receive were canned messages that didn't answer our questions. Even the simple query "Can you preinstall Microsoft FrontPage on a computer I buy from you?" flummoxed CompUSA Net.com; we got a message instructing us to ask again by phone.

Even when you do reach helpful sales reps, they may have to send you an e-mail asking for additional information, which delays matters further. Our advice: If you have the option of calling for sales advice (and you usually will, except at Web-only resellers like Onsale AtCost and Buy.com), use it. You may sit on hold for a spell, but you'll likely save time in the long run.

Ask the PC User Who Owns One

BESIDES BEING a great place to purchase a PC, the Internet teems with buyers who have tales to tell. Several prominent manufacturers are the subjects of unofficial newsgroups, including alt.sys.pc-clone.acer, .compaq, .dell, .micron, and .gateway2000. (If you don't want to bother with a newsgroup reader, you can browse their contents by using Deja.com (www.deja.com, formerly DejaNews.) For candid opinions about reseller sites, try Reseller Ratings (www.resellerratings.com), which invites Netizens to speak out on over 150 mail-order merchants.

These resources are worth a visit before you buy, but they're not scientific surveys. One unhappy camper with an ax to grind can drown out a score of satisfied consumers. So take what you learn as a potentially biased sampling of opinion, not the unvarnished truth.

BAG A BARGAIN

Getting a Great Deal Online

It's never wise to base a major buying decision on price alone—just ask a Yugo owner. Still, it's always nice to save some bucks on a PC. The Web offers plenty of ways to do just that.

Comparison Surfing

IN THE REAL world, comparison shopping usually entails a series of treks around town or a phone-call marathon. Go online, and you can hop from Web store to Web store almost instantly, examining products and prices as you go. In fact, you don't even have to do the surfing yourself—a slew of price-comparison sites collects this information (see "Buy Scouts," page 114). These comparison sites aren't perfect, though, so you will probably have to do your own price shopping.

This task is trickier with computers than with most other merchandise. Even if you're comparing two sites' prices for what appears to be the same model (for instance, a Compaq Deskpro EN), cost differences may reflect subtle configuration differences, such as the quantity of video RAM. The safest way to compare is to work with manufacturers' unique product numbers, not model names. The item listings at most Web stores specify these manufacturer numbers, and using them should let you compare apples to apples.

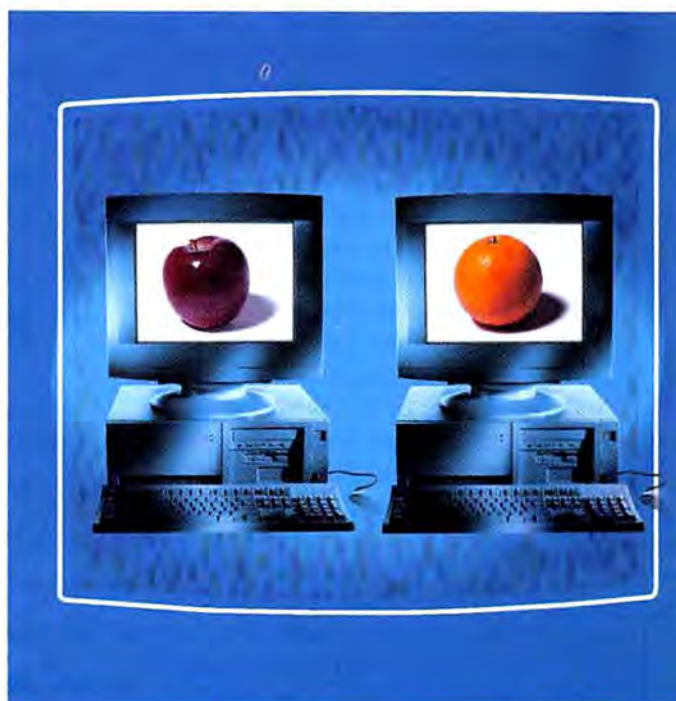
Chipping In for Shipping

SOMETIMES DELIVERY is free. Other times, it rivals the cost of a monitor. And a hidden charge of that magnitude can

determine whether a Web store is a price leader or a tad on the expensive side.

We discovered that vendors' shipping charges vary wildly: IDot.com wants \$233 to ship a PC overnight, while PC Connection provides the same service for \$50 (about what most vendors charge for ground delivery). So don't make a final decision before comparing shipping fees.

Unfortunately, many sites, especially direct-vendor outlets, don't disclose their delivery charges until the end of the ordering process. You may have to enter your shipping details as if you were about to buy a PC, and then bail out at the last moment just to nail down this important information. Worse, the Dell and Micron sites don't tell you the exact amount of shipping costs (and taxes, if applicable) until after you've placed your order. They contact you later with this information, often by e-mail. In refreshing contrast, the Quantex and CDW sites ask for your Zip code and report back with the exact shipping charge long before you commit to making a purchase. ▶



PAN

Skimpiest Presale Help

Onsale AtCost has low prices, but many item listings have no product description, e-mailing customer service for advice is discouraged, and the site gives you no way to call a real person.

INFORMATION...PLEASE? Product details tend to be skimpy or nonexistent at Onsale AtCost and some other shopping sites.

Wanna Haggle? Pick Up the Phone

IN THE VIRTUAL world of Web shopping, you'll never run across a salesperson who's authorized to lower a price to make a sale. That's good for vendors but bad for any shopper who is bold enough to haggle. Still, if you aren't married to shopping solely via modem, you might not have to pay the price you see on your screen. Most Web vendors list phone ordering lines, which are staffed by real salespeople who have been known to haggle on occasion.

We checked out CDW's and Buy.com's sites for an HP desktop, then called CDW and pointed out Buy.com's lower price. Timmy, our CDW rep, instantly knocked \$125 off the price. Why didn't we order from Buy.com in the first place? Because

it didn't have the system in stock, and CDW did. But trying

to bargain can be a hit-or-miss proposition. When we tried to use the same tactics with a PC Mall salesperson, he wouldn't budge, asserting that Buy.com was selling the system at a loss.

Two-Timers: Refurbished PCs

DO YOU HAVE Pentium III tastes and a Celeron budget? Then

consider buying a refurbished (or "re-manufactured") PC—a system returned by its original purchaser and then spruced up for resale. Many direct-vendor and reseller Web stores offer these units. You won't get staggering discounts, but purchasing a refurbished computer is an easy way to save \$200 or get a brawnier configuration within your price range. If you're nervous about reliability, choose your system from a company that backs refurbished PCs with the same warranty it applies to new systems. Dell, Micron, and Gateway all do this; Compaq limits its warranties on refurbished computers to 90 days.

Buying a refurbished unit means picking from whatever is in stock. Because the selection is in flux, some Web stores don't let you order refurbished PCs online; you must call to confirm availability.

The Auction Alternative

YOU CAN ALSO FIND refurbished PCs at merchant Web auction sites such as Onsale AtAuction and UBid, alongside unused but slightly outdated systems. In some cases you can bid on the latest sys-

tems from lesser-known manufacturers. (Person-to-person auction sites such as EBay consist chiefly of used products sold by private individuals.)

Even if the opening bid is \$1, you're unlikely to snare the bargain of the century, but you might get a good deal. Read the rules, and don't bid on a PC unless you know how much it's worth. For more on Web auctions, see our August report, "Sold! How to Win at Online Auctions" (www.pcworld.com/aug99/auctions).

CHECKOUT TIME

Placing Your Web Order

Once you decide what and where to buy, you're almost done. But not quite: Completing an online order has its own unique challenges.

Be Safe, Stay Private

EVEN IF YOU appreciate all of the benefits of Web shopping, you may feel a bit antsy about transmitting your credit card information over the Internet. Fortunately, all the sites we visited shield that information with Secure Socket Layer technology. If that level of protection doesn't set your mind at ease, Dell and Gateway give you the option of concluding your online purchase over the phone. Still feeling a little

uncertain

about whether the transaction system at a site is really 100 percent safe? Watch your browser's address window as you start through the checkout process; if the URL begins with 'https://' instead of 'http://', then SSL has kicked in.

Though theft of credit card information is rare, many PC users do battle

with spam every day. Each online vendor we visited posts a privacy policy, usually beginning with an assurance of the site's immense respect for its customers' privacy. Very touching. Unfortunately, CompUSA Net.com and MicroWarehouse, among others, go on to say that they reserve the right to sell your personal information to other companies. Even if a vendor doesn't share your data, it may well bombard your electronic mailbox with sales pitches that promote its own wares.

All the privacy statements we looked ▶



Quick Shipping Calculator		
Enter Shipping Zip Code		
02474 CO		
UPS Ground	2-5 business day delivery	\$22.15
Priority Mail	US Post Office Priority Mail 3-8 day delivery	\$53.19
FedEx Economy 2 Day	Delivery within 2 business days	\$57.55

DELIVERY DILEMMA: CDW's site is among the few that show you up front precisely how much different shipping options cost.

MAKING THE WORLD A SMARTER PLACE THROUGH STATISTICS...

SPSS[®] 9.0

REAL STATS. REAL EASY.[™]

IN-DEPTH
STATISTICS &
MODELING

CONVERT YOUR
DATA INTO DECISION
MAKING *POWER*.
I DID!!!

UNRIVALED
DATA
ACCESS!

MAKE
PREDICTIONS

FIND
PATTERNS

EASILY SEE DISTRIBUTION!
FOCUS YOUR ANALYSIS
LIKE NEVER BEFORE

INTERACTIVE
GRAPHS

REPORT
OLAP

SPSS HELPS YOU...

- PICK THE RIGHT TYPE OF ANALYSIS
- INTERPRET YOUR RESULTS

SLICE! DICE! DRILL DOWN!
GET KEY VIEWS OF YOUR
RESULTS AT A GLANCE

CALL 1-800-543-5837

www.spss.com

SPSS[®]

SPSS is a registered trademark of SPSS Inc.
Info-Man is a copyrighted character of SPSS Inc.
S9AD2-0199PCW A5837

Buy Scouts Rating the Price-Comparison Services

PRICESCAN, PRICETRAC, Price Watch—the Web has no shortage of sites that tout their ability to sniff out low prices for PCs and other products. We tried eight price-comparison services, looking for a deal on a Toshiba Equium 7100M PC. We found that these sites behave much like their cousins, Web search engines: Not one is perfect, so it pays to use several of them.

None of the services is comprehensive—in fact, some (such as Price Watch) restrict their coverage to products from paying

advertisers. And no service has met the challenge of keeping pace with constantly changing PC prices. While Excite Price Finder and Bottomdollar.com grab prices on the fly for up-to-the-minute accuracy, they collected far fewer sites overall than did services such as PriceScan, whose prices are updated manually. Finally, no price-comparison service comprehensively lists important data such as shipping options, return policies, and whether a given Web store has the product in stock, though Shopper.com comes closest.

In each case we searched for a Toshiba Equium 7100M 400-MHz Pentium II PC with 64MB of RAM and a 6GB hard drive.

SERVICE	Number of sites found	Lowest price	Good news	Bad news	Bottom line
Bottomdollar.com www.bottomdollar.com	1	\$1327	Runs searches in real time for up-to-date prices.	Simple keyword searches only.	Better searching would help.
DealTime www.dealtime.com	2	\$1172	Good search tools, lets you save searches and receive e-mail alerts, tracks auction sites.	Found only two sites for this particular search.	Feature-rich and fun.
Excite Product Finder jango.excite.com	5	\$1303	Runs searches in real time for up-to-date prices, finds reviews.	Didn't come up with a really low price.	Needs to troll more sites.
KillerApp www.killerapp.com	15	\$1261	Good search tools, "My KillerApp" lets you track products and prices.	Comparison tables can be unwieldy, vendors pay to be listed first.	Dumb name, nice service.
Price Watch www.pricewatch.com	5	\$1229	Claims that its visitors get special prices.	Lists only advertisers (mostly smaller sites), crude search tools.	Walk on by.
PriceScan www.pricescan.com	26	\$1241	Good search tools, finds lots of sites, lists lowest prices first, neat graphs of price trends.	Some prices are stale, doesn't have direct links to all sites.	Overall, one of our favorites.
PriceTrac www.pricetrac.com	0	n/a	Sends e-mail notifications when prices hit your target.	So-so searching and product index, unclear how often prices are updated.	Struck out in our test.
Shopper.com www.shopper.com	24	\$1221	Easy to use; well-organized product index; finds lots of sites.	Can't search by specs, sites pay to get listed at top (you can re-sort by price).	One of the best.

n/a = not applicable

PaN

Most Inescapable 'Option'

Dell, Gateway, and Micron are famous for building PCs to order. So why do they—and others—require you to buy Microsoft Office (or sometimes Works) with many models, whether you want it or not?

at affirm that you can avoid receiving unsolicited e-mail and snail mail, but they tend to be remarkably vague about the actual steps involved in opting out. (Dell's and Egghead's statements are among the few that let you escape the mailing list then and there.) If you receive undesired e-mail from a vendor after you've purchased something, check the end of its messages;

you should find an explanation there of how to secede from the mailing list.

Configure It Out

ONE KEY ATTRACTION of buying a PC from its manufacturer's Web site is the opportunity to custom-configure your system, using drop-down lists that enable you to pick and choose precisely the com-

ponents you want. At most sites, beefing up a system with more RAM, a gargantuan hard disk, or a Zip drive is a breeze. But what if you want to cut costs by downgrading a particular system—by reducing its RAM from 128MB to 64MB, maybe, or by removing a modem?

In many instances, you can't downgrade a system. But don't waste your hard-earned money on components that you don't need. Look for the most stripped-down system that has the processor you want, and then build your system order upward from there.

Entrepreneur5 THE STORE

This hot new 500MHz Intel Pentium III-based system is just what every enterprising business needs. It's fully loaded with everything from a DVD-ROM to a 17" monitor and much more. Plus, you get Corel WordPerfect Suite 8 software. When it comes to the best prices for computers, iDOT.com really means business.

\$2,599.00
Lease for \$103.34/mo

- Base System
- Floppy Drive
- Memory: 128MB SDRAM 100MHz (Add \$55.00)
- Hard Disk 1: 16.8GB 5400 rpm Hard Drive
- Hard Disk 2: None
- SCSI Controller: None

More To Configure ?

MORE, YES; LESS, MAYBE: Downgrading a configuration can be hard to do—this iDot.com PC's minimum RAM is 128MB.

Do You Want a Printer With That?

TYPICALLY, DIRECT-VENDOR sites have custom configuration PCs that suggest extra-cost peripherals you might want to add to your order. Though it's indisputably convenient to check a box and add accessories, you should look before you leap. The selection is usually small and scattershot, and the prices aren't always good.

Micron's site suggested that we add an Epson ink jet printer for \$349; we found the same model for \$299 at PC Connection and for just \$240 at Onsale AtCost. ▶

iomega Business Solutions

because
some files
disappear
and are
never heard
from again



Where do PC files go when a laptop or desktop user loses them? Thin air, apparently. Because you've certainly looked. iomega's software, disks, and drives (built-in and external) now transparently back up large files on portable disks, where they're safe. So no more mysteries. Find your solution wherever you buy computer products, or: www.iomega.com

iomega

www.iomega.com

Copyright © 1999 iomega Corporation. All rights reserved. iomega, Zip, and Jaz are registered trademarks, and Click! and ZipCD are trademarks of iomega Corporation. All other trademarks are property of their respective owners.

Buying add-ons along with your PC doesn't guarantee that everything will be delivered at the same time, since PCs and peripherals may be shipped from different warehouses. If you really want to order your PC and printer from the same store (like Dell's), find out whether they'll ship at the same time. If they won't, take a few extra minutes to shop around for better prices on the peripherals you want. After all, if everything arrives separately anyway, you might as well save some bucks.

Plastic Precautions

WITHOUT THE modern miracle known as the credit card, electronic commerce might not exist at all. But Web vendors and card issuers are exceedingly wary about credit card fraud, and they may take various precautions that delay processing of your online order. The most common holdup: Many vendors insist on verifying the validity of a shipping address if it differs from the billing address for your credit card. So if you plan to pay by personal card for a PC that you want the vendor to send directly to your office, expect a phone call to your home number. We even received a confirma-

PICK

Best Custom Configurator

A close one: Compaq, Gateway, Micron, and Quantex all have slick build-your-own PC systems. But Dell's configurator enjoys a slight edge, mostly because its Help Me Choose buttons let you summon the facts you need to design the ideal PC.

dough all at once—say, if you're planning to buy several computers at one time.

Oh, How You'll Pay for This

CREDIT CARDS ARE the universal currency of the Web; most online stores assume that you plan to use Visa, MasterCard, Discover, or American Express to settle your account. Paying by credit card may work fine if you are paying for a PC out of your own pocket or will get reimbursed by your company. But most Web

stores we visited don't offer the buying option that corporate America favors most: issuance of a purchase order for the merchandise, with subsequent invoicing (aka net-30 terms).

In some instances, vendors are willing to accept purchase orders for phone-based transactions but not for Web-based orders; at press time, this was true at PC Mall and PC Connection, though the latter does plan to accept purchase orders online by the time you read this. Even the sites that accept purchase orders online (Dell, Gateway, CDW, MicroWarehouse, NECX, and Compaq, among others) generally impose restrictions of one kind or

Pan

Least-Reassuring Security Guarantee

Jittery about credit card theft? Dell's promise to reimburse you for up to \$50 in bad charges resulting from a purchase at its site won't calm your nerves. (Rely on Visa for the rest.)

another—most notably, you will probably find it necessary to establish a corporate account in advance, which involves submitting a formal application.

Most Web stores clearly spell out the available payment options in their Customer Service sections. Reading this information early on will help you avoid nasty surprises when you're halfway through placing an order. Incidentally, purchase by good old-fashioned cash on delivery is nearly nonexistent on the Web; Gateway's online store is the only one we found that offers to send a computer that way.

RESCUE ME

Service and Support Web-Style

You shopped online. You bought online. Surely you can get help online—right? Maybe, maybe not. The technical support sections of even the best Web PC stores remain works in progress.

Surfing for Support

IN A PERFECT world, you'd give a PC vendor's Web-based support a test drive before buying. But that's often impossible, because many sites restrict their tech support area to buyers who supply a serial number or other proof-of-purchase.

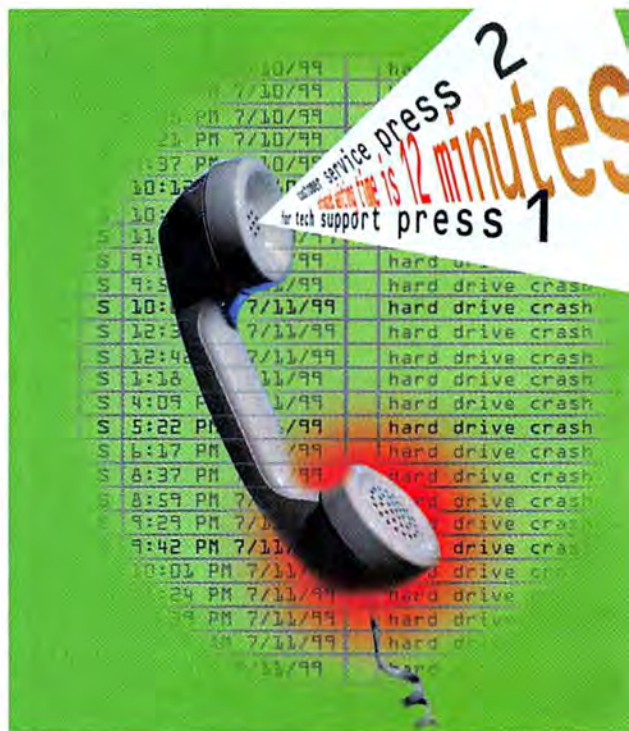
As is usual with the Web, the answer you need probably lurks out there somewhere, but you may never find it. Most PC manufacturers' sites assault visitors with information—online manuals, FAQs, knowledge databases, file libraries, and more—but do little to help users (especially the less technically savvy among us) make sense of it.

A few sites show signs of making headway here. We liked Dell's "Ask Dudley"

feature (which lets you pose questions in plain English) and Quantex's wizard-style troubleshooters, for example. But for now, online support remains a crapshoot.

1-800-HELP!

IN CASE OF emergency, call. Consulting Web support as a first resort makes sense for problems that aren't showstoppers. ▶



The evolution of the computer ends with Z.



Introducing the Z1 from NEC.

Sleek, elegant, compact, it's the ultimate refinement in PC design. With its unique flat panel screen, wireless keyboard and all-in-one design, the Z1 occupies just a ten-by-ten-inch square of desk space. You'll also find the Z1 as fast and easy to set up as it is to use. In fact, you'll be up and running within minutes. Plus the hard drive, monitor and RAM are quickly and easily upgradable, so it won't become extinct anytime soon. The new Z1. It's quite possibly the world's most evolved computer. Visit www.nec-z1.com for a dealer near you.

Z1
NEC



Intel® Pentium® III Processor 450MHz
96MB Memory 8.4GB Hard Drive
DVD Modem
3D Graphics Network-ready

When referring to hard drive capacity, GB stands for one billion bytes. Some utilities may indicate varying hard drive capacities. Total user-accessible capacity may vary depending on operating environments. NEC is a registered trademark of NEC Corporation used under license. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation.

But for tougher issues, you'll find that discussing your problem with a real person in real time is far more efficient.

As with presale service, carrying on a Q&A conversation via e-mail can take days. Think about it: How often have you called a technical support line, asked a question, and received an immediate answer? Technicians usually have to ask you questions first to determine the source of the problem ("Is your PC turned on?" or "What do you see on your screen?"). That can mean multiple e-mails.

You may uncover the answers you need by rummaging through online FAQs, but if you don't know the source of your problem, you may have trouble knowing where to look. Likewise, knowledge bases and troubleshooting wizards are great for savvy PC users, but less helpful for people who aren't sure what questions to ask.

What Serial Number?

WHEN YOU GO in search of online help, be prepared to identify your PC's serial number, your own customer ID number or code, or the specific order number for the system you bought. When contacted over the phone, people are often lax about requiring this information; in the automated online world, however, codes are a fact of life. Even with your electronic key in hand, you may have to fall back on phone support for help. Databases sometimes don't communicate with each other. When we tried to get online help from Gateway, the site didn't recognize our serial number, but a phone representative for the company did.

Go to the Source

THE VAST MAJORITY of online resellers make no effort to provide Web-based tech support. (CDW and PC Connection are two exceptions.) And when an online reseller offers support, logic dictates that if it sells 50,000 products it can't have an intimate knowledge of every item. You're far likelier to find driver libraries, troubleshooting guides, and other resources at the site of the company that manufactured your PC.

Check out the component makers' company sites, too. Not every PC maker's Web support page has much to say about the third-party parts inside the case.

Guarantee Snags

IT'S COMFORTING to know that the new PC you bought online carries a 30-day money-back guarantee. At least it is until you realize two things: First, the guarantee doesn't grant you 30 days' use of the PC before you're stuck with it.

And second, if you do return it, you won't be able to get all of your money back.

Only a handful of vendors, including Gateway and Compaq, delay the start of their 30-day guarantees until you have received your PC. Everyone else begins counting from the moment the system ships. Our IDot.com system, for instance, didn't arrive until 8 days after the vendor sent it out, so we were left with a 22-day guarantee. Some vendors give you even less time. HP offers just a 15-day guarantee. And NECX includes the entire round trip in its grace period: You have a total of just 24 days of coverage, from the time your shipment leaves NECX until the time it arrives back at the company.

PICK

Least-Hidden Extra Charges

Want to know just how much your purchases will really cost? Head to **Quantex**, one of the few direct vendors that clearly tell you in advance exactly how much shipping fees and sales tax will add to the final tally. Or try **CDW's** nifty Shipping Calculator, which puts a price on each of 11 different shipping options.

Pan

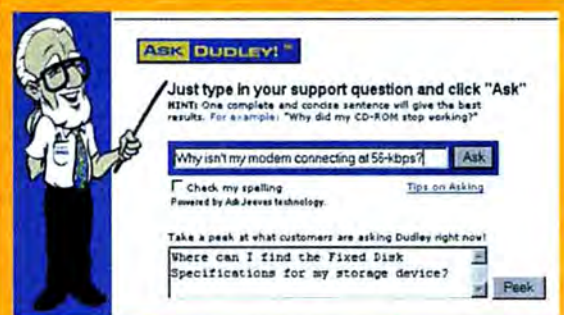
Most Baffling Tech Support Feature

Compaq's Spinner (no relation to the music site) is an "amazing bicycle messenger.... Tell Spinner what kind of information you are interested in and he will ride around keeping track of it for you." We tried Spinner, and we still can't figure what he does.

cost of returning the system, which can add another \$150 to the cost of rejection. IBM is one rare vendor that pays for the PC's round trip.

Since no two vendors offer identical refund policies, you should carefully read the fine print on warranty coverage before you buy. You may encounter some startling caveats, such as CDW's refusal to take back Compaq, HP, and IBM computers—even defective ones! And if you decide to return a PC,

don't try to make arrangements by e-mail (remember, the clock's ticking). Our attempts to work out details of a return online with Egghead and Gateway were futile; we ended up calling both.



DO RIGHT, DUDLEY: You can type simple English sentences to ask Dell's ponytailed protagonist tech support questions.

Mutual Aid Society

SOME OF THE BEST online help comes from fellow PC users who have already resolved the glitches you face. Many of these helpful souls frequent the message forums that some hardware manufacturers (such as Compaq and Dell) offer at their sites. Others can be found in UseNet newsgroups (see "Ask the PC User Who Owns One," page 111).

Or try some of the Web sites that dispense free tech support, like Ask-a-Tech (www.ask-a-tech.org) or Experts' Exchange (www.experts-exchange.com). For more on these sites, see May's *Got a Problem?* (www.pcworld.com/may99/gap).

Harry McCracken is a senior writer for PC World, and Brad Grimes is a senior editor for PC World.

WHERE DO YOU GO TO SEE TODAY'S SOLUTIONS FOR THE BUSINESS OF TOMORROW?

TECHNOLOGY TODAY

Planning for tomorrow is a big part of running your business today. The national television series, Technology Today, keeps you up to date on the latest technological innovations, who's got them, and more importantly, what they can do for you. Technology Today delivers industry exclusives in an entertaining format with thought provoking commentary. It's the perfect resource for the business professional with an eye toward the future.

JOIN THESE LEADERS



Acer America Corporation - Discover how the **AcerPower Flex4000** series of PCs lowers total cost of ownership without sacrificing manageability and your ability to upgrade. The AcerPower Flex4000 gives you the best of both Net PC and Managed PC in one unit.



Cyber Power Systems (USA), Inc. - Find out how the **Cyber Power's Power Systems** provide surge protection and battery back-up in a streamlined package without interruption. With interactive software that saves files, closes applications and shuts down your computer, Cyber Power delivers reliable solutions to data protection problems.



Intel Corporation - See how the new **Intel740 Graphic Accelerator** will amaze you with lifelike graphics and high-end 3-D images. If you're ready to add a graphical realism never before seen in business and consumer applications, open up your imagination and experience the explosive world of 3-D graphics with the Intel740 Graphic Accelerator.



Real 3D - StarFighter from Real 3D brings leading graphics performance and unrivaled image quality to the mainstream PC platform for business applications, computer games and professional 3D software. All this, at a price that will make you the "star fighter".

Your competition turns to Technology Today, Saturdays at 4:30pm EST on CNBC, to improve their business and plan for tomorrow's global marketplace.

Can You Afford Not To?

This program is paid for by

Global Solutions Network

350 Fairway Dr., Suite 101, Deerfield Beach, FL 33441

Phone: (954) 427-3455 Fax: (954) 427-3454 www.gsnetwork.com





*Our expert tipsters lead you out
of the deepest, darkest jungles of
Word, Excel, PowerPoint, and
Outlook for Office 97 and 2000.*

Offi

BY GEORGE CAMPBELL, GREG HARVEY, RICHARD JANTZ, AND JUHA SAARINEN

OFFICE 2000 IS LARGE, complex, and mostly uncharted territory. If you've tried out the new suite already, you know it's a jungle in there. Even intrepid veterans of Office 97 may feel like foolhardy explorers in the vast wilderness of Office 2000's expanded features. It's not quite as hard as hacking your way through dense underbrush, but if you want to master Word, Excel, Outlook, PowerPoint, FrontPage, and Publisher, you'll need a way to see the forest *and* the trees.

That's where we come in. We know the way—including the shortcuts to take and the pitfalls to avoid—in both ►

Office 2000 and Office 97. We'll arm you with tips and tricks to guide you during the installation, customization, and actual use of the different applications.

Microsoft boasts that Office 2000 is "Web-enabled." And indeed it is, with its ability to save and open HTML files. That's handy, but we're more concerned with how user-enabled the suite is.

Accordingly, we discuss how to upgrade from Office 97 to 2000 and how to pick just the apps you want without loading the entire 526MB suite. We explain how to take advantage of the new Web capabilities in each application without allowing them to monopolize your hard disk space. And we supply tips on how to make the most of each app's features, explain new menu and toolbar interfaces, and help you control those interfaces.

In the following pages you'll find time-saving tips for using the new Word, Excel, Outlook, and PowerPoint (these tips are marked with a 2000 symbol). Several also work with the Office 97 versions of those apps—these are marked 2000/97.

For tips on Office 2000's FrontPage and Publisher, visit www.pcworld.com/sept99/office_tips.



OUR OFFICE safari begins with the suite's most popular application, Word. Although Microsoft has retained the Office 97 file format in Office 2000, it has added a number of new features, such as "click anywhere" screens, new printing capabilities, and tables within tables.

word

2000>Start Typing Anywhere in a Document In Word 97 and earlier versions, if you wanted to start typing anywhere but at the top left corner of a new document, you had to resort to a bunch of <Enter>, <Tab>, and <Spacebar> maneuvers. Word 2000's snazzy Click and Type feature changes all that. To enable it, select **Tools>Options**, click the **Edit** tab, and select the **Enable click and type** check box. Select **View>Web Layout** or **View>Print Layout**. Move the mouse pointer to a blank area of the document, near where you want to begin typing, and click. The point-

er will change to an alignment icon. Move the new pointer to the location where you want to begin typing, then double-click and start typing. Click and Type also works inside Word table cells.

Note: If you double-click near the center of the screen, the text you type will be centered. If you click near the right margin, the text will be right-

aligned. The icons, which resemble the toolbar's alignment icons, change accordingly as you move the mouse pointer.

2000>Print Multiple Pages on a Single Sheet The Word 2000 jungle conserves its trees: An environmentally friendly feature lets you print up to six readable pages on a single sheet of paper. First, select **File>Print** or press <Ctrl>+P. Indicate the desired number of pages per sheet in the **Zoom** box of the **Print** dialog box, and then click **OK**.

2000/97>Create a Hyperlink Do you want to put a link in your document that transports you to another spot in that document or to a Web site? First, go to the spot in the document that you want the link to jump to, and create a bookmark by

OFFICE basics



OFFICE 2000 GIVES you a caravan of options for installing it, customizing it, and creating documents with components from all its apps. Figuring out how to do all this requires some guidance.

START BY TAKING CONTROL

MICROSOFT CALLS its Office 2000 Premium Edition an office suite, but it's clear that this mammoth 4-CD-ROM package is more like an office building. Getting the monster package (526MB for a full install) effectively loaded on your system means choosing which components to install, and where. You need to take control of Office 2000 from the start or it will control you—and your time—later. Here's how to get the upper hand:

Making the First Choices

Once the Installation Wizard has walked you through entering your customer information and CD key, and you've agreed to the license, you're faced with the first choice: **Upgrade Now** or **Customize**. The **Upgrade Now** button will remove your old version of Office and install Office 2000 in the default directory.

That's the easiest way to go, but it doesn't give you as much control over the installation as the other option. If you'd rather keep the old version of Office around for a while, click the **Customize** button.

The first step of the custom installation lets you choose the location for Office files. If you have just one hard disk or partition, the default location is probably fine, but if you have multiple partitions, you can change the location of the Office folder by typing in a new path in the field provided. But be warned: If you let Office install in the default directory and a previous version is already installed, the Installer will delete the earlier version. If you want to keep the previous version, specify a new installation directory for 2000.

selecting **Insert>Bookmark**. Then go back and select the graphic object or word you want to use as the link. Choose **Insert>Hyperlink** or press **<Ctrl>-K**. In Word 97, click the **Browse** button in the 'Named location in file' section and, in the resulting dialog box, select a bookmark. In Word 2000, click **Place in This Document**; a handy tree of headings and bookmarks makes picking your spot a fairly straightforward task.

2000>Create Two Side-by-Side Pages on One Sheet It's also possible to see two-page layouts on the same page—a handy feature for making comparisons or creating booklets. Select **File>Page Setup** and click the **Margins** tab. Next, put a check in the **2 pages per sheet** box. Adjust the margins as desired, and finally, on the **Paper Size** tab, choose between **Portrait** or **Landscape** orientation.

2000>Add a Frame to a Web Document Word 97 lets you save documents as Web pages, but Word 2000 gives you the power to create Web sites, complete with frames. With the document open, select **View>Web Layout**. Next, select **Format>Frames>New Frames Page**. In the **Frames** toolbar, choose a position for your new frame. Drag the frame's border to

resize it. Right-click inside the frame and select **Frame Properties** to set the initial page for the frame and borders. Now you can create text and hyperlinks in the frame to control its activity, using normal Word editing and formatting tools. Save the frame with its own file name, as part of your Web site.

2000>Make Word's Web Pages Viewable in Older Browsers Word 2000's new Web features work best with Internet Explorer 5, but it's still possible to view Word HTML pages in IE 4.0 and Netscape Navigator 4.0. You simply have to adjust a setting: Select **Tools>Options** and click the **General** tab. Next, click **Web Options**, select **Disable features not supported by**, then choose **Microsoft IE 4.0 or Netscape Navigator 4.0**

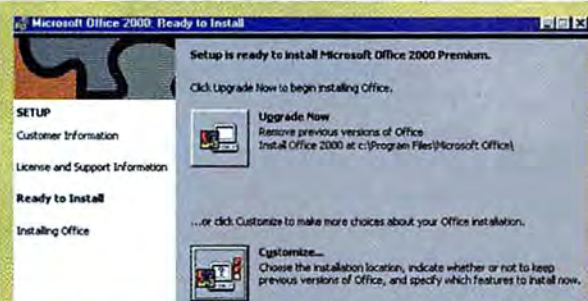
Word Keyboard Shortcuts

These handy shortcuts work in both Word 97 and Word 2000.

To do this...	...press
Add, delete, or go to bookmark	<Ctrl>-<Shift>-<F5>
Delete next word	<Ctrl>-<Delete>
Delete previous word	<Ctrl>-<Backspace>
Display next document	<Ctrl>-<F6>
Display previous document	<Ctrl>-<Shift>-<F6>
Jump to end of document	<Ctrl>-<End>
Jump to top of document	<Ctrl>-<Home>
Open Find dialog box	<Ctrl>-F
Open Go To dialog box tab	<Ctrl>-G or <F5>
Open Replace dialog box tab	<Ctrl>-H
Repeat last action or redo Undo action	<Ctrl>-Y or <F4>
Return to last editing location	<Shift>-<F5>
Select entire document	<Ctrl>-A or <Ctrl>-<NumPad 5>
Select entire table when Num Lock is off	<Alt>-<NumPad 5>
Select entire table when Num Lock is on	<Alt>-<Shift>-<NumPad 5>
Undo	<Ctrl>-Z or <Alt>-<Backspace>
Use thesaurus	<Shift>-<F7>

from the **Browser** list. Click **OK**.

2000>Add a Discussion Board to a Document An entire team of people can collaborate on a document or have a group chat using a Word document ▶




IF YOU WANT TO KEEP your previous version of Office on your system, click **Customize**. If not, **Upgrade Now** will remove it.

To Keep Office 97 or Not After specifying a new directory for Office 2000, you can retain Office 97 by selecting the **Keep these programs** check box in the Installer. Since Office 97 uses at least 80MB of disk space, it may make sense to let the Installer remove the old version. But if

you have plenty of room, you can always remove it after 2000 installs successfully and you're sure that you like it. Either way, all your old documents and custom templates will be retained. And regardless of the decision you make, Office 2000 will replace all previous versions of

Outlook with Outlook 2000. (It will, however, keep your existing address book data.)

Choosing What to Install Your choices really begin when the Installer reaches the **Selecting Features** dialog box. You can install all or part of any application in the suite, or leave some applications off your system entirely. It takes some time and thought to get Office just the way you want it, so don't rush through this stage. Here are tips to help you get through this complex process:

First click the hard drive icon——to select or deselect each

application. This will open a drop-down menu. Choose **Not Available** to prevent the application next to the icon from being installed. Click the plus sign next to any application or feature at any level to access the individual features below that level.

Click the button next to any feature to display a menu of installation options for that feature, then choose an option:

◆ Select **Run from My Computer** to install the feature on your hard disk.

◆ Select **Run all from My Computer** to install all features at and below the current level. The ▶

posted on the Web (or on an intranet). For this feature to work, you must have a Web discussion server established by your network administrator. Select **Tools•Online Collaboration•Web Discussions** to display the Discussions toolbar. To comment on the document, click the **Insert Discussion about the Document** button on the toolbar, type your subject under 'Discussion subject', and type your comments under 'Discussion text'. Click **OK**. To view discussions, click the **Show General Discussions** button on the Discussions toolbar.

2000/97>Create Shortcut Keys for Special Characters Some symbols bear repeating. Unless you want to forage through the Insert menu every time you need to add a special bullet, try this tip. Select **Insert•Symbol**, and in the Symbol dialog box, select (normal text) from the top of the Font drop-down list if you want maximum flexibility; or select a specific font if you need a character only in a particular font. Click the symbol you want to use, then click **Shortcut Key**. Press the desired shortcut key combination, checking the 'Press new shortcut key' text box to make sure it hasn't been assigned. Once you've

Getting the Rest of Office



THERE'S MORE to Office 2000 Premium Edition than you may realize. For a complete rundown of all the applications you can find on the four CD-ROMs included with the package, check out www.pcworld.com/sept99/office_tips. You'll find tips for FrontPage and Publisher, along with additional tricks that will help you take full advantage of Office 2000's new Web capabilities.



made your selection, click **Assign** and then **Close**. Repeat as needed for additional characters. **Note:** Word 2000 supports Unicode, so you can write in languages such as Japanese, Hebrew, and Arabic. To install a language module, go to **Tools•Set Language**. You may be prompted to insert the installation CD-ROM.

2000>Insert a Table Within a Table

Nested tables can be tricky, but Word 2000 makes them easier. Click inside the table cell where you want to insert another table and select **Table•Draw Table**. Use the drawing pointer to click and draw your new

table. Alternatively, select **Table•Insert•Table** and specify the number of columns and rows in the dialog box.

2000/97>Add a Common Misspelling to AutoCorrect We all have words we tend to misspell. Put your own bugaboo on Word's AutoCorrect list. Turn on automatic spell checking by choosing **Tools•Options•Spelling & Grammar•Check spelling as you type** and click **OK**; then right-click

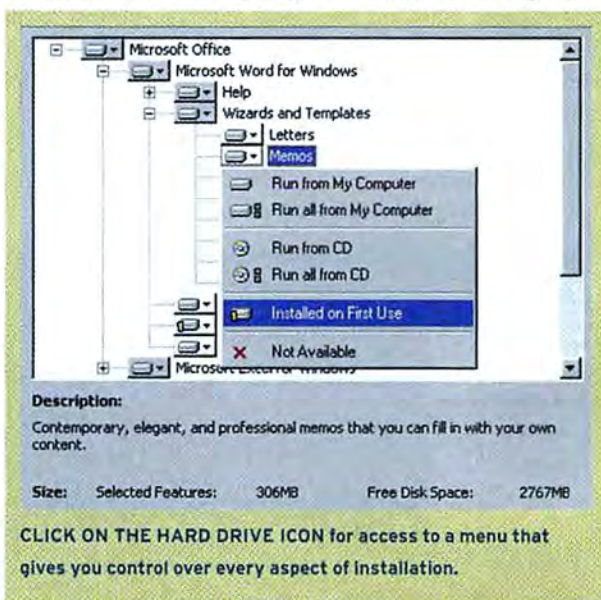
OFFICE basics

feature button will turn white if you do this, indicating your choice. If you have the hard disk space, select this to avoid later getting unexpected commands to insert the installation CD-ROMs.

◆ Select **Run from Network** or **Run all from Network** if you are installing from a network server. The selected features will be stored on the server and will be available when you're connected to the network.

◆ Select **Run from CD** or **Run all from CD** to have Office run the feature or group of features from your CD-ROM drive. Remember that you must have access to the Office CD-ROM to use any feature installed this way, and features will load slowly.

◆ Select **Installed on First Use** to take advantage of Office's Install on Demand feature. Features installed this way will appear in the Start menu and in program menus. The first time you select the feature, Office will prompt you to insert a CD-ROM, and will then install the feature permanently. Use this setting for fea-



tures you may use at some point but don't need right now, or for features you're unfamiliar with. ◆ Select **Not Available** to completely skip installing a feature, or features below this level. To install these features later, insert Disc 1, run Setup if the disc does not start up automatically, and click **Add or Remove Features**.

◆ Watch the Size line in the dialog box for a running total of the hard disk space required for the current installation settings. ◆ If you want a description of a feature, click that feature, and then read the text in the Description line that pops up below. ◆ Pay special attention to the Office Tools feature. Office 2000

the misspelled word. Select *AutoCorrect*, and then click the correct spelling. Word adds the word to its AutoCorrect list and will correct it the next time you misspell it in the same way. **Note:** The correct spelling must be in Word's dictionary for the AutoCorrect command to appear.

2000/97> Add a Graphic to AutoCorrect You can also use AutoCorrect as a macro player to add oft-used graphic objects. Select the graphic you want to add to the AutoCorrect list. Select *Tools•AutoCorrect* and type a unique abbreviation for your graphic, such as *logo1*, in the *Replace* field of the AutoCorrect dialog box. Click *Formatted Text*, then *Add*, and finally *OK*. To insert your graphic in any document, type the abbreviation you created and then press either *<Space>* or *<Enter>*.

2000/97> Create a Cheat Sheet A crib sheet can help you keep track of Word's many commands and shortcut keys. Use a built-in Word macro to make one. Select *Tools•Macro•Macros* or press *<Alt>-<F8>*. In the *Macros* dialog, select *Word commands* from the 'Macros in' list. Type *ListCommands* in the *Macro Name* field, and click *Run*. Select either *Current menu and keyboard settings* or *All Word commands* in the *List Commands* dialog. Click *OK*. Word will create a document showing current settings or all commands.

includes small applications such as Photo Editor, foreign language support, scanner and video features, and others, many of which are not installed by default. Check the list and enable the features you want. **Hint:** If you hate the animated Office Assistant, you can choose not to install it at this point. If you do install it, check out "Office Assistant: Love It or Leave It," page 130, for ways to keep it under control.

◆ Be sure to expand the *Converters and Filters* list. Most people need only a few of

the available text and graphics filters for importing and exporting files. Install only the ones you expect to use.

GET HIP TO WHAT'S NEW

LIKE EVERY software upgrade, Office 2000 demands adjustments in how you perform various tasks. Here's how to make the switch and still work with other users who haven't.

Office Then and Now

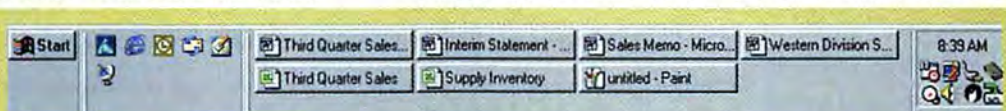
How you did it in Office 97, how you do it in Office 2000.

TASK	Word 97	Word 2000
Adjust overall table size	Click and drag individual cell and column borders manually.	Move the mouse pointer over the table. Click and drag the sizing box at the lower right corner of the table.
Adjust table to fit contents	Click and drag individual cell and column borders manually.	Click in the table, and select <i>Table•AutoFit•AutoFit to Contents</i> .
Insert clip art from Gallery	Position the cursor in the document. Select <i>Insert•Picture•Clip Art</i> . Select a category and an image. Choose <i>Insert</i> .	Select <i>Insert•Picture•Clip Art</i> . Click a category button. Drag the desired image and drop it onto the document.
Position text on blank part of page	Press <i><Enter></i> repeatedly to get to the desired location vertically. Press <i><Tab></i> to position the cursor horizontally, setting tabs on the ruler if necessary.	Move the I-beam mouse pointer to the desired location on the page and double-click.
Preview font	Select <i>Format•Font</i> , and then choose a font in the <i>Font</i> scroll box. View it in the <i>Preview</i> box.	Click the <i>Format</i> toolbar's <i>Font</i> drop-down list arrow, and scroll to view fonts.
Remove existing hyperlink	Right-click the hyperlink text. Select <i>Hyperlink•Edit Hyperlink</i> on the context menu. Click <i>Remove Link</i> in the hyperlink text box.	Right-click the hyperlink text. Select <i>Hyperlink•Remove Hyperlink</i> .
Replace word with synonym	Position the cursor on the word. Press <i><Shift>-<F7></i> or select <i>Tools•Language•Thesaurus</i> . Choose a synonym from the list and click <i>Replace</i> .	Right-click the word, click <i>Synonym</i> , and choose the desired synonym.

Where's the Document?

Office 2000's new Single Document Interface means that each Office 2000 document you load—whether it's a Word file, Excel spreadsheet, or PowerPoint presentation—gets its own button on the taskbar, rather than being lumped under one application button, as in Office 97. To switch to another open document, you can just click the desired docu-

ment on the Windows Taskbar, instead of clicking the desired document's application button on the taskbar and then switching document windows to make the desired document active. To make room in the Windows Taskbar so that complete file names are visible, click and drag the long border of the taskbar to widen it. And despite the new interface, you can still switch between ►



EXPAND YOUR WINDOWS TASKBAR to allow room for the individual buttons all Office documents now get.



Choose these Compaq Prosignia PCs and outsmart, rather than outspend, the competition.

From E-commerce to online backup, new technologies present new opportunities for you — and your competitors. Put your company on the leading edge with these Compaq Prosignia Desktops, Notebooks, and Servers. They're loaded with the most popular business software. Many are equipped with the super-fast Intel® Pentium® III Processor. And these Prosignia desktops now feature the Prosignia Internet Keyboard that gives you one-touch access to Internet tools that can fuel your business growth. What's more, when you buy any of these desktops or notebooks, you'll also get a free* trial of Compaq Online Services.

You'll find that only Compaq can help you grow your business with solutions like these. Choose Compaq, and you'll get the right computing solution, 24x7 dial-up technical support, and expert guidance from your authorized Compaq reseller. So call today, and get a jump start on the competition.

*Prices shown are Compaq prices, reseller and retailer prices may vary. Prices shown are subject to change and do not include applicable state and local sales tax or shipping to recipient's destination. Advertised configurations may vary from award-winning configurations. *For hard drives and storage, GB=billion bytes. *CD-ROM data transfer rates may vary: 24X Max from 150 KB/s to 3600 KB/s; 32X Max from 150 KB/s to 4800 KB/s. *Designed only to allow faster downloads from K56flex-compliant sources. Maximum achievable download transmission rates currently do not reach 56 Kbps, and will vary with certain line conditions. *Some restrictions and exclusions apply. Call (800) OK COMPAQ for warranty details. *Financing available through Compaq Capital Corporation (CCC) to qualified U.S. businesses, subject to credit approval and execution of CCC documentation. Monthly payments are based on 36-month Fair Market Value lease, and do not include taxes, fees, or shipping charges. Other fees and restrictions may apply and CCC reserves the right to change or cancel this program at any time without notice. *ITU V.90 modems (available on select models) are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. *Compaq Online Services: Free 30-day trial requires Internet access capability. ©1999 Compaq Computer Corporation. All rights reserved. Compaq, the Compaq Logo, and Prosignia are registered trademarks. MultiBay is a trademark and Better answers is a service mark of Compaq Computer Corporation. Intel, the Intel Inside Logo, and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft is a registered trademark of Microsoft Corporation. Other products mentioned herein may be trademarks or registered trademarks of their respective companies. Operating system pre-installed on all portable products. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. 1520/9/99

Compaq Customer Choice.

Because no one knows your business better than you do.

We'll configure these Compaq Prosignia PCs and Servers just the way you need them. Need extra RAM? No problem. Like a larger hard drive with your desktop? Consider it done.

You can get the PC you want by phone, online, or through any of our resellers. Or if you prefer, visit CompUSA, Office Depot, OfficeMax, and Staples.



We're here when you order, there for you long after.

Buy direct from Compaq, and you'll get something no other computer manufacturer offers: access to thousands of authorized Compaq resellers. For example, Compaq resellers can:

- **Install these new computers**
- **Help set up networks and integrate software applications**
- **Answer technical questions — at installation time or later**
- **Identify appropriate hardware and software solutions**

Add all this to the ease of buying from Compaq, and you get an unbeatable combination designed to help your business grow and prosper.

COMPAQ
Better answers™

The Prosignia NeoServer makes **first-time networking easy.**

Buy the Prosignia NeoServer and get everything you need to network a small business in one ready-to-go system. No experience is required, and maintenance and operation are easy. Connect up to seven computers right away, or expand up to 25 computers as your business grows, and enjoy:

- **File and printer sharing** for better efficiency and consistency in your work
- **Automatic data backup** — no more worries about lost files
- **Internet access and e-mail** for keeping in touch with clients and colleagues
(Internet Plus Model Only)

PROSIGNIA NEOSERVER STANDARD

- Intel Celeron Processor
- Integrated Network Operating System (25 users)
- 6GB Hard Drive¹ (expandable to 12GB)
- 8.4GB Removable Hard Drive¹ for Backup Storage
- 10/100 Base-TX Network Interface Card
- 8-port hub (10 Mb/s)
- 1-year Parts and Labor Warranty⁴

\$1399*

Lease for: \$47/month⁵



PROSIGNIA NEOSERVER INTERNET PLUS

Includes all of the above, plus:

- Compaq 56K V.90 Internal Modem³
- Internet access and e-mail capabilities

\$1699*

Lease for: \$57/month⁵

Leasing and warranty options that **protect your business.**

With Compaq Capital, you can finance 100% of your technology purchase — hardware, software, service, and even third-party options — and use the money you've freed up to grow your business. And to protect your new

COMPAQ
Capital

technology, choose from the Compaq portfolio of packaged CAREPAQ services. To find out more, give us a call.

BUYER'S Choice

Compaq Prosignia Desktop 320 with:

Intel® Celeron™ Processor 433MHz
6.4GB Hard Drive¹
32MB SDRAM
Compaq 15" Monitor (13.8" viewable)
32X Max CD-ROM Drive²
Creative Labs SBS 2-piece Speakers
Prosignia Internet Keyboard
Microsoft® Windows® 98 and
Office 2000 Small Business
Free³ Trial of Compaq Online Services
3-year Limited Warranty⁴

\$899*

or lease for only

\$30/month*

Buy now, supplies are limited.

PROSIGNIA DESKTOP 330

- Intel Pentium® III Processor 450MHz
- 9.1GB Ultra ATA Hard Drive¹
- 64MB SDRAM (expandable to 256MB)
- S700 17" Monitor (15.7" viewable)
- 32X Max CD-ROM Drive²
- Compaq 56K V.90 Modem³
- Creative Labs SBS 2-piece Speakers
- nVIDIA TNTv 16MB Graphics
- Prosignia Internet Keyboard
- Microsoft Windows 98 and Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$1419*

Lease for: \$48/month*

Customize with these options:

- Upgrade to Intel Pentium III Processor 500MHz: \$171
- Upgrade to S900 19" Monitor (18" viewable): \$200
- Upgrade to Microsoft Windows NT®: \$99

PROSIGNIA DESKTOP 330

- Intel Pentium III Processor 500MHz
- 13.5GB Ultra ATA Hard Drive¹
- 96MB SDRAM (expandable to 384MB)
- S700 17" Monitor (15.7" viewable)
- 32X Max CD-ROM Drive²
- Compaq 10/100 Network Controller
- Creative Labs SBS 2-piece Speakers
- nVIDIA TNTv 16MB Graphics
- Prosignia Internet Keyboard
- Microsoft Windows 98 and Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$1699*

Lease for: \$57/month*

Customize with these options:

- Upgrade to Intel Pentium III Processor 550MHz: \$235
- Upgrade to S900 19" Monitor (18" viewable): \$200
- Upgrade to Microsoft Windows NT: \$99

PROSIGNIA SERVER 740

- Intel Pentium III Processor 500MHz
- Dual Processor Capable
- 128MB 100MHz SDRAM (expandable to 1GB)¹
- 9.1GB Hard Drive¹
- Microsoft Windows NT Server 4.0 (10 users)
- Max Internal Storage of 72.8GB¹
- 8 Bays: 4 Removable, 4 Hard Drive
- 32X Max CD-ROM Drive²
- 10/100 TX UTP NIC
- 6 Slots: 2 PCI, 4 PCI/ISA
- Server Management Software
- Pre-Failure Warranty³: Memory/Drives/Processors
- 3-year Limited Warranty⁴

\$3309*

Lease for: \$111/month*

Customize with these options:

- Upgrade to Intel Pentium III Processor 550MHz: \$341
- Add a 4/8GB¹ DAT Tape Drive: \$714
- Preloaded Novell® NetWare operating systems also available

COMPAQ AWARDS¹

June 1999

PC World

Top 20 Power Desktops

Prosignia Desktop 330

June 1999

Windows Magazine

Winlist—Fastest Performance

Prosignia Notebook 162

March 1999

PC Magazine

Editor's Choice

Prosignia Desktop 330

PROSIGNIA NOTEBOOK 165

- Mobile Intel Pentium II Processor 333MHz
- 4GB SMART Hard Drive¹
- 64MB SDRAM (expandable to 192MB)
- 12.1" CTFT (800 x 600) Display
- 24X Max CD-ROM Drive²
- Compaq V.90 Data/Fax Modem³
- Compaq PremierSound
- Integrated AC Adapter; 1 Li-Ion Battery
- Microsoft Windows 98
- Microsoft Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$1999*

Lease for: \$67/month*

Customize with these options:

- Ethernet Convenience Base: \$279
- MultiBay™ Zip® Drive Upgrade: \$229
- Compaq Workstation Case: \$59

PROSIGNIA NOTEBOOK 165

- Mobile Intel Pentium II Processor 366MHz
- 6.4GB SMART Hard Drive¹
- 64MB SDRAM (expandable to 192MB)
- 14.1" CTFT (1024 x 768) Display
- 24X Max CD-ROM Drive²
- Compaq V.90 Data/Fax Modem³
- Compaq PremierSound
- Integrated AC Adapter; 1 Li-Ion Battery
- Microsoft Windows 98
- Microsoft Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$2599*

Lease for: \$87/month*

Customize with these options:

- DVD-ROM Drive Upgrade: \$199
- Additional Li-Ion Battery: \$129
- Compaq Value Case: \$49

PROSIGNIA NOTEBOOK 165

- Mobile Intel Pentium II Processor 400MHz
- 10GB SMART Hard Drive¹
- 64MB SDRAM (expandable to 192MB)
- 14.1" CTFT (1024 x 768) Display
- 24X Max CD-ROM Drive²
- Compaq V.90 Data/Fax Modem³
- Compaq PremierSound
- Integrated AC Adapter; 1 Li-Ion Battery
- Microsoft Windows 98
- Microsoft Office 2000 Small Business
- Free³ Trial of Compaq Online Services
- 3-year Limited Warranty⁴

\$2799*

Lease for: \$94/month*

Customize with these options:

- Microsoft Office 2000 Professional Upgrade: \$199
- Additional Li-Ion Battery: \$129
- Compaq Global Case: \$89



To buy now
Call **1-888-728-9985**
Go to www.compaq.com

COMPAQ
Better answers™



EXCEL 2000, with its thick-et of new features, can be considered the heart of the Office 2000 jungle. We guide you through Web-enabled collaboration, undocumented security features using hidden cells, conditional formatting of cells, and creating hyperlinked buttons, among others.

2000>Exclude Hidden Cells To keep prying eyes from seeing details in hidden columns or rows, make a copy of just the displayed cells in the summary. First have Excel show only the summary rows or columns, and then select all of the summary data. On the Edit menu, click *Go To*, select *Special*, and then click *Visible cells*

excel

only. Now choose the *Copy* button, click any cell on a blank worksheet, and click the *Paste* button. The new worksheet includes only the summary data.

2000>Drop Web Tables into Excel You know you can save a worksheet as an HTML page. But did you know that you can now easily copy HTML tables from a Web page directly into your worksheet? Just select the table data in the Web browser, then drag it over and drop it off at the desired place in the worksheet.

2000>Save Worksheets as Interactive Web Pages When Excel 97 saves worksheets as HTML pages, it creates static Web pages that users can't manipulate, sort, or otherwise modify. Provided you take a few preliminary steps, Excel 2000 enables you to create truly interactive Web

pages as easily as you can save any static worksheet data in the HTML file format. First, select *File>Save as Web Page*, then enter the name of the document in the 'File name' window. Select the *Selection: Sheet* button if it is not highlighted. Click in the box next to *Add interactivity*. By selecting the 'Add interactivity' check box the next time you save an Excel worksheet, chart, or pivot table as a Web page using the *File>Save as Web Page* command, you can give Web visitors (who are browsing with Internet Explorer 4.01 or higher) the ability to change the contents and formatting of all unprotected data. With a spreadsheet open in IE 5, you can adjust how the table information appears in the Web page, or perform new calculations. Right-click within a cell and select *Property Toolbox*. From there you can adjust the format, do calculations, or search a cell.

2000>Create Conditional Formatting To make specific values (for example, a number indicating whether your sales force has met its quota) stand out on a worksheet, use Conditional Formatting. Select the area you want to format, then select *Format>Conditional Formatting*. In the resulting dialog box, click the drop-down arrow under *Condition 1* and select *Cell Value Is* or *Formula Is*. Next, click ►

OFFICE basics

open documents using <Alt>-<Tab> and <Alt>-<Shift>-<Tab>. Switch between a single application's documents by selecting *Window* and then the document or by pressing <Ctrl>-<F6> or <Ctrl>-<Shift>-<F6> to move forward or backward, respectively, through its open documents.

Scan It In You can insert an image from your scanner or video source directly into an Office 2000 document by selecting *Insert>*

Picture, and then expanding the *Picture* submenu, if necessary, in order to find the *From Scanner* or *Camera* command.

Office Assistant: Love It or Leave It That pesky Office Assistant is a tad friendlier than it was in 97: You can permanently disable it, if you wish, while preserving the Answer Wizard Help feature. To display the Assistant from any application, select *Help>Show the Office Assistant*. To hide the Assistant during an Office session, select *Help>Hide the Office Assistant*. To disable the Office Assistant permanently, right-click the

Assistant, then select *Options* from the context menu. Deselect *Use the Office Assistant* to disable it. To completely remove the Office Assistant, run Office Setup again from the CD-ROM and deselect it, as described in "Choosing What to Install," page 123.

Compatibility With Previous Versions Office 2000 offers several ways to ensure compatibility with earlier versions of Office. Word 2000 automatically

saves in a file format that can be read by Word 97, although 2000-exclusive features will not be available in the previous version.

If you commonly share documents with Office 97 users, you'll save yourself a lot of time by ►

What would you like to do?

Type your question here, and then click Search.

Options

Search

SAY GOODBYE to the Office Assistant by clicking the *Options* button and selecting *Disable*.





"At Cisco Bootcamp we learned multi-protocol routing. Configuring IP was a bit familiar. But we also needed to configure IPX and AppleTalk, which was completely foreign to me. Through a lot of troubleshooting and working along with my teammates, we got the whole network up and running."
 — Mark, age 17, Cisco Networking Academy student

**There are 58 openings
 in pro basketball.
 There are 346,000 in
 information technology.
 You do the math.**

Basketball is a great sport. But for most kids, it's probably not a career. Information technology on the other hand is definitely a hot career choice. There are more than 346,000* IT jobs open right now. You can help your local youth prepare for these openings through the Cisco Networking Academy program. This 280-hour program helps high school and college students develop computer networking skills that will carry them either to higher education or to their first job.

Donate equipment, fund teacher training or offer internships in your community. Your donations are fully tax-deductible to the extent allowed by the law.

Find out more. Call 1-800-CIS-4KIDS today.

Help support the
 Cisco Networking Academy Program.
 Call Communities In Schools
 at 1-800-CIS-4KIDS or
 visit www.cisco.com/edu/pc_world

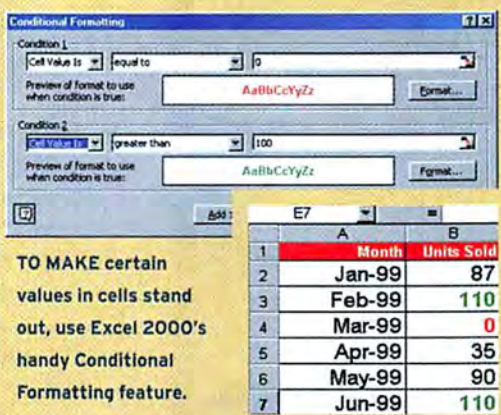


CISCO SYSTEMS



EMPOWERING THE
 INTERNET GENERATION™

*Source: January 1998 IT Workforce Study by the Information Technology Association of America (ITAA).
 ©1998 Cisco Systems, Inc. All rights reserved.



TO MAKE certain values in cells stand out, use Excel 2000's handy Conditional Formatting feature.

the drop-down arrow in the next field and select *equal to*, *greater than*, or any other option in that menu. In the third field enter a value. Next, click the *Format* button and select a color and a font attribute (bold, italics, and so on) for the cell. To create more conditional formats for the same data, click the *Add* button and repeat the above steps. To delete one of the conditions, click the *Delete* button, then click next to the numbered condition.

2000/97>Make a Macro Work in Every Workbook When you record a macro, you probably want it to be avail-

able in other workbooks, but Excel's default setting doesn't make your macros work beyond the workbook in which they were created. To overcome this shortcoming, you need to save your macros in your Personal Macro Workbook rather than the currently open workbook. Then choose *Tools>Record New Macro*. In the 'Store macro in' box, scroll down and select *Personal Macro Workbook*.

Name the macro, click *OK*, and start recording the new macro. Excel creates your Personal Macro Workbook the first time you save to it and exit the program. Thereafter, it loads this workbook each time you start Excel.

2000>Turn a Toolbar Button Into a Customized Hyperlink

If you often need to go to a particular Web site, an intranet, a document, or an e-mail address while you're working in Excel, you can reach your destination with a single mouse-click by assigning a hyperlink to a toolbar button.

First, select *View>Toolbars>Customize*. Click the *Commands* tab, and, from the Commands list, drag the Custom button (the happy-face icon) to the location on the particular toolbar where you want the hyperlink button to appear. Release the mouse button. Now right-click the happy-face button and select *Assign Hyperlink>Open*. In the 'Type the file or Web page name' box, enter the URL. You can also select one of the icons in the vertical toolbar on the left to display a list of your recently browsed Web pages or e-mail addresses noted in Outlook. If the site or address you want to link to is on the list, simply highlight it and then click *OK*. **Hint:** Fortunately, you're not limited to just the happy-face icon. If you're not having a nice day, right-click the happy-face icon in the Customize dialog box, and then select *Change Button Image*. Click one of the icons in the pop-up palette and close the Customize box. ▶

OFFICE basics

disabling all features that are not available in Word 97. Choose *Tools>Options*, click the *Save* tab, select *Disable features not supported by Word 97*, and click *OK*.

Excel 2000 files can be saved in a multiple format. Choose *File>Save As* and then select *Microsoft Excel 97-2000 & 5.0/95 Workbook (.xls)* from the *Save as type* list. Note that as with Word, some advanced features will not be available in the earlier versions.

PowerPoint also offers a multiple-format option when saving. Select *PowerPoint 97-2000 & 95 Presentation (*.ppt)* in the 'Save as type' drop-down list.

For maximum compatibility between versions and for maximum readability of Office 2000 documents, consider saving your documents in HTML format. In most applications, you'll find a 'Save as Web Page' command in the File menu. In this format, anyone with a 3.x or later Netscape or Internet Explorer browser can view your documents, if not edit them. (For information on Office 2000's



OFFICE 2000'S FILE FORMATS are the same as 97's, but to avoid incompatibilities click 'Disable features not available in 97.'

incompatible HTML file formats, see www.pcworld.com/jul99/office2000.)

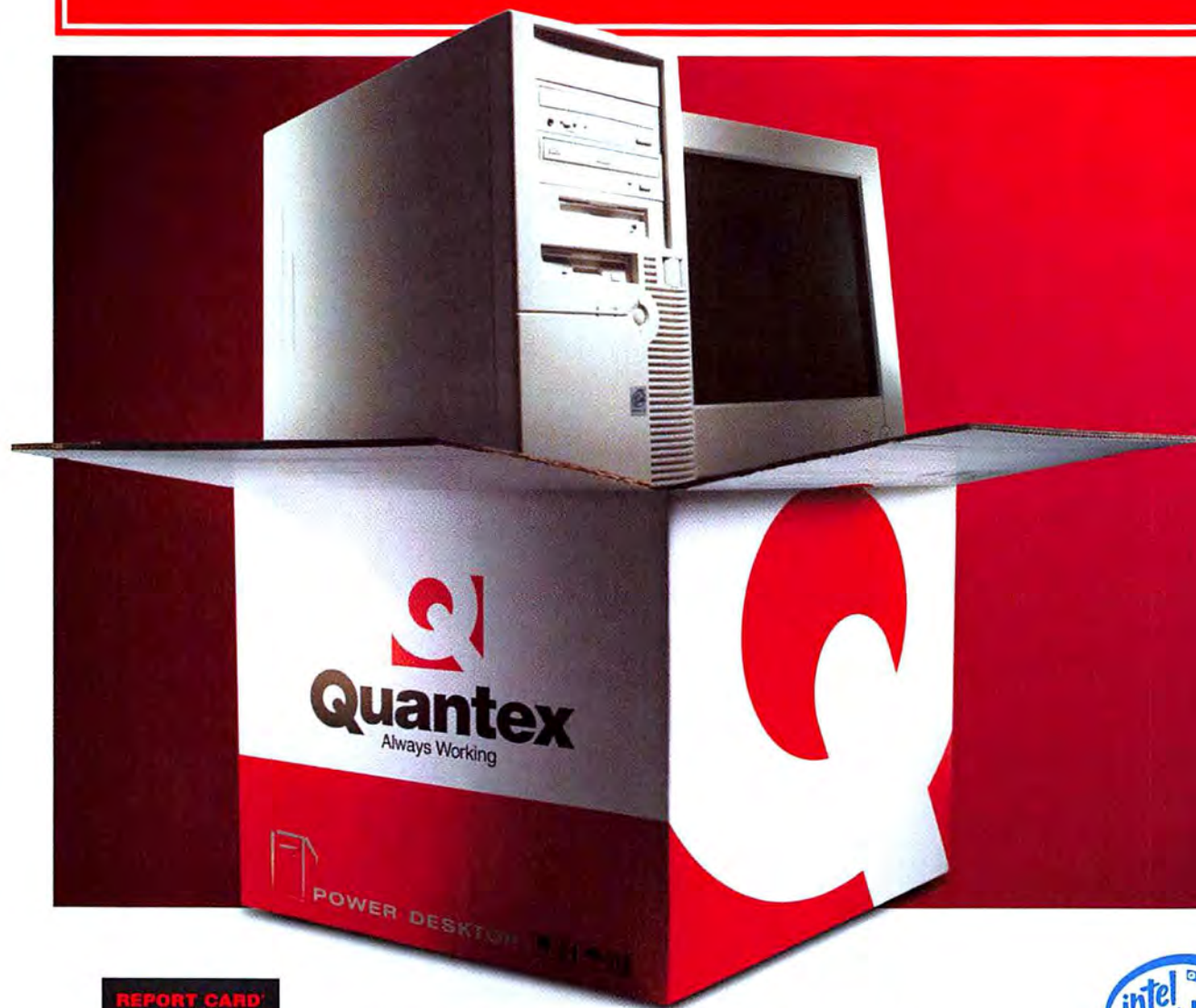
Fixing Office Problems It's happened to everyone: An Office application starts behaving oddly, or won't function at all. Perhaps someone deleted a nec-

essary file, or a crash corrupted a file used by the application. If this happens in Office 2000, select *Detect and Repair* in the application's *Help*. If the application won't start at all, insert the Office 2000 Disc 1 CD-ROM, run Setup, and select *Repair*. ▶

GUESS WHO RANKS HIGHEST IN SERVICE AND RELIABILITY?



SURPRISE!



REPORT CARD* DESKTOPS OVERALL USE

- A Quantex**
Dell
IBM
- B Apple**
Hewlett-Packard
Micron
Sony
- C AT&T**
CompUSA
Digital
Gateway
NEC
Toshiba
- D AST**
Compaq
MidWest Micro

Quantex® beats Gateway and Compaq in Service and Reliability.*



"In the desktop category...Quantex, continuing its impressive improvement since debuting in our survey three years ago, breaks into the "A" category." *PC Magazine*, July 1999.

In *PC Magazine's* 1999 Desktops & Notebooks Service and Reliability Survey, Quantex was one of only three vendors to earn an "A" rating in the Desktop Category. Scoring significantly better than average in all 5 test categories—units needing repair over the past 12 months, satisfaction with reliability, satisfaction with repair, satisfaction with technical support, and buy again?—*PC Magazine* praised, "Its technical scores are first-class."

* Results based on a *PC Magazine* (July 99) "Desktops and Notebooks Service and Reliability" survey in which Quantex received an "A" rating in the Desktops—Overall Use category, beating out Gateway and Compaq which received ratings of "C" and "D" respectively. Quantex received an "A" rating by scoring significantly higher than average in all 5 test categories. See *PC Magazine* July 99 for details.



QP6/600 SM-4x SE Model Shown

Quantex desktops give you cutting-edge performance and the power to tackle advanced 2D & 3D graphics, power-hungry multimedia applications, ever-evolving Internet technology, DVD and games. Designed for the savvy professional, these desktops combine leading technologies with Quantex's award-winning service and reliability at prices that fit well within your budget.

POWER DESKTOPS BEST BUY, QP6/500 SM-4x SE—PC WORLD AUGUST 1999

"This powerful Pentium III-500 (Pentium III processor-based 500MHz) PC brings an embarrassment of riches to the desktop, with just about everything a small workgroup or home office might need..."

BUDGET DESKTOPS #1 BEST BUY, QP6/400 M-1c—PC WORLD AUGUST 1999

"PC hunters looking for a budget small-office/home-office system will be hard pressed to do better than Quantex's new Celeron-400 (Intel Celeron™ processor-based 400MHz) PC."

Reviewed configurations may differ from advertised configurations

POWER DESKTOPS

Common Features: ✓ 512KB Secondary Cache ✓ 3.5" 1.44MB Floppy Drive ✓ US Robotics 56K V.90 Winmodem* w/Telephony ✓ Quantex ATX Mid Tower Case ✓ 2 USB ports ✓ Internet-ready, Multi-function Keyboard ✓ MS IntelliMouse ✓ 3-Year Limited Warranty ✓ 24/7 Toll-Free Technical Support

NEW QP6/600 SM-4x SE

New Intel® Pentium® III Processor 600MHz
128MB PC100 SDRAM Memory (768MB Max)
New 27GB Ultra ATA Hard Drive
19" Monitor w/Diamondtron Flat CRT (18" vis)
New nVidia Riva TNT2 32MB AGP Graphics; TV-Out
CD-Rewritable Drive
6x Max Variable Speed DVD-ROM Drive
10/100Mb Ethernet, Cable Modem Ready
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ADA-305 Dolby Pro Logic Surround
Sound Speakers, Subwoofer
MS Windows 98 2nd Ed, New MS Office 2000 SBE

\$2499

Business lease:\$90/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw09s24

QP6/550 SM-3x

Intel® Pentium® III Processor 550MHz
128MB PC100 SDRAM Memory (768MB Max)
20GB Ultra ATA Hard Drive
19" Monitor w/Diamondtron Flat CRT (18" vis)
3Dfx Voodoo3 3000 AGP Graphics w/16MB; TV-Out
6x Max Variable Speed DVD-ROM Drive
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ACS-45.1 PowerCube Speakers, Subwoofer
MS Windows 98 Second Edition
New Microsoft Office 2000 SBE
Optional Canon MPC-3500 Printer, add \$299
Intel® AnyPoint™ Home Networking, add \$149

\$1999

Business lease:\$72/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw09s18

QP6/500 SM-2x

Intel® Pentium® III Processor 500MHz
128MB PC100 SDRAM Memory (768MB Max)
17GB Ultra ATA Hard Drive
17" Monitor w/CromaClear CRT (16" vis)
3Dfx Voodoo3 2000 AGP Graphics w/16MB
Internal 100MB Zip Drive
6x Max Variable Speed DVD-ROM Drive
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ACS-90 Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000
Intel® Create & Share USB Camera Pack, add \$69

\$1499

Business lease:\$54/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw09s03

QP6/450 SM-1x

Intel® Pentium® III Processor 450MHz
64MB PC100 SDRAM Memory (768MB Max)
13GB Ultra ATA Hard Drive
17" Monitor w/CromaClear CRT (16" vis)
3Dfx Voodoo3 2000 AGP Graphics w/16MB
40x Max Variable Speed CD-ROM Drive
Aureal Vortex2 Sound, A3D 2.0 Technology
Altec Lansing ACS-90 Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000
Optional 36-bit Color Scanner, add \$99
Optional Canon BJC-5100 Inkjet Printer, add \$199

\$1199

Business lease:\$59/Mo., 24 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw09s14

VALUE DESKTOPS

Common Features: ✓ 512KB Secondary Cache (128KB Cache w/Intel® Celeron™ Processor-based PCs) ✓ 3.5" 1.44MB Floppy Drive ✓ Quantex ATX Mid Tower Case ✓ 2 USB ports ✓ 104-Key Keyboard ✓ MS Mouse ✓ 3-Year Limited Warranty ✓ 24/7 Toll-Free Technical Support

QP6/550 M-4x SE

Intel® Pentium® III Processor 550MHz
128MB PC100 SDRAM Memory
13GB Ultra ATA Hard Drive
19" Monitor w/on-screen display (18" vis)
New S3 Savage4 2D/3D AGP Graphics; 32MB
3rd Generation DVD-ROM Drive
56K V.90 Telephony Fax/Modem*
Aureal Vortex PCI Wavetable Sound
3-piece Dynamic Stereo Speakers, Subwoofer
MS Windows 98 2nd Ed, New Corel WordPerfect Office 2000

\$1699

Business lease:\$61/Mo., 36 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw09m17

QP6/500 M-3x

Intel® Pentium® III Processor 500MHz
96MB PC100 SDRAM Memory
10GB Ultra ATA Hard Drive
17" Monitor w/on-screen display (15.8" vis)
New S3 Savage4 2D/3D AGP Graphics; 16MB
Internal 100MB Zip Drive
3rd Generation DVD-ROM Drive
56K V.90 Telephony Fax/Modem*
Aureal Vortex PCI Wavetable Sound, Speakers
MS Windows 98 2nd Ed, New Corel WordPerfect Office 2000

\$1299

Business lease:\$64/Mo., 24 Mos. \$0 Money Down

Q-QUOTE NUMBER: pcw09m08

NEW QP6/500 M-2c

New Intel® Celeron™ Processor 500MHz
64MB SDRAM Memory
8GB Ultra ATA Hard Drive
17" Monitor w/on-screen display (15.8" vis)
Intel 2D/3D Graphics Accelerator
40x Max Variable Speed CD-ROM Drive
56K V.90 Telephony Fax/Modem*
Dynamic Wavetable Stereo Sound, Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000

\$999

Q-QUOTE NUMBER: pcw09m22

QP6/400 M-1c

Intel® Celeron™ Processor 400MHz
64MB SDRAM Memory
6GB Ultra ATA Hard Drive
15" Digital Monitor (13.8" vis)
Intel 2D/3D Graphics Accelerator
40x Max Variable Speed CD-ROM Drive
Dynamic Wavetable Stereo Sound, Speakers
MS Windows 98 Second Edition
New Corel WordPerfect Office 2000
Special Upgrade: 56K Telephony Fax/Modem*, add \$49

\$799

Q-QUOTE NUMBER: pcw09m02

1-877-229-0468
WWW.QUANTEX.COM/PCWORLD

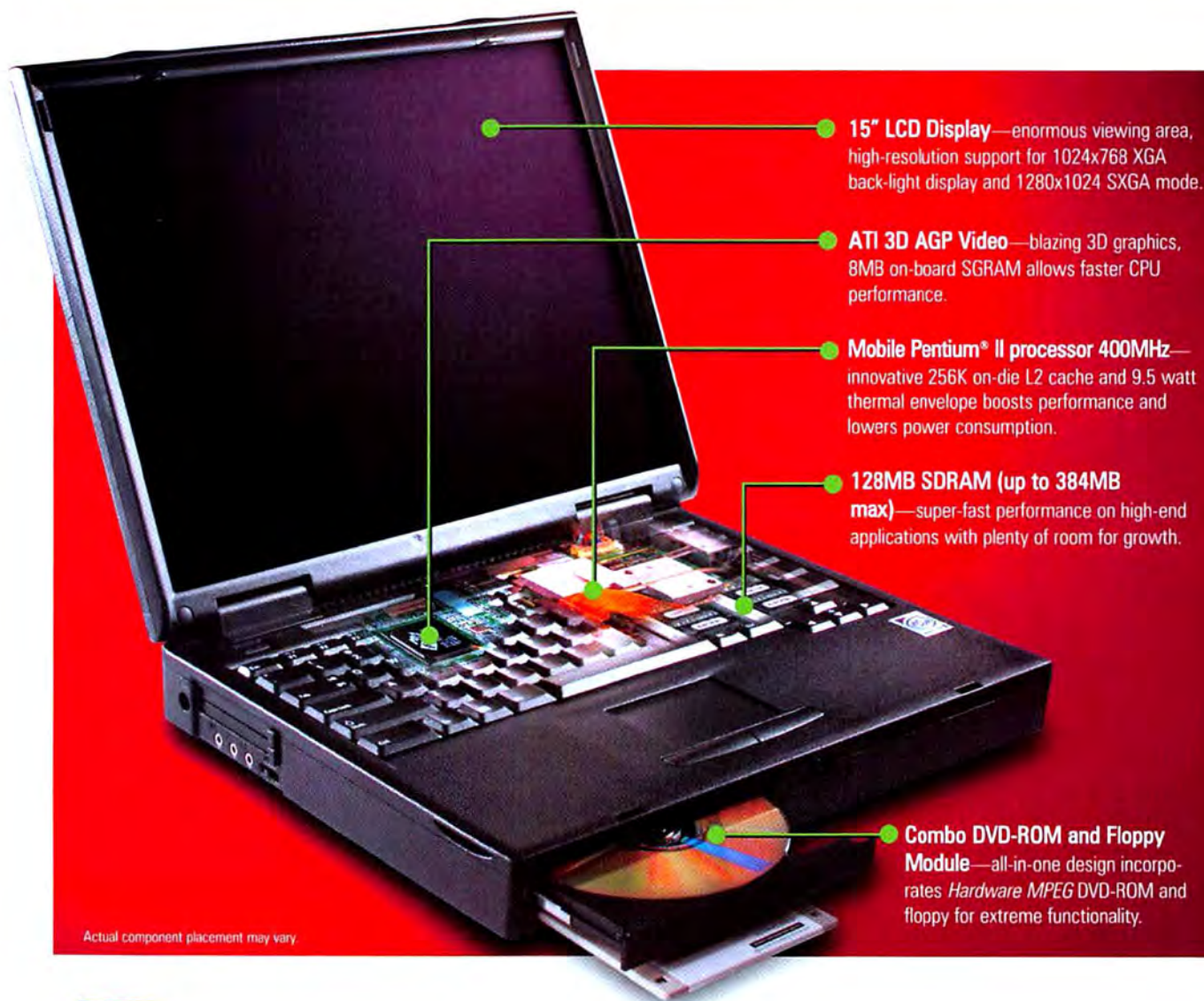


WWW.QUANTEX.COM Q-QUOTE IS THE FASTEST WAY TO GET THE LATEST PRICING AND INFORMATION ON THE SYSTEM YOU WANT.



Quantex
Always Working

ROCK YOUR DESKTOP, RULE THE ROAD.



15" LCD Display—enormous viewing area, high-resolution support for 1024x768 XGA back-light display and 1280x1024 SXGA mode.

ATI 3D AGP Video—blazing 3D graphics, 8MB on-board SGRAM allows faster CPU performance.

Mobile Pentium® II processor 400MHz—innovative 256K on-die L2 cache and 9.5 watt thermal envelope boosts performance and lowers power consumption.

128MB SDRAM (up to 384MB max)—super-fast performance on high-end applications with plenty of room for growth.

Combo DVD-ROM and Floppy Module—all-in-one design incorporates *Hardware MPEG* DVD-ROM and floppy for extreme functionality.

Actual component placement may vary.



QUANTEX® I-SERIES NOTEBOOKS:
all the power of a desktop in the convenience of a laptop.

Quantex I-1511, the most powerful dual-purpose laptop available.

Fast enough for the most demanding desktop applications, light enough to be the perfect road companion. The Quantex® I-1511 Notebook delivers powerful, full-featured multimedia performance, giving you the power to do whatever you have to—high performance graphics and video, intensive applications, create/show presentations, cruise the Internet, movies and games—from wherever you have to.

Notebook Upgrade Options:

- Internal Modular Zip Drive (T-Series Only)...add **\$139**
- Quantex Mini-Docking Station...add **\$149**
- Long-Lasting Lithium Ion Battery...add **\$119**
- PCMCIA Network Interface Card...add **\$129**
- Quantex Deluxe Carrying Case...add **\$89**
- Upgrade from 64MB to 128MB SDRAM...add **\$149**
- Upgrade from 6GB to 10GB Hard Drive...add **\$149**
- Toshiba PDR-M1 Digital Camera...add **\$399**
- Targus Defcon1 Security Lock...add **\$49**
- Canon BJC-80 Portable Printer...add **\$299**

I-SERIES "DESKTOP REPLACEMENT" NOTEBOOK

Common Features: ✓ 256K On-Die Cache ✓ ESS 3D WaveTable Sound Speakers ✓ Smart Lithium Ion Battery ✓ TV-Out ✓ USB, Fast IR Ports ✓ Personal Touchpad ✓ Quantex Deluxe Carrying Case ✓ 3-Year Limited Warranty on CPU & Memory ✓ 1-Year Parts and Labor Limited Warranty on all other components ✓ 24/7 Toll-Free Technical Support

Quantex I-1511

New Intel® Mobile Pentium® II Processor 400MHz
15" XGA TFT Active Matrix Display
128MB SDRAM Memory
10GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 4x Max Variable Speed DVD-ROM Drive w/Hardware DVD Decoding & 3.5" Floppy Drive
ATI Rage LT Pro 3D AGP Video w/8MB
MS Windows 98
New Microsoft Office 2000 SBE

\$2899

Business lease: \$104/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09i020

Quantex I-1510

Intel® Mobile Pentium® II Processor 366MHz
15" XGA TFT Active Matrix Display
64MB SDRAM Memory
6GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 4x Max Variable Speed DVD-ROM Drive w/Hardware DVD Decoding & 3.5" Floppy Drive
ATI Rage LT Pro 3D AGP Video w/8MB
MS Windows 98
New Corel WordPerfect Office 2000

\$2399

Business lease: \$86/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09i08

Quantex I-1410

Intel® Mobile Pentium® II Processor 366MHz
14.1" XGA TFT Active Matrix Display
64MB SDRAM Memory
6GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 4x Max Variable Speed DVD-ROM Drive w/Hardware DVD Decoding & 3.5" Floppy Drive
ATI Rage LT Pro 3D AGP Video w/8MB
MS Windows 98
New Corel WordPerfect Office 2000

\$2199

Business lease: \$79/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09i06

Quantex I-1400

Intel® Mobile Pentium® II Processor 333MHz
14.1" XGA TFT Active Matrix Display
32MB SDRAM Memory
4GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Modular Combo Drive: 24x Max Variable Speed CD-ROM Drive & 3.5" Floppy Drive
ATI Rage LT Pro 3D AGP Video w/8MB
MS Windows 98
New Corel WordPerfect Office 2000

\$1899

Business lease: \$68/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09i01

T-SERIES "MOBILE WARRIOR" NOTEBOOK

Common Features: ✓ 256K On-Die Cache ✓ 3.5" Modular Floppy Drive ✓ Smart Lithium Ion Battery ✓ USB, Fast IR Ports ✓ Stereo sound & speakers ✓ 3-Year Limited Warranty on CPU & Memory ✓ 1-Year Parts and Labor Limited Warranty on all other components

Quantex T-1411

New Intel® Mobile Pentium® II Processor 400MHz
Ultra-Thin Design (12.44"x9.84"x1.43")
14.1" XGA TFT Active Matrix Display
128MB SDRAM Memory
6GB Ultra ATA Hard Drive
Modular 4x Max Variable Speed DVD-ROM Drive
56K V.90 Fax/Modem*
NeoMagic NMG5 128-bit AGP Video
Quantex Carrying Case
MS Windows 98
New Microsoft Office 2000 SBE

\$2499

Business lease: \$90/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09i16

Quantex T-1401

Intel® Mobile Pentium® II Processor 366MHz
Ultra-Thin Design (12.44"x9.84"x1.43")
14.1" XGA TFT Active Matrix Display
64MB SDRAM Memory
6GB Ultra ATA Hard Drive
Modular 24x Max Variable Speed CD-ROM Drive
56K V.90 Fax/Modem*
NeoMagic NMG5 128-bit AGP Video
Quantex Carrying Case
MS Windows NT Workstation 4.0
Optional Internal Zip Drive...add \$139

\$2099

Business lease: \$76/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09i15

INTRODUCING

B-SERIES "NO-COMPROMISE AFFORDABILITY" NOTEBOOK

Common Features: ✓ 128K On-Die Cache ✓ Built-In 3.5" Floppy Drive ✓ Smart Lithium Ion Battery ✓ USB, Fast IR Ports ✓ Stereo sound & speakers ✓ 3-Year Limited Warranty on CPU & Memory ✓ 1-Year Parts and Labor Limited Warranty on all other components

NEW Quantex B-1211

Intel® Mobile Celeron® Processor 400MHz
12.1" SVGA TFT Active Matrix Display
64MB SDRAM Memory
6GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Built-In 24x Max Variable Speed CD-ROM Drive
NeoMagic NMG5 128-bit AGP Video
Quantex Carrying Case
MS Windows 98
New Corel WordPerfect Office 2000
Optional Targus Defcon Security Lock...add \$49

\$1599

Business lease: \$58/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09a03

NEW Quantex B-1200

Intel® Mobile Celeron® Processor 333MHz
12.1" SVGA TFT Active Matrix Display
32MB SDRAM Memory
4GB Ultra ATA Hard Drive
56K V.90 Fax/Modem*
Built-In 24x Max Variable Speed CD-ROM Drive
NeoMagic NMG5 128-bit AGP Video
MS Windows 98
Quantex Carrying Case
Upgrade from 32MB to 64MB...add \$99
Upgrade from 4GB to 6GB Hard Drive...add \$99

\$1399

Business lease: \$50/Mo., 36 Mos. \$0 Money Down
Q-QUOTE NUMBER: pcw09a00

1-877-229-0468
WWW.QUANTEX.COM/PCWORLD

Q-QUOTE WWW.QUANTEX.COM Q-QUOTE IS THE FASTEST WAY TO GET THE LATEST PRICING AND INFORMATION ON THE SYSTEM YOU WANT.



Quantex
Always Working

GROW YOUR BUSINESS.

ENTERPRISE-CLASS ENGINEERING, IN A RANGE OF SERVERS DESIGNED ESPECIALLY FOR THE NEEDS AND BUDGETS OF SMALL AND MEDIUM SIZE BUSINESSES.



OX6400 Server Model Shown.
Actual component placement may vary.

Proactive Server Management—maximum uptime. Intel Server Control management software (ISC), Emergency Management Port (EMP) and System Health Monitoring.

R.A.I.D.—high-performance data management, configuration flexibility, easy expansion and robust fault tolerance.

Up to 4GB ECC RAM—extreme flexibility and scalability to support the most demanding server applications.

Pentium® III Xeon™ processors—quad-processor support for extreme network computing power; ultimate scalability.

Hot Swap Components—on the fly replacement of hard drives, fans and power supplies; avoid system failure and data loss with Redundancy option.

QUANTEX SERVERS

OX6400

Intel® Pentium® III Xeon™ Processor 500MHz
Quad Processor Upgradeable
Intel SC45CNX Motherboard
256MB ECC EDO DRAM (4GB Max)
Three 9GB 10,000rpm Ultra2/LVD SCSI Hot Swap Drives
Dual Channel Ultra2/LVD SCSI Controller
AMI MegaRAID 466WS Ultra2 RAID, 16MB
Dual Peer PCI Buses; 7 Slots
Dual Peer PCI Buses; 7 Slots
2+1 400w Redundant Power Supplies;
6 Hot-Swap Drive Bays; Redundant Fans
Intel EtherExpress Pro 100 Ethernet Adapter
Chassis-Intrusion Switch; Drive Bay Lock

\$7499

Business lease: \$253/Mo., 36 Mos. \$0 Money Down
☎-QUOTE NUMBER: pcw09q21

Common Features: ✓ 512KB ECC Secondary Cache ✓ 3.5" 1.44MB Floppy Drive ✓ 40x Max Variable Speed CD-ROM Drive ✓ Emergency Management Port ✓ Intel Server Control Management Console ✓ 104-Key Keyboard ✓ MS Mouse ✓ 3-Year Limited Warranty ✓ 24/7 Toll Free Dedicated Server Technical Support

OX6200

Intel® Pentium® III Xeon™ Processor 550MHz
Dual Processor Upgradeable
Intel C440GX+ Motherboard
128MB ECC SDRAM (2GB Max)
9GB Ultra2/LVD SCSI Hot Swap Hard Drive
Dual Channel Ultra2/LVD SCSI Controller
Dual Peer PCI Buses; 7 Slots
2+1 400w Redundant Power Supplies;
6 Hot-Swap Drive Bays; 6 Fans
Intel EtherExpress Pro 100 Ethernet Adapter
Chassis-Intrusion Switch; Drive Bay Lock
Upgrade to Rack-mount kit, add \$99

\$4099

Business lease: \$140/Mo., 36 Mos. \$0 Money Down
☎-QUOTE NUMBER: pcw09q25

OX5000

Intel® Pentium® III Processor 550MHz
Dual Processor Upgradeable
Intel L440GX+ Motherboard
128MB ECC SDRAM (2GB Max)
9GB Ultra2/LVD SCSI Hot Swap Hard Drive
Dual Channel Ultra2/LVD SCSI Controller
Dual Peer PCI Buses; 7 Slots
5 Hot-Swap Drive Bays; 4 Fans
Intel EtherExpress Pro 100 Ethernet Adapter
Chassis-Intrusion Switch; Drive Bay Lock
Optional AMI MegaRAID 466WS, add \$399
Windows NT Server 4.0, 10-Client Access, add \$799

\$2499

Business lease: \$90/Mo., 36 Mos. \$0 Money Down
☎-QUOTE NUMBER: pcw09q29

OX3000

Intel® Pentium® III Processor 500MHz
Intel 440BX Chipset
Intel N440BX Motherboard
64MB ECC SDRAM (768MB Max)
4.5GB Ultra-Wide SCSI Hard Drive
Integrated Ultra-Wide SCSI Controller
3 PCI Slots, 1 ISA Slot, 1 Shared PCI/ISA
Mid Tower Server Case: 4 Internal 3.5" Bays,
4 External 5.25" Bays
Intel EtherExpress Pro 100 Ethernet Adapter
Upgrade to 9GB Ultra-Wide SCSI Hard Drive, \$199
APC SmartUPS 700VA, add \$349

\$1399

Business lease: \$50/Mo., 36 Mos. \$0 Money Down
☎-QUOTE NUMBER: pcw09q03



1-877-229-0468
WWW.QUANTEX.COM/PCWORLD



Quantex
Always Working

© 1999 Quantex Microsystems, Inc. All Rights Reserved. Quantex Microsystems, Inc. 400B Pierce Street, Somerset, NJ 08873. Sales Hours: M-F 8 a.m. - 12 a.m. (ET) - Sat. 9 a.m. - 6 p.m. Buyer's rights in their entirety are contained in Quantex Microsystems' Limited Warranty, a free copy of which may be obtained by writing Quantex at Quantex Microsystems, Inc. 400B Pierce St., Somerset, NJ 08873 or calling 1-877-229-0468. All desktop system sales are subject to Quantex's three-year limited warranty and terms and conditions of sale. For details on our warranty or money back guarantee call or write us. Other peripherals such as printers, joysticks, etc. are covered by manufacturer's warranty. Software titles are subject to change and cannot be substituted. All prices and configurations are subject to change without notice or obligation and do not include shipping or sales tax. All returned items must have a conspicuous RMA number issued by Quantex and be in original packaging. 30 day conditional money-back policy does not include return freight or original shipping/handling charges. *Maximum transmission speed of up to 500bps when downloading and 33.6kbps when uploading data. Actual speeds may vary depending on line conditions and current FCC instructions. Quantex is not responsible for errors in typography or photography. Current system photos shown for illustrative purposes only. Quantex is a registered trademark. Quantex Microsystems, Inc. Intel, Pentium, and the Intel Inside logo are registered trademarks and Celeron and Pentium III Xeon are trademarks of Intel. All other company trademarks are trademarks of each respective company.

The Last Time This Many Great Minds Met in Philadelphia There Was a Revolution.

**Congratulations to the finalists in the annual
Intel International Science and Engineering Fair.**

In May, nearly 1200 students from 47 countries gathered in Philadelphia. Not to create a new nation, but to showcase their research projects at the Intel International Science and Engineering Fair. As the world's largest pre-college science competition, the Intel ISEF brings students together to share ideas and interact with some of the world's leading scientists. The fair, celebrating its 50th anniversary, provides over \$2 million in scholarships and awards to students, plus the grand prize, a trip to attend the Nobel Prize Ceremonies in Stockholm, Sweden. By recognizing these students, we hope to encourage and inspire their spirit of exploration and discovery. To find out the names of this year's winners, or how to participate in the next Intel International Science and Engineering Fair, visit www.sciserv.org. And to learn more about Intel's commitment to science, math, engineering and technology education, visit us at www.intel.com/education.



outlook



EVERY TREK needs a tracker. To help you stay on the Office trail, Outlook—a handy wizard-based e-mail and personal information manager—maintains your in-box, appointments, contacts, tasks, and even your notes. Of all the Office 2000 applications, Outlook has the fewest changes, but it's nevertheless packed with enough features that the following tips will save you plenty of time and lots of trouble.

2000>Tidy Up Your Inbox It doesn't take long for your Inbox to become chockablock with unsorted messages, making important ones hard to find. The Organize tool can rescue you by automatically sorting incoming messages into folders. With the Inbox selected in the Outlook Folder list (or the Outlook Shortcut Bar), click *Using Folders* in the Organize tool. Then select a message from a person or entity; Outlook will automatically show the sender's name in the 'Create a rule' dialog box. Now, create a folder in which you'll store the messages. Select the drop-down entry box next to 'into' in the 'Create a rule' dialog, and scroll down and select *Other folder*. This brings up the Select Folder dialog. Click the *New* button. You are prompted to highlight a place on the Folder List where you want your new folder to appear. If you highlight *Inbox*, the folder will appear beneath the Inbox as a subfolder.

Click *OK* to close the Select Folder dialog, and then click the *Create* button in the 'Create a rule' dialog. From now on, all messages from that sender will be stored in the designated folder, making them much easier to find. Unlike the rule feature in Outlook 98, the 2000 rule lets you apply the rules

you've created to all the items in your Inbox, which saves a lot of time. To do this, click *Yes* when prompted to do so after creating the rule.

2000>Manage Messages From an Entire Domain Outlook can also manage messages from an entire Internet domain, such as annoyingserver.com. You can create a rule that looks for the domain name in the e-mail address, and then move every matching message into a folder of your choice. To do this, click the *Rules Wizard* button in the upper right of the Organize tool. Next, click the *New* button. In the top pane, select *Check messages when they arrive*, and click *Next*. Then apply the filtering condition for your rule: In the top pane, select *with specific words in the sender's address*. Go to the Rule description pane, and click *specific words*. In the Search Text dialog, type the domain name (in our example, annoyingserver.com) that you want Outlook to monitor, and click *OK* to close the dialog.

OFFICE basics

AN INTEGRATED OFFICE

WANT TO make a single document that exploits several Office apps? Thanks to new document-integrating features in Office

2000, it's easier than you might think.

Better Clipboard

Begin with 2000's *Collect and Paste* feature, which enables you to collect 12 clippings from any Office application and then paste them, in any order, into a document or worksheet.

◆ **To collect:** Choose the text, data, or object. Select *Edit•Copy* (or press <Ctrl>-C) or *Edit•Cut* (or press <Ctrl>-X). Repeat for up to 12 selections.

◆ **To paste:** Position the cursor where you want the selection pasted. If the Clipboard palette isn't visible, right-click any toolbar, then select *Clipboard*. Hover the mouse pointer over the clipboard items to preview them. Click the desired item to insert.

E-Mail Directly From Office

To send documents to other people from an Office app, select *File•Send To*, and then either *Mail Recipient* or *Mail Recipient*

(as Attachment).

Outlook will then launch, letting you select your addressees and send the mail. If

you choose *Mail Recipient*, Office will send the mail in HTML format, readable by any HTML-enabled e-mail client. Pick *Mail Recipient (as Attachment)*, and the document will be sent as an attachment, in the format in which it was saved.

One Document, Multiple Sources Office makes it easy to integrate data and objects from all Office applications into a sin-

gle document. Use Word as your home base to create the document, then build from there.

To create a new object, select *Insert•Object*, and choose an application. The object will be editable within Word using the interface of the selected application. To insert existing objects, use *Collect and Paste*. But if you want to include a link that will update your document when



OFFICE 2000'S CLIPBOARD can collect up to 12 text or graphic objects. Hover the mouse for a preview, then click to paste.

NEC



**You're looking for a new computer.
But it's the monitor you'll be looking at.**

If you're looking for a new system, remember, the monitor is the component you'll be interacting with most. So why not go with one that sets the standard for screen performance in any environment and for all applications? MultiSync® from NEC Technologies. The

monitors with a heritage of engineering excellence, quality and durability. And from one of the few companies that both design and manufacture their own equipment too. So next time you're looking for a computer, don't forget to look at the monitor.

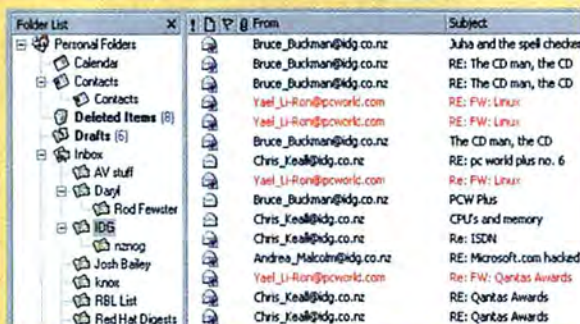


Click *Next*, and then click *Move to specified folder* in the top pane. Select *Specified Folder* in the Rule Description pane and choose the folder in which you want to store the message, or create a new folder by clicking the *New* button.

2000>Share Your Rules Once you've created the ultimate set of rules to manage the way Outlook handles personal information, you'll probably want to share those rules with other users. The Rules Wizard makes the job easy. Click the *Options* button in the Rules Wizard dialog, and then click the *Export* button. The Rules Wizard will save your rule set with the extension .rwz. Others who wish to use the set can import it by selecting *Options>Import* in the Rules Wizard dialog. Beware, though, of sharing Outlook 2000 .rwz files with users who haven't upgraded from Outlook 98: Some rules in the new version aren't compatible with the older one.

2000>Color-Code Incoming Messages

Outlook can automatically color message headers to make messages from (for instance) your boss stand out. In the Organize tool, click *Using Colors*. Select the sender whose messages you want to colorize, pick one of the available 18 colors, and click *Apply Color*. Now all messages from that sender will have colored headers.



OUTLOOK LETS YOU color-code messages from selected senders.

2000>Master the Spam Filter Both Outlook 98 and 2000 have rudimentary spam filters that look for certain words. By default they mark junk e-mail and adult content with distinct colors. But the filters may block personal messages that contain those "offending" words or phrases—or even delete legitimate messages upon arrival. To check which spam-filtering method your copy of Outlook is using, go to the *[Microsoft Office]\Office* directory and look at the filters.txt file.

To add to or edit a list of junk or adult content e-mail senders, click *Organize*, then select the *Junk E-Mail* tab on the left side of the resulting window. You can designate any sender as junk or adult mail by right-clicking a message and then choosing *Junk E-Mail* from the menu and following the prompts.

2000>Create Folder Shortcuts Want quick access to any of your Outlook folders? Just click a folder in Outlook and drag it to your desktop or Quick Launch bar. This will create a shortcut (confusingly named an "Exchange shortcut," so be sure to rename it) that will launch the folder in question but not Outlook itself. This means that you can read and edit what's in the folder but will not have access to the rest of Outlook.

2000>Protect Your Privacy Spammers may try to validate your e-mail address by requesting an automatic read-receipt message. Outlook has an e-mail option to prevent this. To set it up, click *Tools>Options* and select the *Preferences* tab in the Options dialog. Click the *Email Options* button and then the *Tracking Options* button. In the Tracking Options dialog, check the *Ask me before sending a response* option at the bottom of the page to ensure that your read-receipts don't get sent without your okay.

OFFICE basics

ever the original object changes, you need to paste it right after you copy it: Select and copy the object in the other application, return to Word, select *Edit>Paste Special*, select that object's type from the As list, choose *Paste Link*, and click *OK*. You can edit such an object, in its original program, by double-clicking it. Insert hyperlinks to Web documents, files, or intranet documents to expand your document globally.

Just type in the URL to automatically create the hyperlink, or select *Insert>Hyperlink* or press *<Ctrl>K* to create it using a dialog box that lists your Internet Explorer bookmarks and lets you browse your local hard disk, network neighborhood, or the Web.

CUSTOMIZE OFFICE 2000

OSTENSIBLY, Office 2000's new Personalized Toolbars and Menus represent Microsoft's efforts to cut screen clutter. Docked toolbars that don't fit the window's width show their most recently used buttons; likewise, menus show only their most recently

used commands. The toolbars and menus learn what you use as you work; as you use other toolbar buttons and menu commands, they too appear. While



OFFICE 2000'S MENUS are lean. Click the double chevron to see missing items.

this is effective, it can be off-putting at first, especially if you're accustomed to Office 97's interface. Here are some tips to help you get the hang of things in Office 2000:

- ◆ To find commands and buttons that are not currently visible, click the double chevron at the right end of a toolbar or at the bottom of a menu. (When you use a button or command, it's promoted and becomes part of the primary menu or toolbar.)
- ◆ An even simpler way of seeing a menu command that isn't currently displayed is to leave the menu open for a few seconds.

powerpoint



STAYING ON the trail is easier in PowerPoint 2000 than in PowerPoint 97, thanks to some markers Microsoft left along the way. AutoFix Text now automatically resizes text to fit a slide, and the Tri-Pane View combines the previously separate Slide, Outline, and Notes views. Together with a slew of Web presentation tools and new creation capabilities, PowerPoint has all the power of a tiger—you just have to know how to tame it.

2000/97>Publish to the Web Sure, PowerPoint 97 lets you save Web presentations in HTML format by simply using the File menu's Save as HTML option, and then following the wizard's instructions. But PowerPoint 2000 provides more-robust HTML output options for distributing a presenta-

tion on the Internet or an office intranet. Select *File>Save as Web Page*, and then choose the desired options in the Publish as Web Page box. For example, if you don't want your speaker notes to be

displayed on the Web page, uncheck the *Display speaker notes* box. If you want to include a navigation bar—a handy option for Web viewers—click the *Web Options* button and check the *Add slide navigation controls* box. Click *OK* to exit the Web Options box, and click *Publish* (in the main dialog box) when you're ready to roll. PowerPoint 2000 will then produce the HTML files you requested.

2000>Preview Web Shows Before you take time to save your PowerPoint 2000 presentation in Web page format, you can inspect and fine-tune it using the new Web page preview feature.

Open the presentation you want to publish as a Web page. Make sure it's been saved since you last made changes to it. Select *File>Web Page Preview* to launch the presentation in your default Web

browser (only Internet Explorer 4.01 or later works with this feature in PowerPoint). When you're done previewing the presentation, you can close the browser and return to PowerPoint. At this point, you can change any of the output options you previously defined by selecting *File>Save as Web Page>Publish*, and then repeat the preview process until you're ready to create the final Web pages.

2000/97>Add Snazzy Bullets to a Presentation PowerPoint 97 and 2000 let you add bullets to a slide—say, if you want to highlight each item in a list of new product features. In PowerPoint 97, select the text you want to format, right-click to access the pop-up menu, and select *Format* to open the Bullet dialog box. There, you can choose the font, color, size, and bullet style you want to use.

In PowerPoint 2000, select the text you want to format, right-click to get the pop-up menu, and select *Bullets and Numbering*. In the resulting dialog box, select a predefined bullet style or click the *Picture* or *Character* button to access additional choices. For example, click the *Picture* button to open the Picture Bullet box and access an extensive gallery of graphical bullets in the Pictures tab or animated bullets in the Motion Clips tab. (You can also import your own bullets into these

folders.) In the *Motion Clips* tab, click a choice to select it and then click the *Insert clip* option that appears in a pop-up menu. (Or, to preview the animation, click the *Play clip* option.) To see the bullets as they will appear in a slide, click the *Slide Show* button to the right of the view buttons.

George Campbell is a PC World contributing editor. Greg Harvey is the author of *Excel 2000 for Dummies* (IDG Books, 1999). Richard Jantz and Juha Saarinen are freelance writers based in Kensington, California, and Auckland, New Zealand, respectively.

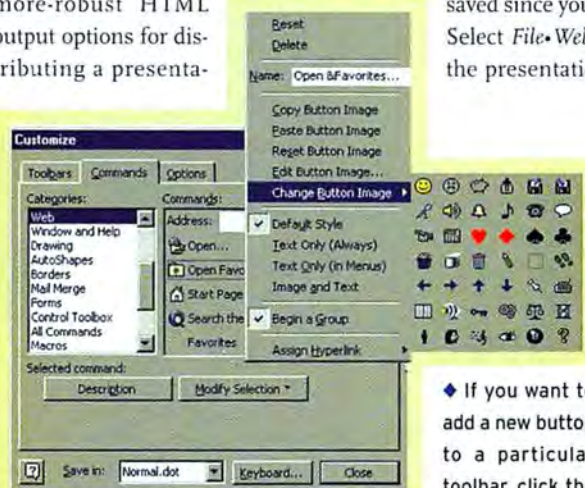
◆ If you want to remove a button from a toolbar, simply hold down the *<Alt>* key and drag the button off the toolbar.

◆ To make Office 2000 toolbars look and work just like those in Office 97, select *Tools>Customize>Options* and uncheck the box next to *Menus show recently used commands first*. Then clear the check box next to *Standard and formatting toolbars share one row*. Click *Close*.

◆ To reset a toolbar to its default arrangement, click its *More Buttons* button, choose *Add or Remove Button*, and then select *Reset Toolbar*.

◆ If you want to add a new button to a particular toolbar, click the toolbar's *More Buttons* button and select *Add*

or *Remove Buttons*. Then select a button you'd like to add or select *Customize* to access all commands, options, and icons.



CUTE AS A BUTTON: Change a toolbar button by selecting *Change Button Image*.

Assuming you have selected *Tools>Customize>Options>Show full menus after a short delay*, it will expand automatically.

COMPAQ

Better answers™



Save \$400

Get a \$400 rebate³ off all notebook or PC with monitor prices shown when you sign up for CompuServe Internet service for just \$21.95 a month. Call today for details.



PRESARIO 5700T INTERNET PC

Base price includes:

**PRESARIO 5700T-600/3
INTERNET PC**

Intel® Pentium® III Processor, 600 MHz
128 MB SDRAM expandable to 512 MB
22.0 GB (7200 rpm) UltraDMA Hard Drive¹
6X DVD-ROM Drive²
32 MB Creative 3D Blaster TNT2 Ultra Graphics Acc.
Diamond Monster Sound MX300 PCI Audio Card
6.0Mb Max Digital Modem³
JBL Pro Premium Speakers w/Subwoofer
Digital Creativity Imaging Center⁴
Home Phoneline Networking PCI Card⁵
Microsoft® Office 2000 SBE⁶
Microsoft Windows® 98
Compaq CV915 19" Monitor (18.0" VIA)

\$2799⁺ As low as **\$78 per month⁷**

256 MB SDRAM: Add \$260
Hughes DirecPC Satellite:
Add \$349
4X CDRW (Read/Writeable) Drive⁸: Add \$199
and get a free Diamond Rio MP3 Player⁹

Personalize by choosing:

Free MP3 Player

Upgrade your PC with a 4X CDRW (Read/Writeable) Drive and get a Diamond Rio MP3 Player for free (\$169 retail value)⁴. This Compaq Special Edition includes new Rio Audio Manager software to download MP3 music and audio files right off the Internet. Then, take them with you wherever you go.



Compaq Printers

U900 Printer (shown) **\$169.99**
U300 Printer **\$99.99**
A900 Printer **\$349.99**

PRESARIO 1900T INTERNET
NOTEBOOK PCPRESARIO 1800T INTERNET
NOTEBOOK PC

Base price includes:

**PRESARIO 1900T-PII 400
INTERNET NOTEBOOK PC**

Intel Mobile Pentium® II Processor, 400 MHz
13.3" TFT Active Matrix Display
64 MB SDRAM expandable to 192 MB
6.4 GB UltraDMA Hard Drive
4X DVD-ROM Drive²
256-bit AGP Accelerated Graphics
with 2.5 MB VRAM
56K ITU V.90 Modem³
Hi-Capacity Lilon Battery
256 KB Integrated "On-chip" cache
Microsoft Office 2000 SBE
Microsoft Windows 98

\$2699⁺ As low as **\$76 per month⁷**

Port Replicator: Add \$129
Extra AC Adapter: Add \$49
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)¹⁰

Personalize by choosing:

Y2K

COMPAQ PRODUCTS ARE YEAR 2000 HARDWARE COMPLIANT.¹¹

The Intel Pentium III Processor, 600 MHz is not available for sale until July 31, 1999.

All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, and are subject to change or cancellation without notice. Not all models available in retail stores may be higher. 2% check transaction fee (\$2 min - \$15 max). Fee waived for Compaq purchases billed directly to your account. * System tested using NIST YMARK2000 hardware test. Non-compliant third-party Max CD-ROM data transfer rates may vary from 1800 to 4800 kbps. The 6.0Mb Max Digital Modem uses the ADSL/G Lite protocol. ADSL/G Lite/56K V.90 updates may be downloaded from Compaq's website w/ from V.90 ISP services. Maximum achievable download transmission rates with ADSL/G Lite/56K V.90 are currently unknown, may not reach 6.0Mbps, and will vary with line conditions and distance. ITU V.90 mod third-party devices. Home Phoneline Networking and the Ethernet Port cannot be used simultaneously. Additional PC must have a network adapter, sold separately. AIO is a single user system and will not allow Kbps. 4X DVD-ROM Drives run at a higher maximum transfer rate of up to 5400 Kbps compared to 2nd-generation DVD-ROM drives which run at a maximum transfer rate of up to 2700 Kbps. 24X Max CD-ROM Compaq NET or America Online, the 100 free hours must be used within 30 days from initial sign-up. A valid credit card is required in order to initiate the service. Other conditions may apply. Compaq NET offers 10/1/99. Any claims received after 10/1/99 will be returned as ineligible. America Online is a registered trademark of America Online, Inc. NetZero is a trademark of NetZero, Inc. iomega and Zip are registered trademarks of CompuServe 2000 Internet Service at the monthly rate of \$21.95. Completed mail-in rebate form, original purchase receipt, and a valid major credit card are required. Service must be initiated at Additional terms and conditions apply. Full details are available in store or by calling 1-800-390-3268. *Free MP3 Player with purchase of 4X CDRW (Read/Writeable) Drive in addition to CD- or DVD-ROM Drive. N will ship with Battery. Offer valid in U.S. until 9/30/99 or while supplies last. One year parts and labor. Labor for desktop systems is pick-up service during the first 90 days of ownership. Labor for notebook system Inside logo, and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Product and company names mentioned herein may be trademarks and/or registered trademarks of other companies.

PRESARIO 5700T-600/3 INTERNET PC		PRESARIO 5700T-550/3 INTERNET PC		PRESARIO 5700T-550/3 INTERNET PC		PRESARIO 5700T-500/3 INTERNET PC	
Intel Pentium III Processor, 600 MHz		Intel Pentium III Processor, 550 MHz		Intel Pentium III Processor, 550 MHz		Intel Pentium III Processor, 500 MHz	
128 MB SyncDRAM expandable to 512 MB		128 MB SyncDRAM expandable to 512 MB		128 MB SyncDRAM expandable to 512 MB		128 MB SyncDRAM expandable to 512 MB	
18.0 GB (7200 rpm) UltraDMA Hard Drive ¹		17.0 GB UltraDMA Hard Drive ¹		20.0 GB (7200 rpm) UltraDMA Hard Drive ¹		17.0 GB UltraDMA Hard Drive ¹	
6X DVD-ROM Drive		6X DVD-ROM Drive		6X DVD-ROM Drive		32X Max CD-ROM Drive ¹	
Savage4 Pro 16 MB 2X AGP Graphics Card		Savage4 Pro 16 MB 2X AGP Graphics Card		Savage4 Pro 16 MB 2X AGP Graphics Card		Savage4 Pro 16 MB 2X AGP Graphics Card	
Diamond Monster Sound MX300 PCI Audio Card		Diamond Monster Sound MX300 PCI Audio Card		ESS Solo PCI Audio		Diamond Monster Sound MX300 PCI Audio Card	
56K ITU V.90 Modem ¹		56K ITU V.90 Modem ¹		56K ITU V.90 Modem		56K ITU V.90 Modem ¹	
Klipsch v.2-400 Speakers		JBL Pro Premium Speakers w/Subwoofer		JBL Pro Amplified Speakers		Klipsch v.2-400 Speakers	
Digital Creativity Imaging Center ¹		Digital Creativity Imaging Center ¹		Digital Creativity Imaging Center		Digital Creativity Imaging Center ¹	
Home Phoneline Networking PCI Card		Iomega Zip Built-in ¹ Drive with 2 disks ¹		Home Phoneline Networking PCI Card		Microsoft Featured Home Collection + MS Word	
Microsoft Featured Home Collection + MS [®] Word		Home Phoneline Networking PCI Card		Microsoft Featured Home Collection + MS Word		Microsoft Windows98	
Microsoft Windows98		MS Office 2003 SBE + Windows98		Microsoft Windows98		Compaq CV715 17" Monitor (16.0" VIA)	
Compaq CV715 17" Monitor (16.0" VIA)		Compaq CV715 17" Monitor (16.0" VIA)		Compaq CV715 17" Monitor (16.0" VIA)			
\$2499⁺		\$2199⁺		\$1999⁺		\$1899⁺	
As low as \$70 per month²		As low as \$62 per month²		As low as \$56 per month²		As low as \$53 per month²	
6.0Mb Max Digital Modem ¹ : Add \$99		Klipsch v.2-400 Speakers: Add \$175		Compaq CV915 19" Monitor (18.0" VIA): Add \$190		APC Back-UPS Office 280: Add \$89	
32 MB Creative 3D Blaster TNT2 Ultra Graphics Accelerator: Add \$109		Compaq CV915 19" Monitor (18.0" VIA): Add \$190		6.0Mb Max Digital Modem ¹ : Add \$99		Iomega Zip Built-in ¹ Drive with 1 disk ¹ : Add \$79	
4X CDRW (Read/Writeable) Drive ¹ : Add \$199 and get a free Diamond Rio MP3 Player ¹		4X CDRW (Read/Writeable) Drive ¹ : Add \$199 and get a free Diamond Rio MP3 Player ¹		4X CDRW (Read/Writeable) Drive ¹ : Add \$199 and get a free Diamond Rio MP3 Player ¹		4X CDRW (Read/Writeable) Drive ¹ : Add \$199 and get a free Diamond Rio MP3 Player ¹	
PRESARIO 1900T-P11 366 INTERNET NOTEBOOK PC		PRESARIO 1900T- C400 INTERNET NOTEBOOK PC		PRESARIO 1800T-P11 400 INTERNET NOTEBOOK PC		PRESARIO 1800T-P11 400 INTERNET NOTEBOOK PC	
Intel Mobile Pentium III Processor, 366 MHz		Mobile Intel Celeron™ 400 MHz Processor		Intel Mobile Pentium III Processor, 400 MHz		Intel Mobile Pentium III Processor, 400 MHz	
13.3" TFT Active Matrix Display		13.3" TFT Active Matrix Display		15.0" TFT Active Matrix Display		14.1" TFT Active Matrix Display	
64 MB SyncDRAM expandable to 128 MB		128 MB SyncDRAM expandable to 192 MB		64 MB SyncDRAM		64 MB SyncDRAM expandable to 128 MB	
4.8 GB UltraDMA Hard Drive ¹		4.8 GB UltraDMA Hard Drive		6.4 GB UltraDMA Hard Drive		6.4 GB UltraDMA Hard Drive ¹	
4X DVD-ROM Drive ¹		24X Max CD-ROM Drive ¹		4X DVD-ROM Drive ¹		24X Max CD-ROM Drive ¹	
256-bit AGP Accelerated Graphics with 2.5 MB VRAM		256-bit AGP Accelerated Graphics with 2.5 MB VRAM		ATI Rage LT Pro Hardware Accelerated 3D Graphics with 8 MB Video Memory		ATI Rage LT Pro Hardware Accelerated 3D Graphics with 8 MB Video Memory	
56K ITU V.90 Modem ¹		56K ITU V.90 Modem ¹		56K ITU V.90 Modem ¹		56K ITU V.90 Modem ¹	
Hi-Capacity Lilion Battery		Hi-Capacity Lilion Battery		Hi-Capacity Lilion Battery		Hi-Capacity Lilion Battery	
256 KB Integrated "On-chip" cache		128 KB Integrated "On-chip" cache		256 KB Integrated "On-chip" cache		256 KB Integrated "On-chip" cache	
Microsoft Office 2000 SBE		Microsoft Featured Home Collection		3.5" 120/1.44 MB High Capacity SuperDisk™ Drive		Microsoft Featured Home Collection	
Microsoft Windows98		Microsoft Windows98		Microsoft Office 2000 SBE & Windows98		Microsoft Windows98	
\$2399⁺		\$2199⁺		\$2999⁺		\$2499⁺	
As low as \$67 per month²		As low as \$62 per month²		As low as \$84 per month²		As low as \$70 per month²	
128 MB SyncDRAM: Add \$200		6.4 GB UltraDMA Hard Drive ¹ : Add \$100		128 MB SyncDRAM: Add \$200		Extra Iomega Zip ¹ Drive ¹ : Add \$149	
Extra AC Adapter: Add \$49		4X DVD-ROM Drive ¹ : Add \$150		10.0 GB UltraDMA Hard Drive ¹ : Add \$150		Extra AC Adapter: Add \$49	
Extra Hi-Capacity Lilion Battery: Add \$99 (includes free notebook backpack)		Extra Hi-Capacity Lilion Battery: Add \$99 (includes free notebook backpack)		Extra Hi-Capacity Lilion Battery: Add \$99 (includes free notebook backpack)		Extra Hi-Capacity Lilion Battery: Add \$99 (includes free notebook backpack)	

is. Illustrations may not accurately represent exact configurations priced. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. Financing available on approved credit. Payment based on 48-month term at 14.99% APR. Your APR software/hardware products may affect roll-over results. For more details, see www.compaq.com/year2000. For hard drives, GB=billion bytes. 6X DVD-ROM Drive transfer rate is up to 8115 Kbps compared to 1352 Kbps for 1X DVD-ROM Drives. 32X is not available. The ADSL/G Lite/56K V.90 protocol is designed to allow faster downloads from ADSL/G Lite/56K V.90 compliant digital sources. Availability of ADSL/G Lite/56K V.90 services will vary by region and Internet Service Provider (ISP), and may differ. MS are designed only to allow faster downloads from 56Kbps or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. Works with most multiple users to access simultaneously under the same account. Other Internet Service Providers may have the same restrictions. CDRW Drive recording transfer rate may vary from 150 to 600 Kbps; reading transfer rate may vary from 1500 to 3600 Kbps. Data transfer rates may vary from 1500 to 3600 Kbps. Requires sharing subscriber profile information and viewing targeted ads. Other terms and conditions also apply. See NetZero User Agreement for details. With activation of 100 hour free trial of unlimited Internet access starting at \$11.99/month based on a pre-paid 12-month service agreement. See User Agreement for additional terms and conditions. Compaq is not responsible for lost, late, or misdirected mail. Requests must be received by 10:00am and Zip Built-in is a trademark of Iomega Corporation. \$400.00 mail-in rebate from CompuServe with purchase of a qualifying Compaq Presario notebook or PC and monitor from 7/25/99 to 10/9/99 and contract commitment to a 36-month CompuServe Terms of Service must be accepted within 30 days of purchase. Mail-in rebate materials must be received by 11/30/99. Offer valid in the U.S. only and void where prohibited by law. You must be 18 years or older. Limit one per household. P3 Player will ship with PC purchased. Offer valid in U.S. only from 4/28/99 to 10/09/99 while supplies last. \$169 value based on standard retail price. Reseller prices may vary. Free backpack with purchase of Extra Hi-Capacity Lilion Battery. Backpack is pick-up service. Compaq, the Compaq logo, and Presario are registered in the U.S. Patent and Trademark Office. Better answers is a service mark of Compaq. Microsoft, MS, and Windows are registered trademarks of Microsoft Corporation. Intel, the Intel logo, and Pentium are trademarks of Intel Corporation. © 1999 Compaq Computer Corporation. All rights reserved.

Compaq Home

It's like this. You're the kid.

Q

You think that's sweet? Check out the deals inside.

PRESARIO 5700T-450/3
INTERNET PC

Intel® Pentium® III Processor, 500 MHz
64 MB SyncDRAM expandable to 512 MB
13.0 GB UltraDMA Hard Drive¹
32X Max CD-ROM Drive²
Savage4 Pro 16 MB 2X AGP Graphics Card
ESS Solo PCI Audio
56K ITU V.90 Modem³
JBL Pro Amplified Speakers
Digital Creativity Imaging Center⁴
Microsoft® Featured Home Collection + MS® Word
Microsoft Windows®98
Compaq CV715 17" Monitor (16.0" VIA)

\$1499* As low as
\$42 per month†

17.0 GB UltraDMA Hard Drive¹: Add \$50
Tripp Lite Super 7 + tel Surge Protector:
Add \$29
4X CDRW (Read/Writeable) Drive⁵: Add \$199
and get a free Diamond Rio MP3 Player⁶

COMPAQ
Better answers™

More choices. More technology. More fun.
Starting at a very tempting \$1499.

You remember the feeling. You'd take one step into your favorite candy store and your jaw would drop at the sight of all kinds of delectable treats. Well, it's about to happen again, thanks to the Compaq Presario Internet PCs you see here. Because when it comes to a variety of models, features, and prices, we really know how to satisfy the computer junkie in you.

The standard features alone are enough to make your mouth water. Rocket-like Intel® Celeron™, Pentium® II, and Pentium III processors, at speeds of up to 600 MHz. Our unique Easy Access Internet Keyboard for one-touch access to the Net. A choice of three Internet service providers,



We're the candy store.

PRESARIO 1800T-C400
INTERNET NOTEBOOK PC

Intel Celeron™ 400 MHz Processor
14.1" TFT Active Matrix Display
64 MB SyncDRAM expandable to 128 MB
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem³
Hi-Capacity Lilon Battery
128 KB Integrated "On-chip" cache
Microsoft Featured Home Collection
Microsoft Windows98

\$1999* As low as
\$56 per month†

128 MB SyncDRAM: Add \$200
6.4 GB UltraDMA Hard Drive¹: Add \$100
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)⁷

including Compaq.NET,¹¹ America Online,¹² and NetZero.¹³ A choice of how to buy, including from your favorite retailer or direct from Compaq via phone or the Web. You can even choose from a variety of financing options through Compaq Capital.¹

And that's not counting all the goodies you can add on. Like Home Phoneline Networking⁷, which lets the entire family surf the Net at the same time. Super-fast DSL modems, so when DSL service comes to your area, you'll be able to surf at lightning speed. Plus, you can add an Ethernet port to make your PC cable and satellite modem-ready.

Yet there's even more to whet your appetite.

If your wish list includes playing games with mind-blowing 3D graphics, you can upgrade to a next-generation DVD-ROM drive. Capture, edit, and publish high-quality digital movies and still images with the Digital Creativity Imaging Center.⁶ Get the latest in removable storage with an Iomega Zip Built-In™ Drive¹² or CD Read/Write Drive.⁸ In fact, whatever you want out of a computer, we can put into it.

The icing on this cake is that you can bring home all this fabulous stuff without spending your last penny.

Which is probably more than you could say about your visits to the corner candy store.

1-800-390-3268 www.compaq.com
Buy direct from Compaq, or purchase yours at your favorite retailer.



Compaq Retailers ABC Warehouse, American Appliance, **American TV**, Best Buy, Big City Express, **Brandsmart USA**, CDW, **Circuit City**, **CompUSA**, CompUSA Direct, Computer Town, Conn's, DataVision, Fred Meyer, Fry's Electronics, the good guys!, h.h. Gregg, Insight, **J&R Computer World**, Micro Center, **MicroWarehouse**, Multiple Zones, Nationwide Computers & Electronics, **Nebraska Mega Mart**, **Office Depot**, OfficeMax, Outpost.com, PC Connection, PC Mail, PC Richard & Son, PC Warehouse, **RadioShack**, RCS Computer Experience, Sears, **Shopping.com**, **Staples**, State Street Discount, The Wiz, **Tiger Direct**, Tops Appliance City, ValueAmerica.com. Visit a **Compaq Built For You Custom PC Center** at select retailers highlighted in bold above.



PHOTOGRAPH BY JEAN LANNEN

Are Wired Schools Failing Our Kids?

BY ROBERTA FURGER

We've wired the nation's schools and invested billions in classroom PCs. But when it comes to high-tech education, we've still got a lot to learn.

WITH SUMMER break just around the corner, the computer lab at Kanawha City Elementary School in Charleston, West Virginia, hums with activity. In a converted classroom filled with video equipment, student-created computer materials, and tributes to the lab's many benefactors, fifth graders scour Internet search engines for information about shrimp, giant water bugs, and mealworms. One enterprising student, Jared, hits the jackpot with Ask Jeeves for Kids. Meanwhile, Jared's classmate Jerry checks out a Yahoo!igans-recommended site. As other students hunt the Web avidly for information about their favorite invertebrates, veteran teacher Sherry Combs moves about the room, commenting on useful sites, answering questions, and troubleshooting glitches.

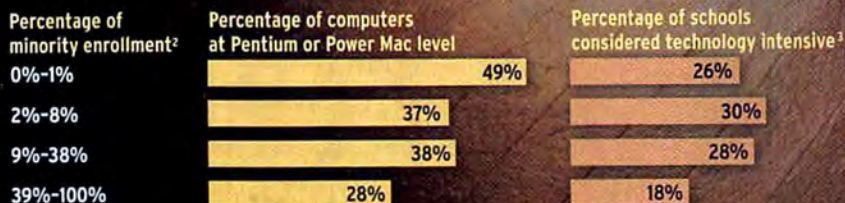
Something powerful is going on here.

"There **have** been a lot of false promises and unduly optimistic **expectations** for **computers** in schools."

—Hank Becker, professor, University of California at Irvine

Separate but Unequal: Minorities Lose Out

Schools with higher minority enrollment usually make do with older technology.¹



¹Data from "The Presence of Computers in American Schools" by Ronald E. Anderson and Amy Ronnkvist. Based on representative national sample of 459 schools, grades 4-12. ²Students divided into four groups: Black, Asian, Hispanic, and White; the first three count as minority enrollment. Each range in this column contains one-fourth of all schools. ³Schools with student-to-computer ratio of 6:1 or less, at least 25 percent of computers with CD-ROM drives, and moderate or fast Internet access.

These 10- and 11-year-olds aren't waiting for the teacher to enlighten them. They're engaged in independent learning—sharing information about sites, comparing search strategies, and enthusiastically taking notes. Before they're done, the students will evaluate their sources, organize

their research, and design a Web site starting their arthropod of choice.

Last spring, Kanawha City was one of 240 schools nationwide to receive the U.S. Department of Education's prestigious Blue Ribbon award for educational excellence. The school's innovative use of technology to improve basic skills and nurture critical thinking helped it win the honor. But getting there took a lot of work. The principal, staff, and students' parents had to join forces to create a technology plan, obtain funding, train teachers, and develop a new curriculum. Bringing PCs into the school was the easy part; using them effectively has been the challenge.



PHOTOGRAPH: GARY MOSS

Unlike Kanawha City, most U.S. public schools still struggle to meet this challenge. Though the federal government has doled out more than \$2 billion in the last few years on hardware, software, and networking equipment for schools, educators on the ground have only scratched the surface of the technology's potential. Research shows that computers can help students become self-directed learners and encourage them to analyze information. But often PCs are used for rudimentary activities like word processing and drill-oriented games. And many computers sit idle because educators lack the resources to

fully incorporate them into the classroom.

"There have been a lot of false promises and unduly optimistic expectations for computers in schools," says University of California at Irvine Professor of Education Hank Becker. "Many computer advocates have underestimated the time, money, and effort required to bring computers into children's school experience in a meaningful way." Nonetheless, the growing number of teachers making sophisticated and innovative use of technology leaves Becker optimistic about the future.

Today, however, many students miss out on valuable learning tools, graduating

from high school without the higher-order computer knowledge that businesses want. According to former Labor Secretary Robert Reich, "knowledge workers," who create, organize, and communicate information (usually assisted by computers), make up 62 percent of the United States' workforce. Reich says most schools fail to teach the skills the new economy requires.

CLINTON'S GRAND PLAN

THOUGH SOME SCHOOLS have been using computers since the early 1980s, the push toward wholesale adoption began in earnest in 1996, when Presi- ▶

"FREE" COMPUTER LABS SADDLE KIDS WITH ON-SCREEN COMMERCIALS

IT'S EVERY PRINCIPAL'S DREAM: a computer lab full of Internet-ready PCs, complete with software, training, and maintenance—at no cost to the school. That's the offer being extended to public and private schools throughout the country by ZapMe, a San Ramon, California, start-up. But there's a catch: Students (though not necessarily the same ones all day long) must view a looping series of on-screen commercial and public-service advertisements for several hours every school day.

Already more than 700 schools have installed ZapMe labs, and the company expects to have 2000 of its labs set up by the end of 1999. But the inclusion of advertising in the package has drawn criticism from the Center for Commercial Free Public Education. The CCFPE equates ZapMe's Internet-based effort with Channel One, the controversial endeavor that supplies schools with televisions and VCRs in return for the promise that the schools will run commercial-based educational programming.

"[ZapMe] uses educational tools to bring advertising to schools on a mass level," says Andrew Hagelshaw, senior program director for the CCFPE in Oakland, California. "If kids click on an ad, they're transported to [a sponsor's] Web page."

Learning to Consume?

HIGH-TECH CORPORATE sponsorships aren't new to schools. Microsoft has sponsored technology fairs at elementary schools, and Toshiba and other PC makers have donated hardware for school-based research projects. But some critics say ZapMe's arrangement crosses the line in corporate-school partnerships.

The full ZapMe lab consists of 15 Pentium II PCs with 17-inch monitors, a laser printer, and a high-speed satellite connection to the Internet. The PCs have no floppy or CD-ROM drives, so schools can't add other software to a system. But they do come loaded with



an integrated version of Microsoft Office and ZapMe's own software suite, including a browser, a chat feature, e-mail, and message boards.

In exchange for the free hardware, schools guarantee that classes will use the ZapMe lab—and students will be exposed to ads—at least 4 hours a day. Schools must also make the lab available to ZapMe and its for-profit partners for computer training and other activities.

Advertisements are designed to run in a permanent 2-by-4-inch box in a bottom corner of the screen, changing every 15 seconds. To

sugar-coat this bitter pill, ZapMe has decreed that for every commercial advertisement, two public-service ads will appear. ZapMe president Frank Vigil says he hopes the commercial advertising will focus on educationally appropriate messages, such as the environmental benefits of using paper (rather than plastic) packaging. But ZapMe has not adopted any guidelines restricting ad content.

Policy Vacuum

THOUGH ZAPME'S PROGRAM has drawn hostile comparisons to the Channel One model, Vigil rejects the analogy: "Channel One brings TV ads into the classroom where instruction is given. We're talking about tools used in common areas, like libraries, that are full of magazines with ads."

Only a handful of school districts have policies governing the dissemination of advertising in schools, according to the CCFPE. Staff members at the organization are working with national education groups to raise public awareness of the issue and to promote the adoption of carefully weighed policies.

"The school should be the one determining what it's going to get out of the relationship," says Hagelshaw. "Too often, companies set the agenda because they view a particular program or service as an opportunity to advertise."



"Technology stretches the way I **teach**.
It taps into **different** learning styles."

—Vivian Meiers, teacher, Northridge Elementary School

dent Clinton introduced his far-reaching Technology Literacy Challenge. The four-part program called for a massive effort at the local, state, and federal levels to transform schools into "21st-century learning institutions." Business leaders, educators, and politicians of all stripes voiced strong support for the plan's "four pillars": computer access for all students; classrooms networked locally and to the Internet; integrated use of high-quality educational software; and teachers trained to meld technology into classroom learning.

But as we approach the year 2000, Clinton's vision remains largely a pipe dream. According to the CEO Forum on Education and Technology, a group of business

and education leaders who assess schools' progress toward integrating technology, more than half of the nation's schools remain "low tech" learning institutions. At these schools, computers are old and in short supply, Internet access is limited, and teachers are insufficiently trained to use these machines as learning tools.

UNEQUAL ACCESS

THE PAST DECADE has seen tremendous gains nationwide in student access to computers and to the Internet—the first two goals of the Clinton plan. In 1990, there were approximately 20 students for every classroom computer; today that ratio is down to about 6 to 8 students per com-

puter, depending on who does the counting. But the deeper you dig, the less rosy the picture becomes. More than half of all school-based computers are old Apples or pre-Windows 95 PCs.

The situation is even bleaker when you measure access across diverse student populations. Studies report varying degrees of disparity, but their conclusion is the same: The higher the school's minority population, the fewer computers per capita. According to Denver-based research firm Quality Education Data, schools with fewer than 1 percent minority students enrolled average 6.8 students per computer, while schools with more than 90 percent minority students enrolled average 10.7 students to each computer.

Similar discrepancies exist when schools are compared by economic status. Last year, the richest schools lowered their student-to-computer ratio from nearly 10:1 to 7.5:1. While the country's poorest schools also saw a sizable improvement, they ▶

The fastest way to get
from **no way** to
maybe to

yes.



Silicon Graphics® 320 with the Intel® Pentium® III processor **\$3,449**

Now you can make even your most impossible tasks seem possible. Whether you're refining a 3D model, retouching a photograph or juicing up your web site, Silicon Graphics workstations let you push your Windows NT® applications to the absolute max. How? SGI's Integrated Visual Computing [IVC] architecture with the Cobalt™ graphics chipset. Designed to

handle even the largest files, the IVC architecture provides unrivaled graphics bandwidth* [3.2GB/second] and combines everything you need for 2D, 3D and video in a tightly integrated system. From Autodesk® AutoCAD®, to Adobe® Photoshop®, to Macromedia® Director®, Silicon Graphics workstations take your NT applications to a whole new level. To learn more about specific SGI solutions, visit



pentium®!!!

www.sgi.com/go/visualize.

sgi™
The solution is in sight.

*Bandwidth based on graphics to main memory. All prices subject to change.
©1999 Silicon Graphics, Inc. All rights reserved. Silicon Graphics is a registered trademark, and SGI, the SGI logo, The solution is in sight and Cobalt are trademarks of Silicon Graphics, Inc. Intel, the Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Windows and Windows NT are registered trademarks of Microsoft Corporation. Autodesk and AutoCAD are registered trademarks of Autodesk, Inc. Adobe and Photoshop are registered trademarks of Adobe Systems, Inc. Macromedia and Director are registered trademarks of Macromedia Corporation.

Circle 222 on card or go to www.pcworld.com/productinfo

still average nearly 10.5 students per computer. Simply put, 3 more students share each computer at the poorest schools.

The last three years have seen remarkable gains in Internet access—the latest bellwether of high-tech progress—thanks in large part to the success of NetDay events and to the discounts available to schools through the federal E-Rate pro-

gram (see “Parents Help Schools Compute,” below; and “Schools May Lose Cheap Internet Access,” page 156). In 1994, only 3 percent of all instructional rooms in the United States had Internet access, according to the Department of Education’s National Center for Education Statistics. By 1998, that figure had jumped to 51 percent. But at schools where

at least half of the students enrolled were minorities, only 37 percent of instructional rooms were connected to the Net.

TOO FEW TOOLS

EVEN THE BEST SCHOOLS can’t do much with state-of-the-art computers and fast Internet connections if they don’t have access to high-quality educational soft- ▶

PARENTS HELP SCHOOLS COMPUTE

WHEN KAREN DASILVA MOVED from Rochester, New York, to Bismarck, North Dakota, she thought she’d left the world of work behind. But soon enough the former information systems manager found herself knee-deep in a new project: using her business and technical acumen to help Northridge Elementary School, her children’s school, upgrade its computers and bring technology into the curriculum. “Because of my background, I felt it was extremely important to have a modern lab where students could go and work on their own computer,” says daSilva.

To upgrade the lab, she worked with school staff and parents to launch a series of fund-raisers to buy equipment. Volunteers also en-

couraged local participation in NetDay, a nationwide effort to bring Internet access to classrooms, labs, and libraries. Last year, more than 100,000 people participated in NetDay activities, showing the growing interest parents and businesspeople have in jump-starting the computer revolution in schools. Here’s what you can do:

- ▶ **Read the technology plan.** Get a copy of your local school (and school district’s) technology plan—it serves as the blueprint guiding the purchase and use of computers. If no plan exists, help the school develop one. You’ll find useful resources for doing this at the National Center for Technology Planning’s Web site (www.nctp.com).
- ▶ **Join a committee.** Many schools and most districts have technology committees, charged with developing strategies and action plans for computer implementation. These groups typically include parents and businesspeople.
- ▶ **Become a Webmaster.** Many schools don’t have the time or expertise to develop and maintain a Web site. Volunteer your services to give your local school a home on the Web.
- ▶ **Pull some wire.** Only 51 percent of all classrooms are connected to the Internet. The next national NetDay is planned for October 23, 1999. Volunteer now to wire a school in your community. For more information, go to www.netday.org.
- ▶ **Offer technical support.** Many schools are delighted to accept technical assistance in maintaining their systems. If you have the computer knowledge—and the free time during school hours—see what you can do to troubleshoot problems, install software, and set up computers. If you don’t have children in public schools, register to help through the Tech Corps (techcorps.org).
- ▶ **Help generate funds.** Most schools rely on special foundation grants for the funds they need to make technology purchases and to pay for teacher training. Put your writing skills to use by crafting a winning grant proposal. The Foundation Center (www.fdncenter.org) is a good place to begin your online search for funding sources.
- ▶ **Donate equipment.** If your business plans to upgrade its PCs or printers, ask your local school whether it can use the old ones. Nationally, the Detwiler Foundation’s Computers for Schools program (www.detwiler.org) brings together businesses interested in donating computer hardware and schools looking for equipment.
- ▶ **Understand the big picture.** The more you know about using PCs to transform education, the better you’ll be able to help your school. The Computer Learning Foundation (www.computerlearning.org) has an excellent archive of articles on this subject, as does the Educational Resource Information Center (eric.syr.edu).



KAREN DASILVA OF BISMARCK, North Dakota, a former IS manager, volunteers her computer skills at her children’s school.

Yes starts here.

PCWEEK
BEST OF
COMDEX



Blazing NT graphics performance. At affordable prices.

Silicon Graphics® 320

Single Intel® Pentium® III processor 450MHz

\$3,449

- Supports up to two Intel® Pentium® III processors
- Integrated Visual Computing (IVC) architecture with Cobalt™ graphics chipset
- 128MB ECC SDRAM [expandable to 1GB]
- 6.4GB Ultra ATA hard drive [expandable to 28GB of storage] or optional Ultra2 SCSI hard drive
- Integrated 10/100 Fast Ethernet
- IEEE-1394, parallel, serial, USB, video and audio ports
- Microsoft® Windows NT® Workstation 4.0

Silicon Graphics 320

Single Intel® Pentium® III processor 500MHz

\$4,449

- 128MB ECC SDRAM
- 14.4GB Ultra ATA hard drive
- 17" [16" viewable] monitor with Trinitron® technology
- Upgrade to the Silicon Graphics® 1600SW 17.3" digital flat panel monitor for \$2,119

Silicon Graphics 320

Single Intel® Pentium® III processor 600MHz

\$5,680

- 256MB ECC SDRAM
- 9.1GB Ultra2 SCSI hard drive—10,000RPM
- 17" [16" viewable] monitor with Trinitron technology
- Upgrade to the Silicon Graphics 1600SW 17.3" digital flat panel monitor for \$2,119

Silicon Graphics® 540

Single Intel® Pentium® III Xeon™ processor 550MHz

\$6,499

- Supports up to four Intel® Pentium® III Xeon™ processors
- Integrated Visual Computing (IVC) architecture with Cobalt graphics chipset
- 128MB ECC SDRAM [expandable to 2GB]
- 9.1GB Ultra2 SCSI hard drive
- Integrated 10/100 Fast Ethernet
- IEEE-1394, parallel, serial, USB, video and audio ports
- Microsoft® Windows NT® Workstation 4.0

Silicon Graphics 540

Single Intel® Pentium® III Xeon™ processor 550MHz

\$7,349

- 256MB ECC SDRAM
- 9.1GB Ultra2 SCSI hard drive
- 17" [16" viewable] monitor with Trinitron technology
- Upgrade to the Silicon Graphics 1600SW 17.3" digital flat panel monitor for \$2,119

Silicon Graphics 540

Dual Intel® Pentium® III Xeon™ processors 550MHz

\$9,599

- 512MB ECC SDRAM
- 9.1GB Ultra2 SCSI hard drive—10,000RPM
- 17" [16" viewable] monitor with Trinitron technology
- Upgrade to the Silicon Graphics 1600SW 17.3" digital flat panel monitor for \$2,119



To get information, find a local reseller or to order,
call 1 888 SGI-4291 or visit us at www.sgi.com/go/visual
[Reference # 4291-09B]

sgi
The solution is in sight.

*Requires additional software under Windows NT Workstation 4.0. Prices quoted are for U.S. only. All prices subject to change.
© 1999 Silicon Graphics, Inc. All rights reserved. Silicon Graphics is a registered trademark, and SGI, the SGI logo, The solution is in sight and Cobalt are trademarks of Silicon Graphics, Inc. Intel, the Intel Inside logo and Pentium are trademarks of Intel Corporation. Microsoft, Windows and Windows NT are registered trademarks of Microsoft Corporation. Trinitron is a registered trademark of Sony Corporation. All other trademarks are property of their respective owners.

Circle 223 on card or go to www.pcworld.com/productinfo

ware and student-friendly online content. That's why the Clinton administration specifically identified educationally sound software and resources as a key component of its four-part plan.

Though schools have increased their outlays for software, their choices are few and far between when it comes to superior programs designed specially for classroom use. "We need digital content tied to academic standards and curriculum, and we still don't have it," says Cheryl Lemke, executive director of the Milken Exchange on Education Technology, a private non-profit group that funds research on the use of computers in schools. "We expect teachers to create their own content from generic tools and resources," she says. "We don't expect all musicians to write their own music, but that's what we're expecting of teachers."

SCHOOLS MAY LOSE CHEAP INTERNET ACCESS

E-RATE, A ONE-YEAR-OLD federal program that has helped over 30,000 cash-strapped schools and libraries connect to the Internet, may be scaled back significantly if its opponents in Congress and industry have their way.

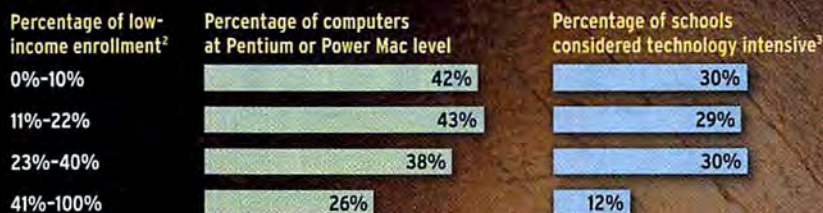
One of E-Rate's most powerful supporters is Vice President Albert Gore, who has made expanding the Internet-subsidy program part of his upcoming presidential campaign. Another E-Rate backer, the Federal Communications Commission, voted in May to increase the program's funding from \$900 million to \$2.25 billion per year. The money comes primarily from fees imposed on U.S. consumers' long-distance telephone calls.

Opponents of the fee, which ranges from 1 to 5 percent of a monthly long-distance phone bill, have dubbed it the Gore tax. "The FCC's reckless implementation of this program could ultimately cause chaos for our nation's schools and libraries," states a letter signed by 19 U.S. senators and representatives. Critics argue that the FCC is in effect unconstitutionally levying a tax without congressional authorization.

Federal legislators have introduced two bills in the House and Senate (HR

Low-Income Schools, Second-Rate Technology

Kids in high-poverty districts have to wait in line for new computers.¹



¹Data from "The Presence of Computers in American Schools" by Ronald E. Anderson and Amy Ronnkvist of the University of Minnesota. Based on representative national sample of 459 schools, grades 4-12. More data available at www.crito.uci.edu/tic. ²Eligible for Title One funding based on number of students in school who qualify for Aid to Families With Dependent Children. Each range in this column contains one-fourth of all schools. ³Schools with student-to-computer ratio of 6:1 or less, at least 25 percent of computers with CD-ROM drives, and moderate or fast Internet access.

Because of the dearth of software options, most schools use off-the-shelf educational programs and standard business applications for their computer activities. These tools are by no means worthless, but they don't offer the curriculum framework that most teachers want and need.

In the past few years, Internet-based resources designed for classroom teachers have proliferated. Unfortunately, teachers must spend hours ferreting out appropriate sites and organizing their lesson plans around these resources. Increasingly, though, education groups, school districts, and some statewide associations are systematically matching the available Web resources to grade-by-grade academic standards, providing teachers a much-needed framework.

The International Society for Technology in Education has undertaken one of the most promising efforts in this regard. Working with teachers from around the country, the organization is developing standards to define and govern how technology is used in learning and teaching. ISTE also provides practical resources to help educators determine which digital content and software tools will allow them to meet curriculum goals.

Tell Congress What You Think

TO VOICE YOUR OPINION about the current E-Rate program and the bills that seek to change it, write or send e-mail to the influential lawmakers listed below:

- Senate Finance Committee Chair William Roth (R-Delaware) at 104 Hart Senate Office Building, Washington, DC 20510; or comments@roth.senate.gov.
- House Commerce Committee Chair Tom Bliley (R-Virginia) at 2409 Rayburn House Office Building, Washington, DC 20515; or tom.bliley@mail.house.gov.
- House Ways and Means Committee Chair Bill Archer (R-Texas) at 1236 Longworth House Office Building, Washington, DC 20515-4307; or www.house.gov/writerep.

TEACHERS NEED TRAINING

THE FIRST THREE pillars of the Clinton plan may need some strategic reinforcing, but the fourth—teacher training—hasn't made its way out of the blueprint stage yet. According to the Department of Education, 80 percent of the nation's teachers feel unprepared to integrate computers into their classroom instruction. And whether this reflects ▶

YOUR DIGITAL FILM WAS ONLY ABLE TO CAPTURE 8 SHOTS.

NUMBER 9.

©1999 Lexar Media and its logos are trademarks of Lexar Media. All other brand product names are trademarks or registered trademarks of their respective holders.

CATCH THE PERFECT SHOT AND EVERY ONE THEREAFTER WITH LEXAR DIGITAL FILM.



With Lexar Digital Film powering your digital camera, running out of space is never a problem. From 8MB to 80MB, Lexar offers the fastest and largest capacity SmartMedia™ and CompactFlash® cards available. You'll always have ample space



for your high-resolution photos...right as they happen. Plus, Lexar is able to keep up with your trigger finger, allowing you to take more pictures faster. To learn more about Lexar's superior performance, visit www.digitalfilm.com.

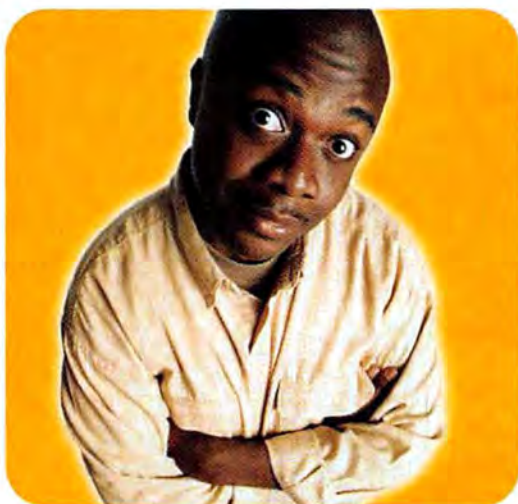


1.800.789.9418 ext.126

WE MAKE DIGITAL CAMERAS GO.

www.digitalfilm.com

"Trying to lose



Get the speed YOU need.

If you've been holding out for the cable or telephone company to bring high-speed Internet access to your neighborhood, chances are it's been a while. Which is a shame, because if you'd chosen DirecPC®, you could be surfing at up to 400 Kbps **right now**. That's up to 14 times faster than a standard 28.8 modem and almost three times faster than an ISDN line.

HARDWARE
AS LOW AS

\$199

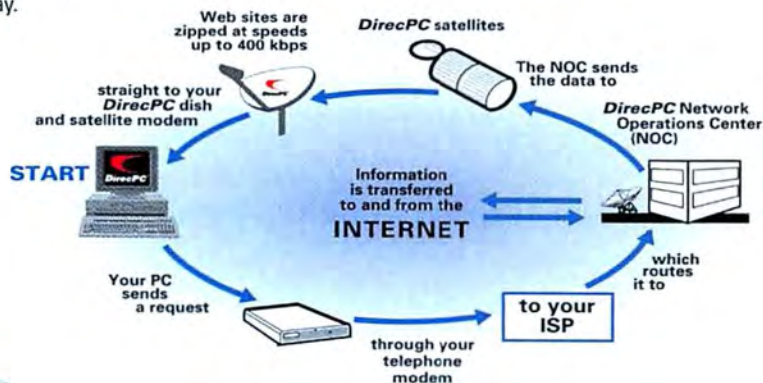
It's easy.

How do you get started? Just visit us at www.direcpc.com to find a retailer near you. If you can't find a store in the neighborhood, call us at 1-800-DIRECPC. We'll send you your dish, satellite modem, software and everything else you need. We can arrange professional installation for you, too. Either way, getting started is just a phone call or a mouse click away.



How does it work?

The engineers at Hughes figured out that the real bottleneck in the speed of the Internet wasn't the request **out** to the Web — telephone modems handle that just fine. Everything slows down when the Web tries to use the telephone system to send you **back** the media-rich information you requested. So, we use a much faster satellite connection for sending you the Web content you want. Check out the diagram — this is the system that makes DirecPC the fastest Internet access available nationwide.



Wait? a little

DirecPC gets pushy.

Sure, you love the idea of surfing the Web at up to 400 Kbps. But what if you could get your favorite Web sites and Usenet Newsgroups delivered straight into your PC by satellite — **automatically**, without even having to tie up your phone line to ask for them? That's just what DirecPC's Turbo WebCast™ and Turbo NewsCast™ services do — so you're never behind on the news and information that's important to you. The best thing about these two services? They're **free** with your paid subscription to any Turbo Internet™ service package.



The good news.

No other high-speed Internet access provider offers so much for so little. Take a close look at our service pricing — we're sure you'll find a package you like.

**SERVICE
AS LOW AS**

**\$19⁹⁹
MO.**

Want TV with that?

We know what you're thinking: "If I'm going to put a dish on my roof, I might as well sign up for one of those satellite TV services, too."

We agree! That's why, for a few dollars more, you can upgrade to our DirecDuo™ dish with your DirecPC satellite modem. Add a Hughes-brand digital satellite receiver (or the receiver you already own), and you get almost 200 channels crystal-clear satellite TV from DIRECTV as well as Turbo Internet from DirecPC. Just call 1-800-DIRECPC or stop by www.direcpc.com to find out more.



You already know how great the Internet is — you're just looking for a way to go faster. DirecPC is the fastest Internet access available nationwide. It's affordable, and it's available everywhere. So, if you're still plugging away with an old-fashioned telephone modem, you need to ask yourself:

What are you waiting for?

Service Plan Details		Residential		Business
Name of Service Plan		Executive Surfer	Family Surfer	Office Surfer
Price of Service Plan (Including ISP)		\$29.99/Month	\$49.99/Month	\$129.99/Month
Price of Service Plan (Without ISP)		\$19.99/Month	\$34.99/Month	\$109.99/Month
Hours of Service (Availability)		24 Hours a Day	24 Hours a Day	24 Hours a Day
On-Line Time (Hours of usage for Turbo Internet)		25 Hours/Month	100 Hours/Month	200 Hours/Month
Additional Hourly Rate (Including ISP)		\$1.99/Hour	\$1.99/Hour	\$1.99/Hour
Additional Hourly Rate (Without ISP)		\$0.99/Hour	\$0.99/Hour	\$0.99/Hour
DirecPC Services				
Turbo WebCast: Broadcast delivery of popular Websites to your PC's hard drive		Included	Included	Included
Turbo NewsCast: Broadcast delivery of up to 30,000 Usenet Newsgroups to your PC's hard drive		Included	Included	Included
Turbo Internet: Fully interactive access to the Internet at speeds up to 400Kbps		Included in Online Time	Included in Online Time	Included in Online Time
Free E-mail Accounts		1	1	4
Networking (Number of Seats)		N/A	N/A	4

1 (800) DIRECPC
WWW.DIRECPC.COM

DirecPC HUGHES
NETWORK SYSTEMS

\$199 hardware price after DirecPC rebate. New Credit card customers only. Expires September 30, 1999. \$100 rebate posted to credit card upon service activation. 12-month commitment to service required. \$100 cancellation fee charged to credit card if service canceled within 12 months. Cannot be combined with other DirecPC promotions. Executive Surfer and Family Surfer packages for single-user systems only and subject to Fair Access Policy and Subscriber Agreement. Speeds may vary. Not available in Alaska or Hawaii; requires line of sight to the southern sky. © 1999 Hughes Network Systems, a Hughes Electronics Corporation Company. DIRECTV, DirecDuo, Turbo Internet, Turbo NewsCast and Turbo WebCast are trademarks of Hughes Network Systems, a Hughes Electronics Corporation Company. DIRECTV is a registered trademark of DIRECTV, a Hughes Electronics Corporation Company.

a lack of basic computer literacy among teachers or inadequate practical knowledge of how to turn PCs into learning tools, the result is that schools' computers are neglected or underemployed.

"I've seen a whole lot more interesting uses of computers in the last few years," says UC Irvine's Hank Becker, "but the mundane uses of technology are still easier to implement."

Consider the experience of one Northern California elementary school teacher. Last winter she received several new iMacs as part of a districtwide effort to bring computers into classrooms. But between preparing students for state-mandated standardized testing and covering the core curriculum, she didn't have time to crack a computer manual, let alone explore how to integrate software tools into her daily instruction. So the iMacs have sat idle much of the time since they arrived.

Vivian Meiers, a sixth-grade teacher at Northridge Elementary School in Bismarck, North Dakota, knows that teaching effectively with computers presents a challenge. Besides networking with other teachers, she has participated in numerous school-, district-, and state-sponsored training programs. But Meiers believes all the time she's invested has paid off: "Technology stretches the way I teach. It taps into different learning styles," she says.

More teachers would probably follow Meiers' lead if they had the ongoing support she enjoys from her school district. "The pattern of professional development in American schools has long been focused on 'one shot' workshops," conclude the authors of the 1999 CEO Forum's school technology and readiness report. "Follow-up study, classroom observation, links to student activity, and measuring results have generally been absent."

In addition, half of the teachers surveyed by the Department of Education in 1998 reported that they had found it necessary to acquire technology skills on their own time, with their own money. On average, school districts spend only 9 percent of their technology budget on training, a far cry from the 30 percent that the Department of Education recommends. President Clinton's technology initiative has yet to deliver training to those who need it most—classroom instructors.

THE MISSING PILLAR

WHILE CLINTON's four-part program has helped jump-start the computer revolution in schools, it doesn't establish any lasting foundation for the long haul. What will keep the revolution going after the initial funding from Washington dries up?

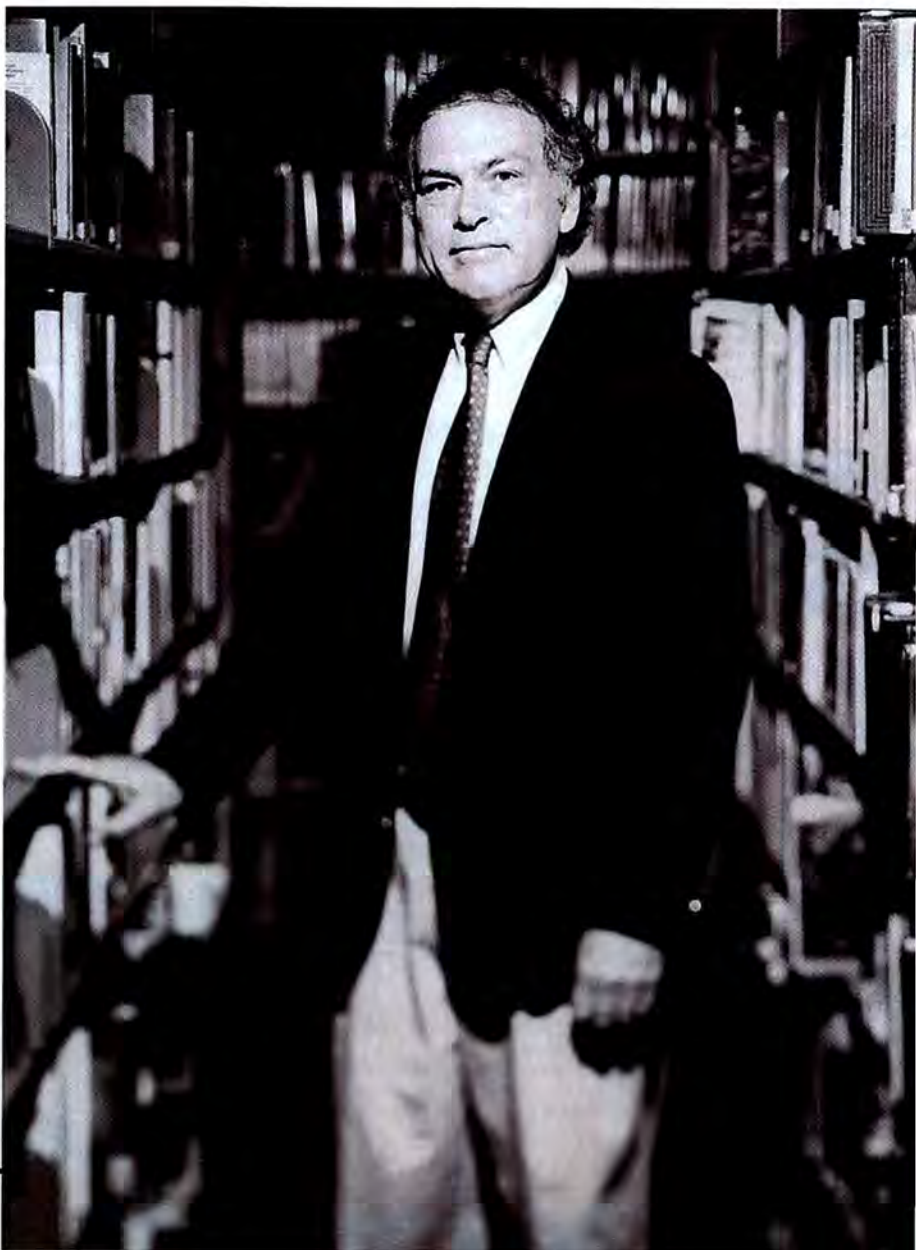
In a landmark 1994 report on technology in schools, Thomas Glennan, a senior advisor for education policy with RAND in Washington, D.C., says that all school

district budgets need to include long-term funding for technology. Suitable allocations must be built in to all future budgets, he says, to ensure that future upgrades, training, support, and repairs receive adequate funding.

Some school districts, such as the New Haven Unified District in Union City, California, have passed bond measures to fund their technology efforts. But arrangements of this sort demand a level of ►

"In public **schools** it's a zero-sum game.... Computers are going to **cost** schools **big bucks** over the long run."

—William L. Rukeyser, founder, Learning in the Real World



PHOTOGRAPH: JAY BLAKESBERG

CyberMax 3Daredevils Take-off with Athlon

AMD ATHLON 600 **55.6**
PENTIUM III 600 **44.7**†

Everything You Need To Fly Away!

CyberMax® 3Daredevils now fly with AMD's Athlon™ processor with 3DNow!™ Technology, running at speeds of up to 600MHz and available with a variety of color printers, scanners and digital cameras.

The 3Daredevil K7-500

- ♦ The 500MHz AMD Athlon™ w/ enhanced 3DNow!™ Technology
- ♦ 128MB SDRAM ♦ 13GB Ultra ATA Hard Drive
- ♦ 3dfx® Voodoo3™ 2000 16MB AGP Graphics Accelerator
- ♦ CyberMax 19" (26dp-18" VA) Color Monitor
- ♦ 6x Max Variable DVD-ROM (32x Max Variable CD-ROM)
- ♦ V.90 Standard 56K Voice/Fax Modem w/ Speakerphone
- ♦ Aureal Vortex2 PCI Sound Card w/ A3D 2.0 Technology
- ♦ Altec Lansing ACS45.1 Powercube Speakers w/ Subwoofer
- ♦ Corel WordPerfect Office 2000 Standard & Max's Enthusiast Pack
- ♦ 3 Year Limited Warranty

\$1499
or as low as \$49/mo.*
Order 0301



Ask about the Voodoo 3™, the latest in 3Dfx™ technology—
it's sure to cast a spell on you!

For our complete product line visit us @
cybermaxpc.com



CyberMax
Computer, Inc.

We fit your life.

1-800-437-4596

The Entrepreneur Series

The Enthusiast Series

†Benchmark system configuration: 3Dfx Voodoo3 3000, Western Digital Expert 41800, Single PC100 128MB DIMM, Aureal Vortex2 Audio, Toshiba 6x DVD SD-M1212, Windows®98SE, Direct X 6.1A, 3Dfx Voodoo3 Driver Rev 1.01.
The AMD Athlon™ processor based system: Microstar MS-6167, Rev OE, Bios Rev 1.01B11, AMD Bus Mastering EIDE Driver v1.06, AMD AGP miniport 4.44. Intel® Pentium®III processor based system: Biostar M6TBA REV 1.3, Bios Rev TBA0224D.
*Loan financing available on approved credit through independent lender. Payments based on 36-month term at an Annual Percentage Rate as low as 9.9%. Your APR may be higher.
CyberMax Computer, Inc. 11111 15th Street, Suite 100, San Diego, CA 92131. Tel: 619-594-4596. Fax: 619-594-4597. E-mail: sales@cybermaxpc.com. Website: cybermaxpc.com.
©2001 CyberMax Computer, Inc. All rights reserved. CyberMax, the CyberMax logo, and 3Daredevils are trademarks of CyberMax Computer, Inc. All other trademarks are the property of their respective owners.
3Dfx, Voodoo3, and 3DNow! are trademarks of 3Dfx Corporation. Athlon is a trademark of AMD. Pentium is a trademark of Intel Corporation. Windows is a trademark of Microsoft Corporation. WordPerfect is a trademark of Corel Corporation. Aureal is a trademark of Aureal Semiconductor, Inc. Altec Lansing is a trademark of Altec Lansing Systems, Inc. Corel WordPerfect Office is a trademark of Corel Corporation. Max's Enthusiast Pack is a trademark of CyberMax Computer, Inc. All other trademarks are the property of their respective owners.
CyberMax Computer, Inc. is not responsible for any damage to your computer or data that may occur while using our products. We warrant our products to be free from defects in materials and workmanship for a period of three years from the date of purchase. This warranty is void if the product has been modified, misused, or if the serial number has been removed. For more information, please contact our technical support department. Some restrictions may apply. See your user manual for details. ©2001 CyberMax Computer, Inc. All rights reserved.

community support and fiscal commitment that many localities are unable or unwilling to provide. On a broader scale, New Jersey and a few other states have adopted long-term budgets for maintaining and supporting computers in schools. Unfortunately, such big-picture planning remains the exception.

As a result, few schools can afford to hire the staff needed to support the technology. According to 1996 data from the National Center for Education Statistics, only 29 percent of all schools employ a full-time technology coordinator, 42 percent struggle along with a part-time coordinator, and 29 percent have no on-site support personnel. Most schools get help from a remote central district office—or they expect tech-savvy teachers to do double duty as in-house experts.

Northridge's Meiers understands how the lack of support might deter teachers who are uncomfortable with the technology from using it. "It's disappointing to have 25 kids staring you in the face and have a lesson plan fail because the technology isn't working," she says. When Meiers runs into a computer glitch, she treats it as an opportunity for her students to practice their troubleshooting skills.

FINISHING THE REVOLUTION

WHAT WILL IT TAKE for wired schools to earn passing grades? Plenty. But the costs of ignoring their difficulties could be greater still. Already a number of increasingly vocal critics are complaining that cash-strapped public schools are spending scarce funds on expensive technology that has yet to prove its educational value.

"In public schools it's a zero-sum game," says William L. Rukeyser, founder of Learning in the Real World, a Woodland, California, research center that is leading the charge to reexamine funding for computers in schools. "When it comes to maintenance and ongoing costs," says Rukeyser, "computers are going to cost schools big bucks over the long run. Already we're seeing schools that previously had respectable libraries transferring resources from ink on paper to silicon-based technical material."

In the face of this emerging opposition, people who believe firmly in the worth of educational technology must redouble

Teacher Training by the Numbers

20 Percentage of U.S. teachers who say they feel prepared to integrate computers into classroom instruction.

3 to 5 Number of years of professional development needed before a teacher can use computers effectively in a classroom.

30 Percentage of a school district's technology budget that the U.S. Department of Education advises spending on teacher training.

9 Percentage of a school district's technology budget (on average) spent on training.

50 Percentage of teachers who receive training on their own, with their own money.

2 million Number of new teachers needed in U.S. public schools by the year 2010.

3 Number of U.S. states that require technology training as a prerequisite for license renewal.

Sources: U.S. Department of Education, Milken Exchange on Education Technology, Education Week, Apple Computer.

their efforts to carry through the revolution already in progress. They need to help create more institutions like Kanawha City Elementary School, where computers and enhanced learning go hand in hand.

To do this, proponents of educational technology say we must challenge the nation's preoccupation with standardized

tests and rote learning, which they say limit technology's ability to transform education. When computers are used only to drill students on basic skills, the machines' potential to enhance critical thinking is wasted. "We're sending a confusing message to teachers," says Barbara Means, a researcher with the Center of Innovative Learning Technologies, a research group within SRI International in Menlo Park, California. "We tell them we need to prepare kids to be problem solvers, and so on. Then we tell them they have to improve performance on standardized tests—tests that measure discrete factual information, not collaboration, not how well a student can locate more data sources to consider all sides of an issue."

Educators, parents, and politicians must also ensure that schools receive adequate funding for teacher training and technical support. Washington seems to be wising up to this fact. Both Congress and the Department of Education now increasingly support programs that focus on teaching teachers how to integrate computer-based tools into their curriculum.

Other steps in the right direction are initiatives at the state level to match schools' technology resources with broader-based standards and more traditional curricula. More such efforts are needed if technology's full potential is to be realized in more than a handful of schools.

Roberta Furger is a contributing editor for PC World and the author of Does Jane Compute? Preserving Our Daughters' Place in the Cyber Revolution (Warner Books, 1998). Chart data researched by Michael Goodwin.

PC World Adopts a Public High School

EDITOR'S NOTE: While developing this package of stories, we decided that just writing about the problems schools face in using computers wasn't enough. We wanted to do something about it.

So we called the nonprofit San Francisco School Volunteers to help us hook up with a local school. The group told us that the state of California had recently designated San Francisco's Raoul Wallenberg High School as a "Digital High School" and had arranged for it to receive \$200,000 in computer equipment. But like most schools that go high-tech, Wallenberg High will need a lot of assistance setting up, using, and maintaining the technology.

Twenty enthusiastic *PC World* staffers have volunteered their time to get Wallenberg High's computers up and running, and to provide ongoing training in using software, the Internet, and more. Your business or organization can easily "adopt" a school in your community, too. To get started, contact either Tech Corps (781/687-1100, techcorps.org) or Partners in Education (703/836-4880, www.partnersineducation.org).



**KEEP YOUR
BUSINESS**

**UP AND
RUNNING**

CHAINED TO A DESK? That's not how you run your small business. When all the decisions are yours, you have to be everywhere all at once. And you need to have all your information with you. When you need to know more, the **IBM small business program** can help.

IBM



THE IBM THINKPAD. There's a reason everyone wants one. And it's not just about how many awards they've won. It's about how hard they work...anywhere. With the **IBM small business program**, you get more than just the tools. You get the service and support your business demands.

STAY ON THE MOVE with an affordable ThinkPad® notebook that suits your needs and your budget. Add a docking solution and turn your portable into a desktop system easily.

WE CAN HELP YOU finance whatever you need.¹ And with IBM world-class service and support designed for small businesses, you can get what you need to keep moving.

WHEN YOU'RE READY FOR e-BUSINESS, we'll help you harness the power of the Internet. So you can give your business the competitive edge in a wired world.

IBM THINKPAD 390E

Mobile Intel® Celeron™ processor 300MHz²
32MB RAM
3.2GB³ HDD
12.1" active matrix display
24X-10X⁴ CD-ROM
56K V.90 Modem⁵
Approximately 7.5 pounds light and about 1.8 inches thin⁶



\$1,799*

SuccessLease™
for Small Business

\$65/MONTH¹

CUSTOMIZE YOURS:

32MB SDRAM Memory	\$75*	or \$3/month ¹
Ultraslim 56W AC Adapter	\$69*	or \$2/month ¹
Port Replicator with EtherJet™	\$395*	or \$14/month ¹

IBM THINKPAD 600E

Mobile Pentium® II processor 300PEMHz
32MB RAM
4.0GB HDD
13.3" active matrix display
24X-10X CD-ROM
56K V.90 Modem
Approximately 5 pounds light and about 1.4 inches thin⁶



\$2,799*

SuccessLease
for Small Business

\$100/MONTH¹

CUSTOMIZE YOURS:

DC Automobile Adapter	\$115*	or \$4/month ¹
UltraslimBay Battery	\$255*	or \$9/month ¹
Zip Drive	\$269*	or \$10/month ¹

BUY IT.

Go to **www.ibm.com/smallbusiness/sb431** to find out more. Or call 1 888 IBM-5800, code sb431, to discuss the tools you need.



*Estimated reseller prices to end users for ThinkPad Model #2626-90U, Memory Part #76H0294, AC Adapter Part #02K6545, Port Replicator Model #05K4872, ThinkPad Model #2645-3AU, DC Adapter Part #02K3381, Battery Part #02K6504, Zip Drive Part #37L1507. ¹SuccessLease is offered and administered in the US and Canada by Fidelity Leasing Inc., an approved provider of business financing for IBM Global Financing. All terms are provided by Fidelity Leasing Inc.; amount of monthly lease payments based on 36-month term, full pay-out lease, to qualified business customers, installing in the US. A documentation fee and first month payment due at lease signing. Any taxes are additional. Other terms and financing structures are available. Offer may be withdrawn or changed without notice. Options must be leased with system unit. ²MHz denotes microprocessor internal clock speed; other factors may affect application performance. ³GB means one billion bytes when referring to hard drive capacity. Accessible capacity may vary. ⁴Variable read rate. Actual playback speed will vary and is often less than the maximum possible. ⁵These modems are designed to be capable of receiving data up to 56Kbps from a compatible service provider, and transmitting data at up to 31.2Kbps. Public networks currently limit maximum download speeds to about 53Kbps. Actual speeds depend on many factors and are often less than the maximum possible. ⁶Weight and thickness may vary due to vendor component, manufacturing process and options. All PCs in this ad ship with an operating system. All product names are registered trademarks or trademarks of International Business Machines Corporation. Intel, the Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Other company, product and service names may be trademarks or service marks of others. ©1999 IBM Corp. All rights reserved.

Get Smart!

Control Your Y2K Chaos

There's trouble ahead

for your PC. Be prepared.

Check out these 15 utilities

for Y2K safety before New

Year's Day rolls around.

BY LINCOLN SPECTOR

DIRE PREDICTIONS notwithstanding, your computer probably won't explode when you fire it up on January 1, 2000. It may have trouble starting, or some software may not run—but even these problems are avoidable. If you'd rather not add an extra headache to your New Year's Day hangover, you can prepare your PC now for the year 2000 with the help of Y2K utilities.

You probably already know the origin of the problem: In the early days of computers, memory was so expensive that, to save space, PCs were designed to store only the last ►

ILLUSTRATIONS BY PETER HOEY

two digits of each year. In the world of personal computers, the Y2K problem shows up in three basic areas: First, some systems' hardware won't be able to make the date change. Second, not all software programs handle two centuries properly. And third, some of the data within files may end up in the wrong century, depending on how it was entered.

WHO NEEDS WHAT

HOW YOU GO about successfully Y2K-proofing your PC depends on what you use it for. If you use your computer exclusively for activities like Web surfing, e-mail, word processing, and games, you need only test your hardware—a job that takes 5 minutes. We looked at five free hardware diagnostic programs: About Time Group's EZcheck2000, Accute's Y2K Super Test, Micro 2000's Centurion Year 2000 Test, NSTL's YMark2000, and Viasoft's OnMark 2000 BIOS Test & Fix. Of these, OnMark 2000 wins our recommendation, thanks to its simple, easy-to-understand results.

If you run a full-fledged business

from your computer, you probably use a number of date-dependent programs (like spreadsheets and databases), all of which should be checked for Y2K compliance. The information you and other people have entered may already be full of dates that are 100 years off the mark. For instance, someone in your company may be entering client birthdays into a worksheet as standard six-digit dates (05/03/64), unaware that Excel is erroneously placing some of those dates in the 21st century.

To help you determine which software to update and which data to correct, we looked at six Y2K suites designed to do just that: Greenwich Mean Time-UTA's Check 2000 PC Deluxe, IMSI's Year

2000 Now, Intelliquis's IntelliFix 2000 Pro 3.5, Network Associates' 2000 Toolbox, Planet City Software's Millennium Bug Compliance Kit—Survive 2000 Edition 5.0, and Symantec's Norton 2000 2.0. Check 2000 PC Deluxe and Norton 2000 excelled at finding software and data problems—but they didn't catch everything.

Finally, we examined tools designed to meet specific needs, including a stand-alone data scanner (2000Tools Group's Datefind-db 4.1), a software inspector (Discover Y2K from ID Four), and two tools for fixing Excel worksheets (2000Tools Group's DateSpy Professional 3.0c and Microsoft Excel Y2K Plug-Ins).

SETTING YOUR CLOCKS AHEAD

BECAUSE SO MANY free hardware diagnostic programs exist, there's no reason to pay for one. We looked at five popular no-cost solutions. Unfortunately, "free" often comes with strings attached.

Frequently, companies that give away software are trying to sell something else. Two of the five programs we looked at, Centurion Year 2000 Test



Y2K Tool Kit: The Best Suites and Stand-Alones

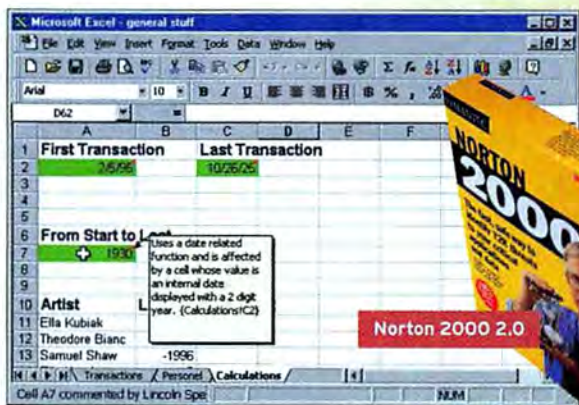
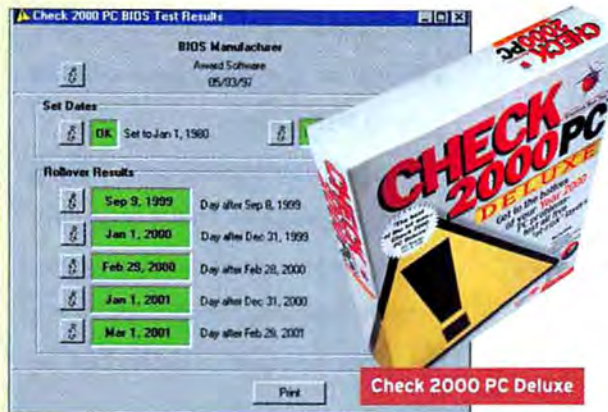


WHEN IT COMES to picking the best tools to make your hardware, software, and data Y2K compliant, you can take one of two paths. If you prefer an integrated solution, both Norton 2000 2.0 and Check 2000 PC Deluxe are great choices. But if you need only a specific part of the fix, some top utilities will take care of the job.

MIX AND MATCH

Hardware diagnostics: OnMark 2000 BIOS Test & Fix provides a simple, direct, and free solution. It lets

you know whether your hardware setup has a real problem—that is, it won't try to scare you with a purely theoretical one.



Software scanners: We found no standout stand-alones here. Save yourself some money and surf to www.Y2Kbase.com for compliance information on and links to many individual programs.

Data scanners: Datefind-db 4.1 has the field to itself. No program can unearth all your Y2K data problems, but Datefind-db ferrets out far more than its competitors do.

PACKAGE DEAL

OF THE SIX Y2K SUITES we examined, Norton 2000 2.0 and Check 2000 PC Deluxe easily outperform the competition. Both programs are easy to use; offer top-notch hardware, software, and data diagnostic tools; allow you to view potential data problems in the appropriate applications; and can even be updated online.

and EZcheck2000, gave failing grades to all four of our test computers—highly dubious results. Not surprisingly, both come from vendors that also sell the “solution”: add-in boards or software you probably don’t need.

The issue is simple. Every PC has a CMOS chip containing a real-time clock that tracks the time and date even when your PC is turned off. When you power up your system, that date becomes available to your applications through the BIOS—the built-in software that controls



Check Out Our Y2K Online Section!

IN OUR ONLINE Y2K special section, Countdown to 2000 (www.pcworld.com/y2k), we’ve got you covered. Find how-to articles, breaking news, analyses, free downloads, tips, and links. Also, discover the lighter side of the problem with a Y2K screensaver and links to humorous Y2K Web sites.

the keyboard, monitor, and other functions. Almost no CMOS chip is designed to roll over to 1/1/2000 on its own, and that news is what some hardware diagnostics report—and what their vendors purport to “solve” with an add-in board.

What these programs don’t tell you is

that if your BIOS is Y2K compliant, a noncompliant CMOS is irrelevant. A properly prepared BIOS, when faced with a CMOS date like 01/01/1900, will tell your software that the date is actually 01/01/2000 and will correct the CMOS as well.

In theory, a noncompliant real-time clock could cause problems with software that reads the date directly from the CMOS, but it’s not worth worrying about. We have not identified a single commercial DOS or Windows program that ►

Millennium Software: The Best and the Rest

It’s hard to find Y2K utilities that do the job and explain the results in plain English. We spotted a few that are worth your time.

PRODUCT		Street price (6/30/99)	Hardware tests rating	Software tests rating	Data tests rating	Comments	Product info number
Hardware diagnostics	About Time Group EZcheck2000 www.pcflix2000.com	Free	Fair	—	—	Recommends buying a fix for an irrelevant problem.	—
	Accute Y2K Super Test www.accute.com	Free ¹	Good	—	—	Good Y2K information; intimidating documentation.	—
	Micro 2000 Centurion Year 2000 Test www.micro2000.com	Free	Poor	—	—	Tries to sell questionable solution; potentially dangerous to data.	—
	NSTL YMark2000 www.nstl.com	Free	Very good	—	—	Good results; long, intimidating instructions.	—
	 Viasoft OnMark 2000 BIOS Test & Fix onmark.viasoft.com	Free	Excellent	—	—	Quick, simple; explains results in easy-to-understand words.	—
Suites	 Greenwich Mean Time-UTA Check 2000 PC Deluxe 800/216-5545 www.gmt-uta.com	\$60	Excellent	Very good	Excellent	Easy; thorough; found most problems; software database needs updating; includes top-notch data scanner.	604
	IMSI Year 2000 Now 800/833-4674 www.imsisoft.com	\$50	Excellent	Good	Poor	Good results, but programs work poorly together; out-of-date database.	605
	IntelliQuis IntelliFix 2000 Pro 3.5 800/400-5203 www.intelliquis.com	\$50	Poor	Poor	Good	Tries to sell questionable hardware solution; alters program files.	606
	Network Associates 2000 Toolbox ² 800/338-8754 www.mcafee.com	\$20	Poor	Poor	Fair	Software and data tests missed a lot; hardware tests found dubious problems.	607
	Planet City Software Millennium Bug Compliance Kit—Survive 2000 Edition 5.0 ² 800/396-2944 www.millenniumbugkit.com	\$50	Very good	Poor	Fair	Strong hardware test, but results are hard to see; weak software and data scanning.	608
	 Symantec Norton 2000 2.0 ² 800/441-7234 www.symantec.com	\$50	Excellent	Excellent	Very good	Easy to use; found almost every problem; annotates potential Excel dangers.	609
Odds and ends	 2000Tools Group Datelind-db 4.1 888/779-2174 www.2000tools.com	\$30	—	—	Excellent	Dedicated data scanner found almost everything we threw at it.	610
	2000Tools Group DateSpy Professional 3.0c 888/779-2174 www.2000tools.com	\$20	—	—	Good	Scans only Excel data; confusing to use and missed some problems.	611
	ID Four Discover Y2K 604/939-2000 www.idfr.com	\$30 ³	—	Fair	—	Identifies noncompliant software; badly designed.	612
	Microsoft Excel Y2K Plug-Ins 888/673-8925 www.microsoft.com/year2000	Free	—	—	Fair	Good with new data; not so good at reviewing previously entered data.	—



Best Buy

¹ For a limited time only.

² Results based on tests of a prerelease version.

³ A free Lite version is also available.

All products: 901

HOW WE TEST We tested all products on a 486-based Compaq Deskpro 3/25i; a Dell Dimension XPS P100c; and two homemade machines, one built around a Pentium MMX-166 chip and the other with a Celeron-400 CPU. We tested the systems manually to see which were compliant. Each suite’s software and data capabilities contended with data and programs riddled with Y2K issues, including old versions of Windows 98 and Office 97, a noncompliant Paradox 3.5 database program for DOS, and a custom-built database application. Our tests also included an Excel worksheet with a range of potential date problems, and databases with suspect dates.

will report the date incorrectly because of an incorrect CMOS century.

Our preferred hardware solution, the OnMark 2000 BIOS Test & Fix, doesn't sell anything. It just reports whether your PC will roll over properly come January 1. If OnMark 2000 tells you that your BIOS isn't compliant, you should update the BIOS (usually a free download from your system vendor's Web site) or simply turn the PC off on New Year's Eve. Changing the date manually the first time you boot in the new year should fix the problem. (See August's *Answer Line*, www.pcworld.com/aug99/al_y2k, for more on this.)

TOTAL SOLUTIONS

IF YOU USE EXCEL, Quicken, or other programs that contain dates, isolating noncompliant software and data can be harder than identifying a troublesome BIOS. Recent Windows-compatible programs are relatively easy to fix with a visit to the vendor's Web site. Older, DOS-based database programs pose more of a problem. If your company still uses one

of those antiques, it's time to replace it.

Above all, though, poorly entered data could wipe out a small business. Consider this possibility: In a company worksheet, a column contains numbers that represent years—98, 99, and so on. Elsewhere on the worksheet, one or more important formulas subtract these years from other years. When values like 99 and 97 are plugged into the formula, the worksheet computes the answer accurately. But year values like 01 produce unsound results. And if you base important business decisions on those numbers, you could find yourself in serious trouble.

That's where Y2K suites—programs that test hardware, software, and data—come in. The six here all cost \$60 or less and are designed for laypeople. But no program can go into your data and fix it—you have to do that yourself. The best programs locate and identify potential problems. Check 2000 PC Deluxe and Norton 2000 2.0 alerted us to fixes available for many of our apps and found most of the hot spots lurking in our data files.



Hardware Diagnostics

About Time Group EZcheck2000

The only stand-alone Windows-based hardware diagnostic we reviewed, EZ-check2000 will issue a warning if your CMOS rollover fails the program's simple tests. As explained previously, this is probably an irrelevant issue that you can most likely ignore. To the program's credit, it states only that your software is not "totally compliant"; but it still recommends that you purchase the company's program, PCfix2000, for \$30. ▶

Compliance, Step by Step

Follow our short list of instructions below, and get your PC prepared before the clock winds down.

FOR EVERYONE

X **Fix Windows' short dates.** By default, Windows 9x displays "short dates" with two-digit years—and many applications follow Windows' lead. To get Windows to show dates with four digits—a style that's less susceptible to Y2K-induced confusion—select *Start•Settings•Control Panel*, and launch *Regional Settings*. Click the *Date* tab. In the "Short date style" field, enter *mm/dd/yyyy* (be sure to type four y's). Click *OK*.

X **Test your hardware.** Use a program like OnMark 2000 BIOS Test & Fix to check your system's hardware for compliance. If the PC flunks, upgrade the BIOS or change the date at the beginning of the new year. (See www.pcworld.com/aug99/al_y2k for details.)

X **Check important software manually.** By "important software," we mean anything that deals in dates—spreadsheets, databases, and so forth. Fix the software you're

worried about by using the program's own auto-update feature or by going to the vendor's Web site. To simplify the task, consider visiting www.Y2Kbase.com, where you'll find links and compliance info for many products.

FOR BUSINESS USERS

X **Prioritize.** You may not get everything done in time, so organize your tasks. Focus first on the programs and data files that your business depends on most. Then turn your attention to less important programs and data. You needn't bother with programs that don't use dates (such as Adobe Acrobat) or files that don't reference dates dynamically (such as Word documents).

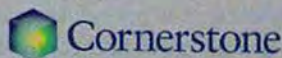
X **Check all of your software automatically.** If you have lots of software and a limited amount of time, use an all-around program like Norton 2000 2.0 (www.symantec.com) to help you identify which applications need to be fixed and which are okay as is.

X **Check your data.** You can't do this automatically, but software such as Norton 2000 2.0 and Datefind-db 4.1 can make the job much simpler. Use one of these programs to scan your data files for potential problems; then inspect the scan results carefully—and expect to run into many false alarms. For instance, Datefind-db pointed out an Excel text cell that contained the number 2000 within the text. Open files and correct any actual problems the program identifies.

X **Adopt good habits.** When you enter dates, either type four digits for the year or, after entering two, watch the screen to make sure your program has correctly inferred the century you mean. (If your application doesn't display four-digit years with every date, you'll have to change your settings or your software.) When you import data from another source, check it at once for ambiguous dates. Run your data scanner regularly to ensure that no new errors creep into your data.

Cornerstone is just
another **big monitor.**

Like Mt. Everest is just
another **big rock.**



When it comes to
sharpness,
no one can top us.

How sharp is our image? On average, 20% sharper.* How do we do it? Big monitors are all we make. We understand the specific challenges involved with getting truly crisp focus on large screens. Every monitor we sell meets the most rigorous standards for quality and performance. Plus, we back every monitor with Cornerstone's industry-leading 5-year warranty. It's not just big talk—we have the numbers to prove it. To compare Cornerstone's specs for yourself, call (800) 562-2383 or visit our web site today. And discover how vast the differences really are.

Want proof? Visit
www.BigMonitors.com/sharpest/pcw
and see for yourself.

CORNERSTONE

WE UNDERSTAND THE BIG PICTURE.

Accute Y2K Super Test

This DOS-based diagnostic (which comes with a Windows-based installation program) thoroughly explains all of the seven tests it performs. But its wealth of documentation—a ten-page instruction file and a warning that you should read it—might intimidate nontechnical users. Nonetheless, once you've slogged through the manual, performed the tests, and read the detailed descriptions of the results, you'll have an accurate (if overly meticulous) assessment of your system.

Micro 2000 Centurion Year 2000 Test

Micro 2000 gives this program away, but with a hidden agenda. If your computer fails Centurion's real-time clock test—and virtually every PC will—the software recommends that you buy the \$70 Centurion Y2K Card to fix the problem, despite the fact that a Y2K-noncompliant real-time clock will not adversely affect most PC users. Worse, this DOS-based program can be dangerous. Centurion makes it too easy to set your clock date forward and then reboot to Windows—a potential disaster because certain programs (especially personal information managers and vertical applications) delete data or uninstall themselves if they load with a date too far ahead of the real one.

NSTL YMark2000

If this program were a little friendlier, it would better rival OnMark. YMark2000 runs all the vital tests, and it doesn't try to sell you anything. But it hits you with unnecessarily long and intimidating instructions and explanations. For instance, you don't really need to know that "This test ensures that the date and time indices are compatible to the MC146818 and the data is in packed BCD format."

Viasoft OnMark 2000 BIOS Test & Fix

OnMark's setup is a model of simplicity: You download and run a Windows program that installs a DOS-based test onto a floppy disk; then you reboot and read the plain-English results. Whether the program tells you that your system "fully supports the century change" or warns you that it will fail come New Year's Day, you know exactly what it's talking about.

Greenwich Mean Time-UTA Check 2000 PC Deluxe



This \$60 Y2K suite from Greenwich Mean Time-UTA not only thoroughly reviews your hardware, software, and data, it also explains the issues clearly and simply.

The suite's Windows-based hardware diagnostics proved quick and easy to run, and accurate in their results. The software scanning utility is equally good, but our tests uncovered out-of-date info in the version of the program's database we tested. (An update is expected by the time you read this.) The Deluxe version includes the Check 2000 PC Data Scanner, which found all the bad data on our test system, though it missed some problematic (albeit hard-to-find) formulas in Excel and Access. The program brings up a copy of each flawed worksheet, with the possible conflicts highlighted, simplifying the task of finding errors. The \$30 standard version excludes the Data Scanner, but we think the extra features of Deluxe are worth the additional cost.

IMSI Year 2000 Now

IMSI bundles Update Now, its Internet-based software update program, with Greenwich Mean Time-UTA's Check 2000 PC (the standard version) and calls the \$50 package Year 2000 Now. The resulting product isn't very satisfying.

Suites Stand Out

Both programs scan your software, though with slightly different emphases.

Check 2000 PC compares software against a database that it loads onto your hard drive; Update Now goes online to see whether a program has been certified as Y2K compliant by its vendor. In theory, two complementary software scanners should work better than one, but that's not true here. In particular, the

Check 2000 PC database is more dated than the one in the Deluxe edition—and IMSI has no plans to update it.

Most deplorably, the standard version of Check 2000 PC lacks the Data Scanner. Instead it relies on an extremely basic tool that simply lists all the files on your system that might be problematic (based on their extensions). Not especially useful.

IntelliFix IntelliFix 2000 Pro 3.5

Contrary to its name, this \$50 program offers a dim-witted Y2K solution. First of all, IntelliFix's hardware testing abilities are substandard. Its hardware diagnostic tried to sell us an unnecessary card "fix," too, but at least systems failed IntelliFix's tests less often in our evaluation than they did Centurion's or EZcheck2000's.

As a software scanner, though, IntelliFix seems truly bizarre. It scans the code in your program files for specific problems and then offers to correct them by referring the computer to an Intelli-



SUITES (left to right): 2000 Toolbox, Millennium Bug Compliance, IntelliFix 2000, Year 2000 Now.

A man in a dark suit and glasses is swimming in the ocean. He has a look of urgency or fear. In the background, several shark fins are visible above the water's surface, suggesting a dangerous situation.

Is your
Web site moving
fast enough

to survive the competition?

Find out before you're dead in the water. Service MetricsSM measures your Web site from your customer's perspective and lets you see exactly how you measure up to your competition.

We don't just help you compete, we give you an unfair advantage.



SERVICE METRICS™

The Best Measure of Performance™

www.servicemetrics.com/skapcwg

1-800-207-8125

quis device driver. These "fixes" didn't appear to damage our programs, but they didn't remedy anything either.

On the other hand, IntelliFix's data scanner did well on our Excel and Access files (it doesn't test other formats), catching dates formatted with two-digit years and drawing attention to bad formulas.

Network Associates 2000 Toolbox

Network Associates' \$20 Y2K suite is easy to use, but its hardware test found nonexistent problems and didn't explain itself, while the software and data tests missed important shortcomings of our test systems. We looked at a prerelease version.

The hardware test gave accurate results on most of our systems, but one computer flunked without explanation. An included DOS program told us that almost everything in the system had failed its tests—a conclusion other products' tests contradicted. A Network Associates rep said that if the CMOS test fails, the BIOS and OS tests fail, too. Meanwhile, the software scanner judged all our programs to be compliant, in contrast to the info on the software vendors' Web sites. The data scanner reported only that our Excel and Access files had dates in a "two-digit format," hardly the only problem.

Planet City Software Millennium Bug Compliance Kit—Survive 2000 Edition 5.0

This kit is a mixed bag. Its hardware scanner did a fine job and its main data scanner did reasonably well, but the program scanner wasn't worth running. We reviewed a prerelease copy of version 5.0.

The \$50 Compliance Kit creates a bootable DOS floppy disk, like OnMark. But to see the results, you must pop the disk in and out and reboot. As for software scanning, the kit lists every .exe, .com, and .dll file on your system—something Windows' own file finder can do for free. The Compliance Kit's built-in data scanner is only slightly better. An extra scanner is promised in the final version.

Symantec Norton 2000 2.0

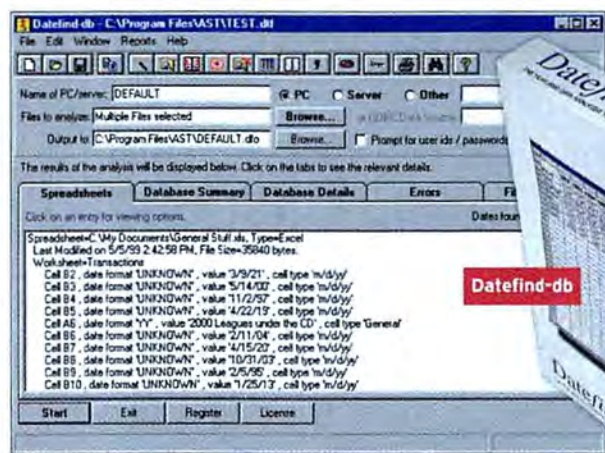


When we looked at Norton 2000 1.0 in January, it disappointed us. The 2.0 version is a big improvement. We reviewed a prerelease version.

The Norton bundle includes a hardware

diagnostic based on technology licensed from Viasoft, creators of OnMark 2000. Its software scanner listed almost every program we had—missing only two obscure ones—and explained the results and listed vendors' URLs. It was less spectac-

ular with data, though it still outperformed most data scanners. It missed years formatted as two digits in Excel (as did most suites) but caught most everything else. Norton annotates every Excel problem it finds and highlights the trouble spots.



Odds and Ends

2000Tools Group Datefind-db 4.1



The best data scanner we reviewed, the stand-alone Datefind-db caught every problem, including years that were not part of a full date. Surprisingly, this \$30 program even flagged problems that Check 2000 PC Deluxe—based on the same core product—failed to catch. And like Check 2000 PC Deluxe, Datefind-db delivers a copy of your worksheet with potential problems highlighted.



2000Tools Group DateSpy Professional 3.0c

Having witnessed Datefind-db's wonderful performance, we had high hopes for 2000Tools Group's Excel-only diagnostic. But after successfully configuring DateSpy's confusing and restricting options, we were rewarded with a large, complex, hard-to-read report that missed some problems (admittedly, the most difficult of the bunch). Priced at \$20, the DateSpy CD-ROM includes a leaner version of Datefind-db (along with limited editions of the company's other programs), but you're better off spending \$10 extra for the complete version of Datefind-db 4.1.

ID Four Discover Y2K

This \$30 stand-alone software scanner needs a major overhaul. It presented a fairly complete list of programs, and when it lacked data on an application, it listed the program's Y2K status as unresolved. But it didn't offer much useful information, and its Y2K URL for Microsoft Office was wrong. In addition, Discover is badly designed, with a small, fixed-size window that makes reading the program's results difficult.

Microsoft Excel Y2K Plug-Ins

Microsoft gives away three add-ins for Excel that are worth downloading. Together, they can reformat all your Excel dates to display four-digit years, automatically adjust cells as you enter years, and list all date-formatted cells in a workbook. Though these plug-ins won't do much to help you find existing bad data, they can strengthen your worksheet's protection against new problems.

Contributing Editor Lincoln Spector writes PC World's Answer Line and a syndicated humor column, Gigglybytes.

**YOU DON'T NEED
LOTS OF MONEY
AND CONNECTIONS
TO GET EXACTLY
WHAT YOU WANT.**



**JUST THE RIGHT
COMPUTER COMPANY.**



BE DIRECT™
DELL®
www.dell.com

GET JUST THE BUILT FOR



Dell Precision Workstation. Systems engineered for high-performance and memory-intensive applications, making your critical applications scream.



Dell OptiPlex. Dependable PCs designed and tested for stability and compatibility in a network environment.



Dell Dimension. Value-packed desktops that deliver outstanding performance for your dollar.



pentium® III

At Dell we want to give you what you want. From workstations to desktops, let us custom build a system to meet the demands of your business and your budget. With over a million configurations and tailored upgrade packages, the choice is yours.

The Dell Precision™ Workstation with single or dual Pentium® III processors is a great pick for high-end graphics. Engineered for high-performance and memory-intensive applications, it handles a wide range of graphics card options, such as MCAD and 3D animation. If you're searching for a desktop built for a networked environment, the Dell® OptiPlex® is ideal. Designed for network stability, it also boasts easy peripheral integration and simple upgrading. And the Dell Dimension® lets you choose some of the latest processor and peripheral technology to run your office applications at a price that's surprisingly low.

Of course, whichever system you decide is right for you, each comes with our award-winning service and support. Visit us at www.dell.com and enter the E•Value code for the system you want, or customize one that's right for you. Or give us a call. Either way you'll do right by Dell.



RIGHT SYSTEM YOUR BUSINESS.

DELL PRECISION™ WORKSTATION 210 (DUAL PROCESSOR CAPABLE)

Advanced Performance and Graphics

- NEW Pentium® III Processor at 600MHz*
- Mini-Tower Model
- 128MB 100MHz ECC SDRAM
- 13.6GB¹ (7,200 RPM) EIDE Hard Drive
- 17" (16.0" vis.) M780 Monitor
- NEW 32MB Diamond Viper V770D Graphics Card
- 40X Max⁵ Variable CD-ROM Drive
- Sound Blaster Pro Compatible Sound
- Integrated 3Com® Fast EtherLink™ XL 10/100 PCI NIC with Remote Wakeup
- Remote Client Manageability Support via DMI 2.0
- MS® Windows NT® Workstation 4.0
- Logitech First Mouse™
- 3-Year NBD On-site³ Service
- 7x24 Dedicated Workstation Hardware Telephone and Online Technical Support

* Orders Accepted July 31, 1999

\$2599

Business Lease¹⁵: \$87/Mo., 36 Mos.

 E-VALUE CODE: 03662-490825

DELL® OPTIPLEX® GX1 450L

Network-Optimized Desktop

- Pentium III Processor at 450MHz
 - Opti-Fram™ Low-Profile Tool-Less Chassis
 - Long Product Lifecycles for Network Stability
 - 64MB 100MHz SDRAM
 - 6.4GB¹ SMART Ultra ATA Hard Drive
 - 17" (16.0" vis., .27dp) M770 Monitor
 - 4MB ATI RAGE Pro AGP Graphics
 - 40X Max⁵ Variable CD-ROM Drive
 - Sound Blaster Pro Compatible Sound
 - 3Com Fast EtherLink XL 10/100 with ACPI and Remote Wakeup
 - Asset Tracking and Remote Diagnostics with Dell OpenManage IT Assistant
 - MS Windows NT Workstation 4.0
 - 3-Year NBD On-site³ Service
- ★ Call about Our Small Business Series Featuring MS Office 2000 Products

\$1349

Business Lease¹⁵: \$45/Mo., 36 Mos.

 E-VALUE CODE: 03662-390813

NEW DELL OPTIPLEX GX100 400L

Network-Optimized Desktop

- Intel® Celeron™ Processor at 400MHz
 - Opti-Fram Low Profile Tool-Less Chassis
 - Long Product Lifecycles for Network Stability
 - 32MB 100MHz SDRAM
 - 4.3GB¹ SMART Ultra ATA Hard Drive
 - 15" (13.8" vis.) 800F Monitor
 - Intel 3D AGP Graphics
 - 3Com Fast EtherLink XL 10/100 with ACPI and Remote Wakeup
 - Asset Tracking and Remote Diagnostics with Dell OpenManage IT Assistant
 - MS Windows NT Workstation 4.0
 - 3-Year NBD On-site³ Service
- ★ Upgrade to 64MB SDRAM, add \$49
★ Call about Our Small Business Series Featuring MS Office 2000 Products

\$949

Business Lease¹⁵: \$32/Mo., 36 Mos.

 E-VALUE CODE: 03662-390809

Gigabays™

Available at Dell.com.
More products at great prices!



- HP® DeskJet® 882 Color Printer, add \$299.
- HP DeskJet 710 All-in-One, add \$499.
- HP LaserJet® 1100se Printer, add \$399.
- 15" (15.0" vis.) Princeton APP 560 Flat Panel Display, add \$999.
- HP SureStore CD-Writer Plus 7500E, add \$324.
- APC Back-UPS Pro 500, add \$149.
- 3Com Palm III Organizer, add \$207.
- Belkin ExpressBus 7-port USB Hub, add \$88.
- Dragon NaturallySpeaking Preferred (Speech Recognition Software), add \$149.

NEW DELL DIMENSION® XPS T600

Cutting Edge Performance, High Value

- NEW Pentium III Processor at 600MHz*
 - Mini-Tower Model
 - 128MB 100MHz SDRAM
 - 13.6GB¹ (7,200 RPM) Ultra ATA Hard Drive
 - 17" (16.0" vis., .26dp) M780 Monitor
 - 16MB Diamond Viper nVidia TNT AGP Graphics Card
 - 40X Max⁵ Variable CD-ROM Drive
 - Yamaha XG 64V Wavetable Sound
 - harman/kardon HK-195 Speakers
 - 3Com 3C905C-TXM 10/100 NIC
 - 100MB Iomega Zip BUILT-IN Drive
 - MS Office 2000 Small Business plus Bookshelf 2000; McAfee VirusScan
 - MS Windows® 98 Second Edition
 - MS IntelliMouse®
 - 3-Year Limited Warranty²
 - 1-Year NBD On-site³ Service
- * Orders Accepted July 31, 1999

\$1979

Business Lease¹⁵: \$66/Mo., 36 Mos.

 E-VALUE CODE: 03662-590819

DELL DIMENSION XPS T450

High Performance, High Value

- Pentium III Processor at 450MHz
 - Mini-Tower Model
 - 64MB 100MHz SDRAM
 - 13.6GB¹ Ultra ATA Hard Drive
 - 15" (13.8" vis., .26dp) 800F Monitor
 - 8MB ATI XPERT 980 3D AGP Graphics Card
 - 40X Max⁵ Variable CD-ROM Drive
 - Yamaha XG 64V Wavetable Sound
 - harman/kardon HK-195 Speakers
 - MS Office 2000 Small Business plus Bookshelf 2000; McAfee VirusScan
 - MS Windows 98 Second Edition
 - MS IntelliMouse
 - 3-Year Limited Warranty²
 - 1-Year NBD On-site³ Service
- ★ Upgrade to 96MB 100MHz SDRAM, add \$49.
★ 3Com 3C905C-TXM 10/100 NIC, add \$39.

\$1199

Business Lease¹⁵: \$40/Mo., 36 Mos.

 E-VALUE CODE: 03662-590811

DELL DIMENSION L400c

Value-Optimized Desktop

- Intel Celeron Processor at 400MHz
 - Micro-Tower Model
 - 32MB 100MHz SDRAM
 - 4.3GB¹ Ultra ATA Hard Drive
 - 15" (13.8" vis.) 800F Monitor
 - Intel 3D AGP Graphics
 - 40X Max⁵ Variable CD-ROM Drive
 - Soundblaster 64V Integrated Sound
 - Intel 10/100 Ethernet Controller
 - Microsoft® Works Suite 99 with Money 99 Basic; McAfee VirusScan
 - MS Windows 98 Second Edition
 - Logitech FirstMouse+ Wheel (PS/2v)
 - 3-Year Limited Warranty²
 - 1-Year NBD On-site³ Service
- ★ Upgrade to 64MB SDRAM, add \$59.
★ Upgrade to a 6.4GB¹ Ultra ATA Hard Drive, add \$19.

\$799

Business Lease¹⁵: \$27/Mo., 36 Mos.

 E-VALUE CODE: 03662-590807

DELL AWARD INFO

- In 1998, Dell desktops and workstations won more than 140 product and service awards. See www.dell.com/awards98 for details. Or browse by product: www.dell.com/products/workstat/awards.htm www.dell.com/products/optiplex/awards.htm www.dell.com/products/dim/awards.htm

Advertised configurations vary from award-winning configurations.

Are you Y2K OK? www.dell.com/y2k

- In Canada¹ call 800-232-6978
- In Mexico¹ call 01-800-021-4531



USE THE POWER OF THE E-VALUE™ CODE. MATCH OUR LATEST TECHNOLOGY WITH OUR LATEST PRICES. ENTER THE E-VALUE CODE ONLINE OR GIVE IT TO YOUR SALES REP OVER THE PHONE. WWW.DELL.COM/EVALUE

800-953-4019

BE DIRECT™
DELL
www.dell.com

MOBILIZE YOUR BUSINESS AWARD-WINNING



No matter what you want to do or where you want to go, Dell's got a notebook you'll want along for the ride.

If it's portability you're after, the Inspiron™ 3500 combines light weight with light price. Equipped with a Pentium® II processor, you won't sacrifice any performance. Our fully loaded Inspiron 7000 is ideal for those who want desktop-like performance without paying a fortune. Plus, when it earned PC Magazine's Editors' Choice award, it was called the "biggest hardware bang for the buck," 1/99. Maybe it's durability you desire? Then let our Latitude® be your steady partner. It's the only notebook line to survive PC Computing's "Torture Test" for the fifth consecutive year, 3/99. This low-cost investment is ideal for network environments.

To get the notebook that's just right for you, visit www.dell.com or call **800-953-4019**.



*The Dell Inspiron 7000 Notebook Series.
Mobile Desktop*



*The Dell Inspiron 3500 Notebook Series.
Light weight, light price.*



*The Dell Latitude Notebook Series.
The network-optimized notebook.*

INESS WITH OUR NOTEBOOK LINE.

DELL INSPIRON™ 7000

Mobile Desktop

- NEW Pentium® II Processor at 400MHz
- 15" XGA Active Matrix Display
- 96MB SDRAM
- 14GB⁴ Ultra ATA Hard Drive
- Removable Combo 4X¹⁰ DVD-ROM and Floppy Drive
- 2X AGP 8MB ATI RAGE™ LT Pro 3D Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- 56K Capable¹¹ Gold Card Global Modem with Trial Offer
- ConnectDirect™ Internet Access¹⁴
- Microsoft® Office 2000 Small Business; McAfee VirusScan
- MS® Windows® 98 Second Edition
- Custom Leather Case
- 3-Year Limited Warranty²

\$3579

Business Lease¹⁵: \$121/Mo., 36 Mos.

 **E-VALUE CODE:** 03663-890835

DELL INSPIRON 7000

Mobile Desktop

- Intel® Celeron™ Processor at 366MHz
- 15" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Removable Combo 24X Max⁷ Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE LT Pro 3D Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Microsoft Works Suite 99 with Money 99 Basic; McAfee VirusScan
- MS Windows 98 Second Edition
- 3-Year Limited Warranty²

★ Upgrade to 64MB SDRAM, add \$99.

\$1999

Business Lease¹⁵: \$67/Mo., 36 Mos.

 **E-VALUE CODE:** 03663-890819

DELL INSPIRON 3500

Light Weight, Light Price

- Pentium II Processor at 366MHz
- 14.1" XGA Active Matrix Display
- 64MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM and Floppy Drive
- NeoMagic® MagicMedia™ 256AV AGP Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Internal 56K Capable¹¹ v.90 Fax Modem with Trial Offer
- ConnectDirect™ Internet Access¹⁴
- Microsoft Office 2000 Small Business; McAfee VirusScan
- MS Windows 98 Second Edition
- Deluxe Nylon Case
- 3-Year Limited Warranty²

\$2399

Business Lease¹⁵: \$80/Mo., 36 Mos.

 **E-VALUE CODE:** 03663-890823

DELL INSPIRON 3500

Light Weight, Light Price

- Intel Celeron Processor at 366MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM and Floppy Drive
- NeoMagic® MagicMedia™ 256AV AGP Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Microsoft Works Suite 99 with Money 99 Basic; McAfee VirusScan
- MS Windows 98 Second Edition
- 3-Year Limited Warranty²

★ Upgrade to 64MB SDRAM, add \$99.

★ Deluxe Nylon Case, add \$39.

★ 3-Year NBD On-site³ Service, add \$99.

\$1799

Business Lease¹⁵: \$60/Mo., 36 Mos.

 **E-VALUE CODE:** 03663-890817

NEW DELL LATITUDE® CPi R

Network-Optimized Notebook

- NEW Pentium II Processor at 400MHz
- 14.1" XGA Active Matrix Display
- 96MB SDRAM (512MB Max¹³)
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM
- Modular Floppy Drive
- MagicMedia™ 256ZX
- 3D Surround Sound with Wavetable
- Lithium Ion Battery with 1-Hour ExpressCharge™ Technology
- Microsoft Windows NT Workstation 4.0/Touchpad
- 3-Year Next-Business-Day On-site³ Service

★ Upgrade to 128MB SDRAM, add \$99.

\$3199

Business Lease¹⁵: \$107/Mo., 36 Mos.

 **E-VALUE CODE:** 03663-790831

NEW DELL LATITUDE CPi

Network-Optimized Notebook

- NEW Intel Celeron Processor at 400MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM (512MB Max¹³)
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM
- Modular Floppy Drive
- MagicMedia 256ZX
- 3D Surround Sound with Wavetable
- Lithium Ion Battery with 1-Hour ExpressCharge Technology
- Microsoft Windows NT Workstation 4.0/Touchpad
- 1-Year Next-Business-Day On-site³ Service

★ Upgrade to 64MB SDRAM, add \$99.

\$1899

Business Lease¹⁵: \$64/Mo., 36 Mos.

 **E-VALUE CODE:** 03663-790818

DELL NOTEBOOK AWARD INFORMATION

- Inspiron 3500 C300XT – PC World's Best Buy in the budget category, 6/99, 7/99.
- Latitude CPi A366XT – PC World's #1 Best Buy Power Notebook, 6/99.
- Latitude CPi Series A366XT – May Windows Magazine List Fastest Performance, 5/99.
- Inspiron 7000 A366LT – PC World's Top 10 Power Notebooks, 4/99.
- Latitude CPi Series 366XT – 5-Time Survivor of PC Computing's Annual Torture Test, 3/99.
- Latitude CPi Series D300XT – PC Computing's #1 Best Buy Power Notebook, 3/99.
- Inspiron 7000 A366LT – PC Magazine's Editors' Choice for small businesses, 2/99.

Advertised configurations vary from award-winning configurations

Gigabuy™ for Notebooks

Available at Dell.com.
More products at great prices!

- NEW 100MB Zip Internal Drive for Latitude CP & CPi (Win95/98), add \$199.
- Notebook Conversion Package, including Black ViewSonic 17" (16.0" viewable) Multimedia Monitor, ErgoMouse and Keyboard, add \$399.
- HP® DeskJet® 882 Color Printer, add \$299.
- Canon BJC-50 Portable Printer, add \$349.
- Infocus LP 400 Ultra Portable Projector, add \$3025.
- Targus Defcon Security Device, add \$49.
- Auto/Air Power Adapter, add \$99.



Are you Y2K OK? www.dell.com/Y2K

In Canada, call 800-232-6978

In Mexico, call 01-800-021-4531



USE THE POWER OF THE
E-VALUE™ CODE.

MATCH OUR LATEST TECHNOLOGY WITH OUR LATEST PRICES. ENTER THE E-VALUE CODE ONLINE OR GIVE IT TO YOUR SALES REP OVER THE PHONE. ALSO, GO ONLINE TO DESIGN YOUR IDEAL COMPUTER, CHECK THE LATEST PRICES AND GET 24-HR. ONLINE TECH SUPPORT.

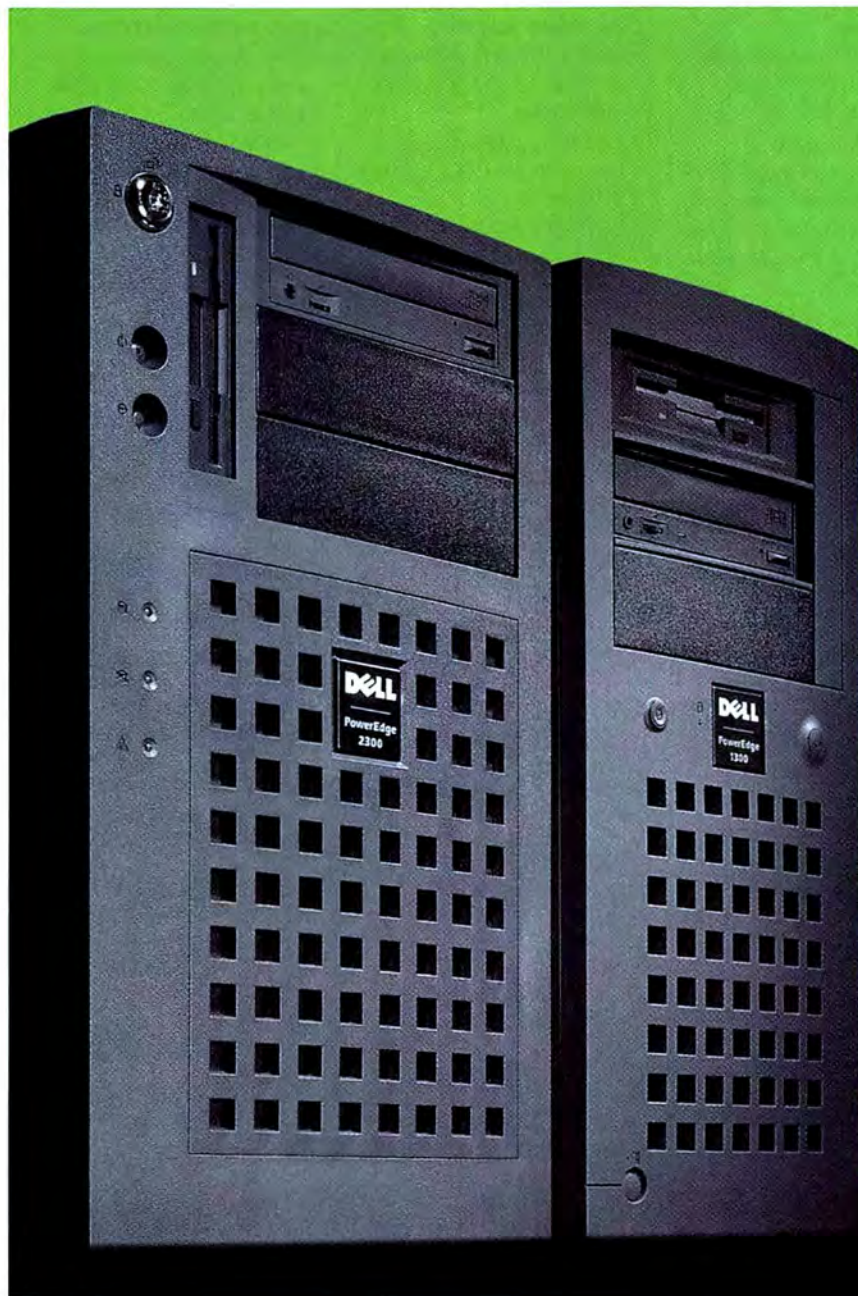
WWW.DELL.COM/EVALUE

BE DIRECT™



www.dell.com

GET THE RIGHT WITH YOUR



In order to meet the critical needs of your growing business, Dell's PowerEdge® servers are specially designed for reliability and scalability. So whatever stage of growth you're in, Dell has a server for you.

For companies just starting a network, the PowerEdge 1300 is scalable up to 108GB of internal storage capacity. Best of all, it's true server architecture at a price you might expect to pay for a desktop. The PowerEdge 2300 is scalable up to 144GB of internal storage capacity (with 108GB in optional hot-swap drives). The 2300 is also scalable up to 2GB of SDRAM, making it ideal for growing businesses with workgroups. And for companies that can't afford downtime, Dell offers the PowerEdge 4300 and 6300, with hot-swap cooling fans and redundant power supplies for added availability. And you can be assured that every server comes with our award-winning service and support.

To customize a system that's right for you, call, or go to www.dell.com and enter in the E•Value code or custom-configure a system that best matches your growing needs.

800-953-4019

Are you Y2K OK? www.dell.com/y2k

In Canada,¹ call 800-232-6978 • In Mexico,¹ call 01-800-021-4531



USE THE POWER OF THE E•VALUE™ CODE.

MATCH OUR LATEST TECHNOLOGY WITH OUR LATEST PRICES. ENTER THE E•VALUE CODE ONLINE OR GIVE IT TO YOUR SALES REP OVER THE PHONE. ALSO, GO ONLINE TO DESIGN YOUR IDEAL COMPUTER, CHECK THE LATEST PRICES AND GET 24-HR. ONLINE TECH SUPPORT.

WWW.DELL.COM/EVALUE

SERVER TO GROW BUSINESS.

DELL POWEREDGE 6300 SERVER (QUAD PROCESSOR CAPABLE)

Enterprise Class Server

- Pentium® III Xeon™ Processor at 500MHz
- 512MB ECC EDO RAM
- Three 9GB* (10,000 RPM) Ultra-2/LVD SCSI Hot-Swap Hard Drives
- Ultra-2/LVD PowerEdge Expandable RAID Controller 2 with 128MB ECC Cache
- HP® OpenView™ NNM Special Edition
- Two Intel® Pro/100+ PCI Ethernet Adapters with Adaptive Fault Tolerance Software
- Integrated Dual Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- Redundant Hot-Swap Power Supplies, Cooling Fans and Processor Fans
- 7 Expansion Slots: (4) 64-bit, (3) 32-bit PCI
- 8-1" Hard Drive Bays/4-5.25" Media Bays
- 3-Year NBD On-site³ Service
- 1-Year DirectLine™ NOS Support
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support

\$11,999

Business Lease¹⁵: \$396/Mo., 36 Mos.

 E-VALUE CODE: 03664-290801

DELL POWEREDGE 4300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Departmental Server

- Pentium III Processor at 500MHz
- 256MB 100MHz ECC SDRAM
- 18GB* Ultra-2/LVD SCSI Hard Drive (Hot-Swap Optional)
- HP OpenView NNM Special Edition
- Two Intel Pro/100+ PCI Ethernet Adapters with Adaptive Fault Tolerance Software
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- Redundant Hot-Swap Power Supplies, Cooling Fans and Processor Fans
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 6-1.6" Hard Drive Bays/4-5.25" Media Bays
- 3-Year NBD On-site³ Service
- 1-Year DirectLine NOS Support
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support
- ★ PowerVault™ 100T 12/24GB Variable SCSI DAT Tape Backup Unit, add \$749.

\$5599

Business Lease¹⁵: \$188/Mo., 36 Mos.

 E-VALUE CODE: 03664-290855

DELL POWEREDGE 2300 SERVER (RAID 5 CONFIGURATION)

Workgroup Server

- Pentium III Processor at 450MHz
- 128MB 100MHz ECC SDRAM
- Three 9GB* Ultra-2/LVD SCSI Hot-Swap Hard Drives
- Ultra-2/LVD PowerEdge Expandable RAID Controller 2/Single-Channel
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- Hard Drive Bays: 6-1"
- 4 Media Bays: 3-5.25", 1-3.5"
- 3-Year NBD On-site³ Service
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support
- ★ APC Smart-UPS 700W Power Supply, add \$369.

\$3999

Business Lease¹⁵: \$134/Mo., 36 Mos.

 E-VALUE CODE: 03664-290839

Gigabays™

- 3Com® OfficeConnect™ Dual Speed Hub 8-port 10/100 TP, add \$239.
- Cisco 1604 Ethernet ISDN Router with NT-1, add \$1502.
- 3Com OfficeConnect 8/TPO, add \$74.
- 3Com Connect TP 800 8-port TP, add \$164.
- 3Com Superstack II Dual Speed Hub 500, 12-port, add \$674.
- HP JetDirect 300x External 10/100 Base TX Printer Server, add \$245.
- 3Com Sportster 56K Capable¹¹ v.90 External Modem, add \$149.
- Princeton 15" Black Monitor, add \$229.
- HP LaserJet® 1100SE, add \$399.
- 3Com OfficeConnect ISDN LAN Modem, add \$406.


DELL POWEREDGE 2300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Workgroup Server

- Pentium III Processor at 450MHz
- 64MB 100MHz ECC SDRAM
- 9GB* Ultra-2/LVD SCSI Hard Drive (Hot-Swap Optional)
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- Hard Drive Bays: 4-1.6" or 6-1"
- 4 Media Bays: 3-5.25", 1-3.5"
- 3-Year NBD On-site³ Service
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support
- ★ Microsoft® Windows NT® Server 4.0 add \$799.
- ★ Upgrade to a Pentium III Processor at 500MHz, add \$300.

\$2449

Business Lease¹⁵: \$82/Mo., 36 Mos.

 E-VALUE CODE: 03664-290824

DELL POWEREDGE 1300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Entry-Level Server

- Pentium II Processor at 400MHz
- 64MB 100MHz ECC SDRAM
- 9GB* Ultra-2/LVD SCSI Hard Drive
- HP OpenView NNM Special Edition
- Intel Pro/100+ PCI Ethernet Adapter
- Integrated PCI Ultra-2/LVD SCSI Controller
- 6 Expansion Slots: 5 PCI, 1 PCI/ISA
- 4 Hard Drive Bays: 2-1.6" and 2-1"
- Media Bays: 3-5.25"
- 3-Year NBD On-site³ Service
- 7x24 Dedicated Server Hardware Telephone and Online Technical Support
- ★ Microsoft Windows NT Server 4.0 add \$799.
- ★ Upgrade to 128MB 100MHz ECC SDRAM, add \$80.

\$1649

Business Lease¹⁵: \$55/Mo., 36 Mos.

 E-VALUE CODE: 03664-290816

INTRODUCING DELL NETWORKS™ INSTALLATION SERVICES FOR YOUR NETWORKING NEEDS

With one phone call to Dell, you can now customize your small business network with the right systems and peripherals—and have it installed! Some of the services we offer include:

- Server Installation
- Desktop Installation
- Peripheral Installation
- Network Cabling Installation
- Internet Setup and Configuration

CALL, OR VISIT
WWW.DELL.COM/NETWORKS
TODAY TO CUSTOMIZE
YOUR NETWORK.

Must purchase a PowerEdge server to be eligible for installation services.

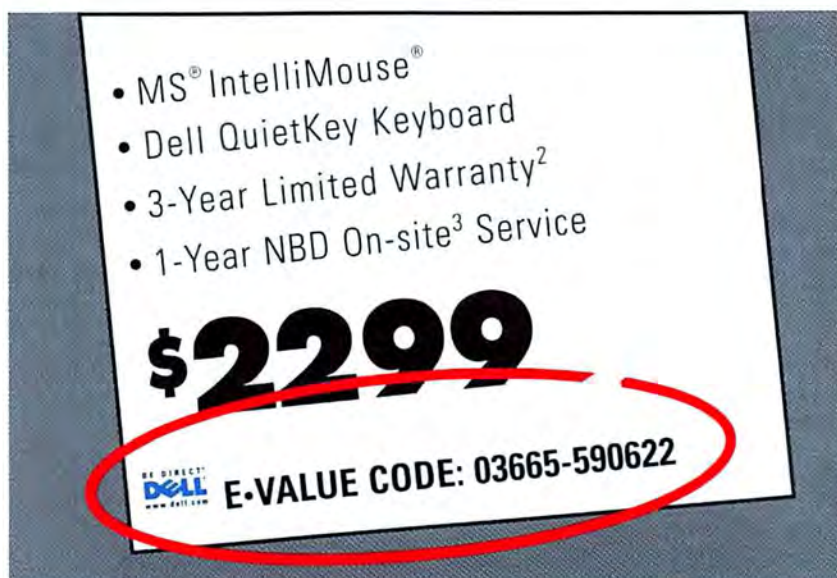
DELL SERVER AWARD INFO

- Network Computing's "50 Best Products of the Year" — Dell PowerEdge 6300 (Enterprise Server), 5/99.
- Network Magazine "1999 Products of the Year" — Dell PowerEdge 2300 (Workgroup Server), 5/99.
- Network World "World Class Award" — Dell PowerEdge 2300, 6/98.
- Computer Shopper "Top 100" — Dell PowerEdge 2300, 11/98.
- PC Computing's "The 'A' List" — Dell PowerEdge 6300, 11/98.
- LANtimes "The Best of LANtimes Over \$25,000" — Dell PowerEdge 6300, 9/98.

Advised configurations vary from award-winning configurations.

BE DIRECT™
DELL
www.dell.com

GET IT, RIGHT HERE RIGHT NOW.



When it's time to get down to business, the fast easy way is with Dell's E•Value code. Simply log on to our website at www.dell.com/evalue and enter the E•Value code for the system you want. Immediately you'll be taken to that system's page with its latest pricing. From here you can customize the system any way you like, and order quickly and easily. It's never been so easy to get just what you want, right now.

BE DIRECT™
DELL®
www.dell.com

Are you Y2K OK? www.dell.com/y2k

Phone Hours: M-F 7a-9p • Sat 10a-6p • Sun 12p-5p CT • In Canada: call 800-232-6978 • In Mexico: call 01-800-021-4531 • GSA Contract #GS-35F-4076D

Pricing not discountable. ¹Prices and specifications valid in U.S. only and subject to change without notice. ²For a complete copy of Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, TX 78682. ³On-site service may be provided by a third-party provider under contract with Dell, and is not available in certain areas. Technician will be dispatched if necessary following phone-based troubleshooting. ⁴For hard drives, GB means 1 billion bytes, total accessible capacity varies depending on operating environment. ⁵17X Min. ⁶14X Min. ⁷10X Min. ⁸2X Min. ⁹Download speeds limited to 53Kbps. Upload speeds are less (in the 30Kbps range) and vary by modem manufacturer. Speeds also vary depending on line conditions. Analog phone line and compatible server equipment required. ¹⁰Weight with floppy drive in options bay. ¹¹Maximum RAM configurations require a factory installed 128MB SoDIMM, which must be installed at time of initial purchase. ¹²Offers differ for AT&T WorldNet and GTE Interactive. Internet access does not include local phone company charges or applicable taxes. Telephone access and other charges may apply. ¹³Business leasing arranged by Dell Financial Services L.P., an independent entity, to qualified customers. Above lease payments based on 36-month lease, and do not include taxes, fees, shipping charges, subject to credit approval and availability. Above lease terms subject to change without notice. ¹⁴Offer expires 7/3/99. Limit two (2) per customer. Not valid with other Hewlett Packard (HP) offers unless otherwise specified by that offer. Intel, the Intel Inside logo and Pentium are registered trademarks, Pentium III Xeon and Celeron are trademarks of Intel Corporation. MS, Microsoft, BackOffice, IntelliMouse, Windows NT and Windows are registered trademarks of Microsoft Corporation. 3Com is a registered trademark and Fast Ethernet is a trademark of 3Com Corporation. HP and DeskJet are registered trademarks and OpenView is a trademark of Hewlett Packard Corporation. Trinitron is a registered trademark of Sony Corporation. ©1999 Dell Computer Corporation. All rights reserved.

P H O T O G R A P H S B Y G E O F F R E Y N E L S O N



XEON SERVERS

They're a Gas, Gas, Gas

Systems sporting the new Xeon CPU have plenty of giddyup, but lower-cost Pentium IIIs give them a run for their money. ►

BY ROBERT HUMMEL



Best Buy: Acer Altos 12000

AN IMPRESSIVE amalgam of high-performing components, a super chip, and a wide array of features earns the Altos 12000 our Best Buy award. This big and brawny powerhouse used dual PIII-550 Xeon processors and a two-channel RAID subsystem to perform consistently well in our tests, and Acer also shows admirable attention to detail with rampant redundancy and excellent setup and fault-tolerance features.

Your rusty Plymouth Belvedere of a server has seen better days. It's been a good old wagon, carrying the load of an ever-growing department, but the day it starts belching big clouds of bluish smoke is fast approaching. You're afraid to turn it off because you don't know if it'll ever start up again, and you could've built two

more servers with all the parts you've bought to keep it creaking along. If you've been eyeing a shiny new Xeon server, now might be a good time to head to the dealer's showroom for a test drive.

But a fast, expensive Xeon server that crashes five times a day won't get the job done. If that new box can't deliver long stretches of uptime, you might as well stay with the hunk of metal you've got. We checked out seven workgroup servers to see whether the Xeon has legs.

Engineered to outperform standard Pentium IIIs at specific server-oriented tasks, Xeon is the Formula One race car of processors. You can buy Xeons that carry up to 2MB of level 2 cache (standard PIII chips have only a fixed 512KB of this special memory), and the Xeon's L2 cache runs at the same speed as the processor core (in the PIII, the L2 cache runs at half the CPU's speed). Faster cache and more of it translates into faster completion of processor-intensive tasks like database

queries. If speed is critical to your business, Xeon's the chip for you.

Without seatbelts, however, the fastest vehicle can be a death trap. Xeon's integrated reliability features, such as error correction and internal temperature monitoring, add a measure of protection to the equation. Before Xeon, server vendors had no choice but to design their own solutions, which added R&D costs to the end product. As Xeon becomes more widely accepted, vendors will be able to save money by relying on Intel's built-in features.


Now imagine an Indy car with two or even four engines. Servers that distribute tasks among multiple processors run much faster than single-CPU systems. Whereas the PIII can support two processors working in tandem, you can team as many as four Xeon CPUs together. However, you'll need a different motherboard, and you'll only see benefits if your OS and applications are multiprocessor-aware.

SELECT YOUR OCTANE LEVEL

IN OUR SEARCH for the perfect workgroup server for 100 or fewer nodes, we asked vendors for dual-processor systems running Windows NT 4.0. (Of course, your server needn't run NT. For alterna-

WORKGROUP SERVERS

FEATURES COMPARISON

SERVER	Street price (7/1/99) ¹	Dual CPUs ²	Installed memory/maximum memory/memory type	Expansion slots (total/open)	SCSI controller	RAID controller/cache size	Hard drive type/speed/tested capacity
 Acer Altos 12000 800/733-2237 www.acer.com	\$9495	PIII-550 Xeon	512MB/2GB/100-MHz SDRAM, ECC registered	6/3	Adaptec 7896 Dual Channel Ultra2 SCSI	Mylex 1164P two-channel Ultra2 RAID/32MB	IBM DRVS-09U Ultra2 SCSI/10,000 rpm/27.3GB
Compaq ProLiant 1600 800/345-1518 www.compaq.com	\$7146	PIII-500	256MB/1GB/100-MHz SDRAM, ECC	6/5	Compaq Dual Channel Wide Ultra SCSI-3	None	Ultra2 SCSI/10,000 rpm/12.9GB
Gateway ALR 7200NTS 800/315-2536 www.gateway.com	\$6570	PIII-500	512MB/2GB/100-MHz SDRAM, ECC	8/6	Adaptec Dual Channel 7890 LVD Ultra2	AMI single-channel 466 Ultra2/16MB	IBM SCA Ultra2 LVD SCSI/10,000 rpm/18GB
Micron NetFrame 5200 888/218-7502 www.micron.com	\$9999	PIII-550 Xeon	512MB/2GB/100-MHz SDRAM, ECC	7/5	Adaptec 7896 Dual Channel Ultra2 SCSI	Mylex single-channel AcceleraID 250 LVD/16MB	IBM MACO 09L1492 Fast and Wide SCSI-2/10,000 rpm/54GB
SAG STF 5500H 800/989-3475 www.sagelec.com	\$8318	PIII-550 Xeon	512MB/2GB/100-MHz SDRAM, ECC	7/4	Adaptec 2940U2W Ultra2 SCSI	AMI three-channel, Ultra2-LVD MegaRAID 438/16MB	IBM LVD Ultra2 SCSI/10,000 rpm/27GB
Toshiba Magnia 3010⁴ 800/867-4422 www.toshiba.com	\$9431	PIII-500	512MB/1GB/100-MHz SDRAM, ECC	5/4	Dual Symbios 53C876	AMI single-channel MegaRAID 762/4MB	Fujitsu Fast and Wide SCSI/7200 rpm/18GB
Xi Computer 1100X NetRAIDER 800/432-0486 www.xicomputer.com	\$9997	PIII-550 Xeon	512MB/2GB/100-MHz SDRAM, ECC	6/4	AMI three-channel MegaRAID i960CPU Ultra2 Wide	AMI three-channel MegaRAID i960CPU/64MB	SCA LVD Ultra2 SCSI/10,000 rpm/27GB



Best Buy

¹ Price with ten-user license for Windows NT Server 4.0. Cost of monitor not included.

² The Gateway came with 1MB of L2 cache; all others came with 512KB of L2 cache.

tive OSs, see "Operating Options: Linux" on page 184 and "Operating Options: NetWare" on page 187.) We required a minimum configuration of 256MB of RAM and 10GB of hard drive storage. We also specified that each server must have at

servers running on a pair of PIII-500s.

When specifying your own server, you'll want to choose a system that's engineered for maximum reliability. Heat is a server's archenemy, so look for redundant cooling fans that provide a margin of safety in

such power supplies. RAID (Redundant Array of Independent Disks) storage subsystems detect and repair disk failures to ensure that your mission-critical data remains available whenever you need it. All our test systems except the Compaq came with a RAID subsystem. And because tool-free access and snap-out parts can save you hundreds of hours of maintenance time over the life of a server, we've noted each server's construction quirks. Finally, six of the systems incorporate server management features; the Acer, Micron, and Toshiba offer the best arrays of features, monitoring system health and alerting you when things go wrong.

All seven companies represented here provide at least a three-year parts warranty, but only Acer, Compaq, and Gateway do the work on-site after the first year. Micron tacks on two more years of warranty for processor and memory.

How We Tested

CENTENNIAL NETWORKING LABS, a North Carolina State University-affiliated hardware-testing facility near Raleigh, helped us stress-test these servers' file, application, and network capabilities. For performance testing, we turned to three commercial server benchmark packages: Bluecurve's Dymeasure File Professional 2.0, which tests file service performance; Dymeasure SQL Professional 2.0, which evaluates a system's suitability for database tasks that require raw processing power while minimizing disk and network usage; and Ganymede Software's Chariot, which tests network response time, throughput, and connectivity.

Appropriately, performance made up the lion's share—35 percent—of a system's overall rating. Features accounted for another 25 percent; price, 25 percent; and service and support, the remaining 15 percent.

least two 100Base-T network adapters. Otherwise, each vendor was free to add components and software as it saw fit without exceeding \$10,000 in price. Acer, Micron, SAG, and Xi Computer submitted systems sporting dual PIII-550 Xeons. Compaq, Gateway, and Toshiba sent in

case a single fan fails. Of the seven servers here, only the Compaq lacked them. Using multiple power supplies that are hot-swappable (meaning you can replace them without shutting down the server) is simply good risk management; all but the Gateway and Toshiba have at least two

FAST SERVICE

AFTER WE RAN our performance tests and the dust had settled, the Xeon stood tall. The Xi 1100X NetRAIDER used PIII-550 Xeons and a high-end RAID subsystem to win our file service and database tests. In the network test, the SAG ►

Maximum bays/ hot-swap bays as configured	Network interface	Reliability features	Server management software	Warranty/phone support	Product info number ³
8/3	Integrated Intel 10/100 and two Intel Pro/100+ cards	Redundant cooling fans and power supplies, hot-swappable hard drives	Acer Startup, Advanced Server Manager Pro, Remote Diagnostic Manager	3-year parts and on-site labor, next business day/toll-free 24-hour support	614
6/3	Integrated Compaq 10/100 TX PCI UTP and Compaq 10/100 TX PCI UTP card	Redundant power supplies, hot-swappable hard drives	Compaq SmartStart, Compaq Insight Manager	3-year parts and on-site labor, extended prefailure warranty on CPUs, memory, and disk drives/toll-free 24-hour support	615
3/2	Integrated Intel 10/100 and Intel 10/100 card	Redundant cooling fans, hot-swappable hard drives	InforManager Server Management, Netopia Timbuktu Pro	3-year parts and on-site labor, next business day/toll-free 24-hour support	616
6/3	Integrated Intel Ether Express Pro 100 and Intel Pro+ card	Redundant cooling fans and power supplies, hot-swappable hard drives	Server Setup Utilities, Intel LANdesk Server Manager 6.0, Intel Server Control ISC, Baseboard Management Controller, Emergency Management Port	5-year processor and memory, 3-year other parts, 1-year on-site labor, next business day/toll-free 24-hour support	617
6/3	Intel Pro/100+ and Intel Pro/100+ card	Redundant cooling fans and power supplies, hot-swappable hard drives	Intel LANdesk Server Manager 6.0	3-year parts and labor, 1-year on-site/toll-free support weekdays 9 a.m.-9 p.m. EST	618
4/3	Integrated Intel 10/100 and Intel Pro/100+ card	Redundant cooling fans, hot-swappable hard drives	Toshiba Server Setup Utilities, IC SMC management interface bus, onboard EMD, Intel LANdesk Server Manager 6.0	3-year parts and labor, 1-year on-site/toll-free 24-hour support	619
3/3	Two 3Com 3C905BTX TP PCI 10/100 cards	Redundant cooling fans and power supplies, hot-swappable hard drives	Intel LANdesk Client Manager	3-year parts and labor, 1-year on-site/toll-free 24-hour support	620

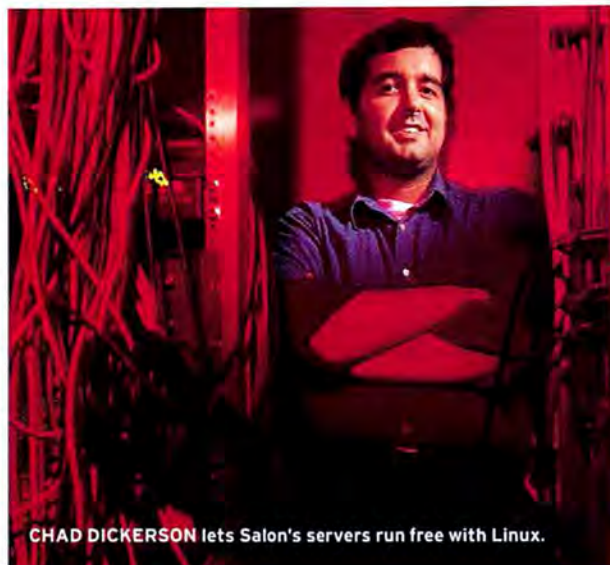
³ For more information about the products listed in this table, select product info number 902 or visit www.pcworld.com/productinfo.

⁴ Preproduction unit.

Operating Options: Linux

LAST SEPTEMBER, Chad Dickerson, vice president of technology for **Salon.com**, and his staff were rebooting Salon's Web servers constantly. The upstart Internet magazine had broken a story exposing an extramarital affair of House Judiciary Committee chairman Henry Hyde. "The Associated Press picked up the story, it moved to all the majors, and we were getting thousands of hits per minute," says Dickerson. "We were rebooting servers like musical chairs because our Windows NT servers couldn't handle the load."

Because of the fiasco, Dickerson switched his server farm to Linux. He says the move saved him money—partly because Linux runs well on his existing low-end servers. But also, he says, "Many of the apps and tools we needed were free. We didn't have to buy any software for remote administration, for sendmail, or for the OS itself." Dickerson has no regrets about the switch. "Since installing Linux, we haven't had to reboot any of the servers [45 days after the initial installation]."



CHAD DICKERSON lets Salon's servers run free with Linux.

took a narrow victory over the Micron and Xi (all three run on Xeons).

But winning a *PC World* Best Buy award requires more than speed. The Acer Altos 12000 effectively combines Xeon power with abundant room for expansion and the kinds of redundancy and reliability features that make a server serve, not cry out for service.

Acer Altos 12000

PRO: Large drive capacity, roomy interior, good all-around performance

CON: Drive carriers jam easily



As you might expect, the dual-PIII-550-Xeon-based Altos 12000 turned in an outstanding score in the SQL database test (see test report, page 185), just barely nosed out for the fastest mark by Xi's 1100X NetRAIDER. Unfortunately, despite an admirable file service speed, it trundled to a sixth-place finish in our network test, dropping the system to third in overall performance.

The Altos 12000 is physically imposing: 12 inches wide, 17 inches high, and 24 inches deep. Behind the front door await eight hot-swap, 3.5-inch drive bays—the most of any server in this roundup (three of the bays were occupied by 9.1GB drives in the unit we tested). In addition, our configuration came with two open 5.25-inch bays, accessible from the front of the

server. Removing a hot-swappable drive posed no problem, but reinserting drives was complicated by the Acer's poor drive carrier and bay design. The aluminum drive trays ride on a simple flange in the drive cage, so if you don't push the drive in exactly straight, the tray can bind and become jammed in the cage.

The Altos accommodates plenty of power, with room for up to three hot-swappable power supplies, which can be replaced without opening the case. Two power supplies came with our test unit; the unoccupied bay was plugged with a drop-in fan module. Four additional system fans kick in with ample cooling.

Compaq configured the ProLiant with a software RAID, which often is faster than hardware RAIDs, especially those configured for maximum reliability.

To open the Altos 12000, you remove two small screws securing the left panel. Once you're inside, the benefit of the large system case becomes obvious: The interior is spacious and easy to work in. The RAID controller and two network cards (which are included although a network interface is integrated into the motherboard) occupy three of the six PCI slots.

The Acer packs a good selection of man-

agement software, including Remote Diagnostic Manager, which comes with a microprocessor card attached to the motherboard. RDM continuously monitors the system's "heartbeat" and alerts you if certain events occur. Unlike the Micron's software (Baseboard Management Controller), however, it lacks a battery backup.

The Altos 12000 impressed us with strong showings in every category, and it affirms Xeon's power. It's a great all-purpose server for workgroup networking.

Compaq ProLiant 1600

PRO: Modular design, good file service speed, second least expensive system in roundup

CON: No RAID subsystem, limited features at this price

In our previous server roundup, the ProLiant 1600 rang up the top overall performance score and the lowest configured price of all the units we tested. Not so this time: Pitted against beefier Xeon systems, the plain-vanilla PIII-500 ProLiant finished last in the SQL and network tests (not counting our single-CPU reference unit). The Compaq's file score was good enough for second place, but the server excludes a RAID subsystem, which provides highly desirable redundancy protection at the expense of performance. Compaq configured the ProLiant with a software RAID, which often is faster than hardware RAIDs, espe-

cially those configured for maximum reliability (RAID level 5).

One gripe with previous versions of the ProLiant was their lack of redundancy features. Although the newest ProLiant still lacks redundant cooling fans, Compaq now offers a hot-swappable power supply option. Our test unit had the maximum three power supplies installed.

The floppy drive, CD-ROM drive, and two empty 5.25-inch bays are readily accessible with the front door closed. The front panel is easy to remove, revealing the six hot-swap drive bays. Even with a 100Base-T network card occupying a PCI slot, the system left five slots free, because the SCSI

controller is integrated. But the Compaq can handle only up to 1GB of RAM—a smallish maximum for a server these days.

The ProLiant 1600 is diminutive for a server, with a minimum of wasted space inside, but its highly modular design makes servicing and upgrading quick and easy. Disassembly requires just twisting a thumbscrew and then pressing a tab or swinging out a lever. The server breaks down quickly into function-specific sub-assemblies, such as the processor cage and the expansion card cage. Expansion cards are held in place by tool-free tabs and can be accessed by removing the unit's top cover or by sliding the entire card cage out the rear of the system.

Compaq includes a setup utility, as well as server- or client-accessible monitoring tools designed to alert you to potential problems. But Remote Insight, which enables you to access the server via modem and supplies 30 minutes of battery backup, costs an additional \$886.

To achieve its \$7146 price tag, the Compaq left out even middle-of-the-pack hardware components. With only 256MB of RAM, PIII-500 CPUs, just 12.9GB of hard drive space, and no RAID controller, this configuration is ill-suited for heavy networking applications. Nevertheless, its rugged design and redundant power supplies do make it worth a look as a file server for small to midsize workgroups. ▶

TEST REPORT

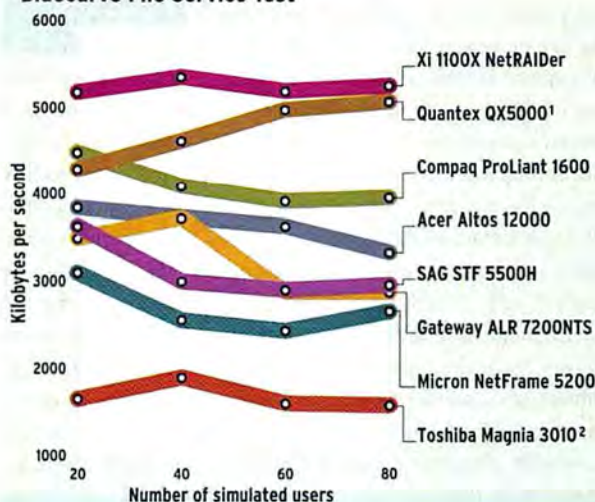
Gas It Up

THE THREE TESTS administered by Centennial Networking Labs stress different parts of a server. The Bluecurve file service test focuses on the hard drives and RAID subsystem; the Bluecurve SQL database test is extremely CPU-intensive; and the Ganymede network test probes the network interface cards and the processors.

As the file service chart (right) indicates, the Xi pumps out consistent performance throughout that test. The Compaq and our reference system, a Quantex QX5000¹, captured second and third places, mainly because they lacked RAID subsystems and the attendant overhead.

In the other two tests, the dual-Xeon-based systems proved their mettle, trouncing the dual-PIII systems and the single-PIII Quantex. Quantex was not able to provide a dual-processor system in time to participate in our tests.

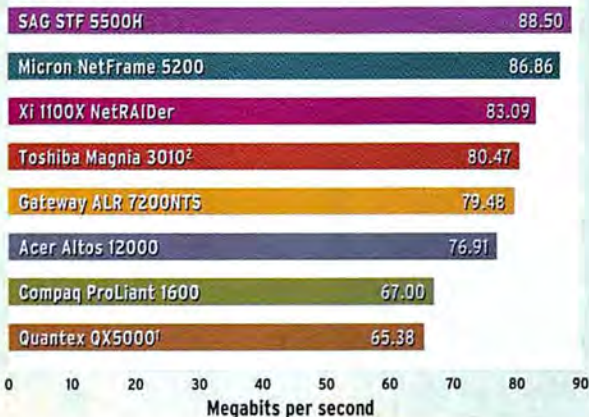
Bluecurve File Service Test



Bluecurve SQL Database Test



Ganymede Network Test



¹Single-PIII system ²Preproduction unit

Gateway ALR 7200NTS

PRO: Lowest price here, helpful documentation
CON: No power supply redundancy, service requires extensive disassembly

At first glance, you might notice that the Gateway ALR 7200NTS has a rock-bottom price of \$6570. However, the PIII-500-based system's performance scores trailed those of the leaders by about 10 percent in the SQL and network tests and by nearly 40 percent in the file service test, placing the Gateway next to last in overall performance.

More troubling is the 7200NTS's design, which threatens to make the task of servicing components a nightmare. To access the front of the internal drive cage, for example, you must take off the two side panels, remove two small screws, squeeze a number of plastic tabs, and then pop off the front panel. By loosening just five more screws, you can slide out the cage to install or remove 3.5-inch devices. A second drive cage accommodates two more 3.5-inch devices inside the unit, but you must take out the entire cage to reach its contents.

We also discovered that each power connector in the system runs from the power supply directly to each component in the system, rather than making a single connection from the power supply to the motherboard and then powering components via cables from the motherboard. As a result, swapping out the power sup-

ply means digging around inside the machine to unplug and reconnect every power plug on every device individually.

Though the inside of the unit has a decidedly cramped feel, access to the processors, DIMM slots, and expansion slots is good. Likewise, installing hot-swappable drives is easy. The RAID subsystem cage is accessible without any disassembly, and it has its own cooling fan.

Gateway provides extensive documentation with the unit, including a few loose pages that contain information on dealing

Though inexpensive, the Gateway becomes less attractive if serviceability is important to you.

with problems that might crop up during configuration or system upgrades. This proactive approach can save a frantic midnight call to tech support, but only if you are organized enough to keep track of all the separate sheets of paper.

The management software selection includes a setup utility and Gateway's own InforManager Server Management, which monitors a broad set of functions but can be accessed only via LAN or WAN.

Though inexpensive, the Gateway becomes less attractive if serviceability is

important to you. Its best use is as a general-purpose server for small to medium-size networking environments.

Micron NetFrame 5200

PRO: Rugged drive carriers, roomy interior, great SQL and network performance

CON: Disappointing file service performance, most expensive server in roundup

The NetFrame 5200 turned in top-notch scores in the SQL and network tests. Pushed by twin PIII-550 Xeons, the Micron was less than 2 percent slower than the winners of both those tests. In the file test, however, it ran a disappointing sixth, achieving only half the performance output of the Xi 1100X.

The NetFrame 5200's front panel displays status lights indicating power, disk activity, and failure for up to six drives. Behind

its front door sit three 5.25-inch drive bays (one of which holds a CD-ROM drive) and one 3.5-inch floppy drive. A separate drive cage door protects up to six hot-swappable drives. The drive carriers are heavily heat-sinked, but they are easy to insert and remove from the cage.

The NetFrame also offers Micron's Baseboard Management Controller, a small microprocessor on the motherboard that's capable of logging up to 200 system events (such as chassis intrusion, processor overheating, and component failure, in addition to boot events). The BMC has a small battery backup, so you can access the server's event log whether the server is on or off; this feature is unique to the Micron. You can load the server with up to three power supplies, but only two were installed in our test unit.

The Micron's low, wide, and deep case is easy to work in, but the work isn't tool-free. At first glance into the Micron's interior, we got a bit of a shock: The entire front of the system is packed solid with black foam. It turns out that the foam is part of a complex ducting system that holds a number of fans and directs their airflow through the unit. Micron says that the foam is cheaper to manufacture and lighter than metal brackets, and that it reduces system noise. The company

SERIOUS SERVICE: SAG STF 5500H (left), Toshiba Magnia 3010 (middle), and Xi 1100X NetRAIDer.



Operating Options: NetWare

"I COULD NOT WAIT until the day we unplugged those [Windows] NT servers from our WAN," remembers John Cressman, network communications manager for **Wireless One**, a Jackson, Mississippi-based provider of cable TV and Internet access over microwave frequencies. Cressman and Bill Hart, LAN/WAN manager, switched the company's network, which serves 23 offices in seven states, to Novell NetWare 5.

Cressman says the move was economical, partly because the company went from using eight NT servers to only three NetWare servers. But NetWare's performance and scalability were also very important. "The NT servers were support nightmares—at best, flaky; at worst, unusable," Hart says. Hart lauds NetWare's built-in remote administration capabilities. In contrast, he says, "[On NT], anything you want to do administration-wise has to be done on the server, unless you buy additional tools."



FOR EX-WINDOWS NT USERS John Cressman (left) and Bill Hart of Wireless One, NetWare 5 is the serverware of choice.

assures us it will replace the foam free of charge if it's damaged during warranty coverage, or for just \$12 thereafter.

The dual PIII-550 Xeon processors push the NetFrame's price to \$9999—the highest in this roundup. However, it has some excellent management features, and it would work well as a database server.

SAG STF Pentium 5500H Departmental RAID Server

PRO: Roomy interior, drives individually secured by keys, stellar network service performance

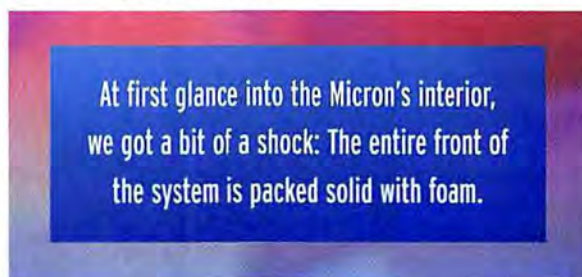
CON: Exposed power supply connectors, pedestrian file service performance

The SAG STF Pentium 5500H approximates the Acer Altos 12000 in overall performance, mostly due to the dual PIII-550 Xeons that power both machines. The SAG took first place in the network service test, but faltered in the other tests. The unit's lagging file service score rendered it second in overall performance.

The tall and wide STF 5500H comes equipped with four plastic nonswiveling wheels. Unfortunately, the moment we tried to slide the unit sideways on our test center's standard-issue office carpet, the lateral stress broke one of the wheels.

SAG did a good job on the 5500H's drive handling. The hot-swappable drives sit in rugged carriers whose top and bottom covers direct air flow across the surfaces of each drive. Inserting the carriers into the drive subsystem is easy (though

we wish the unit conveyed a more definite feeling that the drive is completely connected). Rather than use a cam lock, as all the others (except the Xi) do, the SAG server is designed so that users can simply push the drive into place and then use a keyed lock to secure the drive in the panel. The functional lock also controls a switch for the drives' power, thus ensuring that you cannot put an unpowered drive into a powered SCSI chain.



On the other hand, the STF 5500H's power supply scheme is hardly ideal. Our unit came with two power supplies (the maximum supported), and the power supplies plug into the system via edge-card connectors, similar to standard expansion cards. As a result, even though the connecting wires and contact fingers themselves don't carry AC line current, they can be energized when exposed if the power supply is plugged in, which in turn could short out a power supply. SAG says the power supply style is tied to its current chassis design, but says it is working toward employing blind-mate connectors

within which the contacts that carry the power will be hidden.

You'll need a screwdriver to remove the three screws that hold the right-side panel. Once it's open, you have unobstructed access to the system board, processors, memory modules, and expansion cards. Removing the left-side panel lets you service the two rear cooling fans and gives you a clear path to the standard drive bays and the rear of the hot-swap backplane. In

our evaluation system, each of the three two-bay backplane units was driven on a separate channel from the RAID controller.

While its hardware is solid, the STF 5500H lacks integrated system

configuration tools, and documentation is minimal. And if your server goes down in the middle of the night, don't call SAG—its support hours run only from 9 a.m. to 9 p.m. eastern time on weekdays.

Toshiba Magnia 3010

PRO: Superior tool-free access, top-notch fault monitoring, excellent documentation

CON: Subpar performance scores, single power-supply cord, small drive capacity

We tested a preproduction unit of Toshiba's Magnia 3010 with dual PIII-500s under its hood. Let's hope the shipping version gets some significant perfor- ►

CAUGHT IN THE CLOSET: Compaq ProLiant 1600 (left), Gateway ALR 7200NTS (middle), and Micron NetFrame 5200.



mance tuning, because the Toshiba turned in an abysmal score in our file service test—less than one-third as high as the speediest system's. The Toshiba's scores in the SQL and network tests, on the other hand, were only about 10 percent lower than the leaders'. That deficit is likely due to the Toshiba's configuration: The unit we tested carried a RAID controller with a puny 4MB cache and was set up for maximum redundancy.

To its credit, the Magnia's case beats all comers in tool-free access: Just turn the front-panel knobs and the two side panels slide off. A large fan housing and air hood situated in the middle of the unit obstruct your view of part of the system board, but all vital components are accessible. The expansion cards are held in place by captivated spring brackets that you can open with the tip of a finger. The Toshiba can hold only 1GB of RAM.

The two-piece front-panel doors on this midsize unit swing open to reveal two 5.25-inch bays (one occupied by the CD-ROM drive) and one 3.5-inch bay (which holds a floppy drive). The Magnia 3010's fault monitoring exceeds even the Micron's, watching a slew of important internal operation parameters, and it presents the data to you in a much better way. Toshiba includes an impressive suite of management software, including an onboard emergency management port for access via modem. The Magnia also comes with excellent documentation.

The unit we evaluated came with only

one power supply installed, but the Magnia has room for two hot-swappable power supplies. One weakness of the system: Even if you have two power supplies in place, both are fed by the system's single AC cord connector rather than by separate cords for each supply, so you can't plug the redundant supplies into separate power circuits. Lose power or knock out the single cord, and the power supply redundancy inside the box is worthless. Toshiba says it is working to make the system's power supplies truly redundant.

The Toshiba Magnia's fault monitoring exceeds even the Micron's, watching a slew of important internal operation parameters.

The Magnia has a Xeon-like price but PIII performance. Even so, its excellent serviceability and reliability features might make it a good choice for medium-size workgroups.

Xi Computer 1100X NetRAIDER

PRO: Rugged construction, fast performance

CON: Limited drive expandability as configured, meager documentation

The NetRAIDER is driven by dual PIII-550 Xeons and an AMI three-channel RAID controller with 64MB of cache. The test results confirm the value of those components: The Xi placed first in the SQL test

in a close finish, and third in the network service test, trailing the first-place SAG by about 7 percent. But the Xi really distinguished itself in the file service test, beating out its nearest competitor by more than 20 percent and propelling itself into first place in overall performance.

Open the two massive side-by-side front doors and you'll find ten 5.25-inch drive bays; in our unit, however, only three bays contained backplane drive connectors. For each drive you add, you must also install a \$63 backplane unit. The Xi has only two open PCI slots (plus two ISA slots).

The three 9GB drives ride in fan-cooled carriers that have handles and use the same effective key-lock mechanism we found on the SAG. Each individual carrier shows power and drive activity. A CD-ROM drive and a floppy drive occupy two of the four 5.25-inch bays housed on the left side of the unit.

Removing the 1100X NetRAIDER's side panels is technically tool-free, but you do need the system's key to take off and replace the panels. That's a good security feature if you can't keep the server locked away in a secure closet or cage. Behind the left panel you'll find plenty of room to upgrade or replace the two processor

modules, memory modules, cooling fans, and expansion cards. Removing the right panel gives you wide-open access to the rear of the drive cage for servicing the hot-swappable drives. Our evaluation system came

equipped with two hot-swappable power supplies, the maximum number available.

Even at \$9997, the Xi comes without any server management software, though it does have LANdesk Client Manager for accessing clients attached to the server. Documentation is sparse, and you're pretty much on your own when it comes to setup. But if you can overlook those shortcomings, this server is a hot performer in almost any setting.

Robert Hummel is a computer programmer, author, and commentator based in New Hampshire.

ADVERTISEMENT

Office DEPOT®

Low Prices every day.



**Welcome to
the Future of
Technology**

Business Or Pleasure

We've Got the Computer For You

COMPAQ

5714 INTERNET COMPUTER WITH INTEL® CELERON™ PROCESSOR 466MHz AND COLOR MONITOR

- 64MB 100MHz SyncDRAM, Shared Memory Architecture – (8MB Dedicated For Video Memory)
- 12.0GB UltraDMA Hard Drive
- 32x Max CD-ROM Drive
- 56K ITU V.90 Modem (actual download speeds may vary)
- 2x AGP 3D Graphics
- 100MB Iomega® ZIP BUILT-IN™ Drive
- Home Phoneline Networking
- 10Mbps Ethernet Port
- Includes MV520 15" Monitor (13.8" viewable image area)
- Includes Microsoft® Money 99, MS Windows 98, MS Word 97, MS Works 4.5, Quicken Basic 99 And More

Monitor 412-984-760
Computer 412-984-1541124.98
(Computer & Monitor After \$75 Mail-In Rebate)

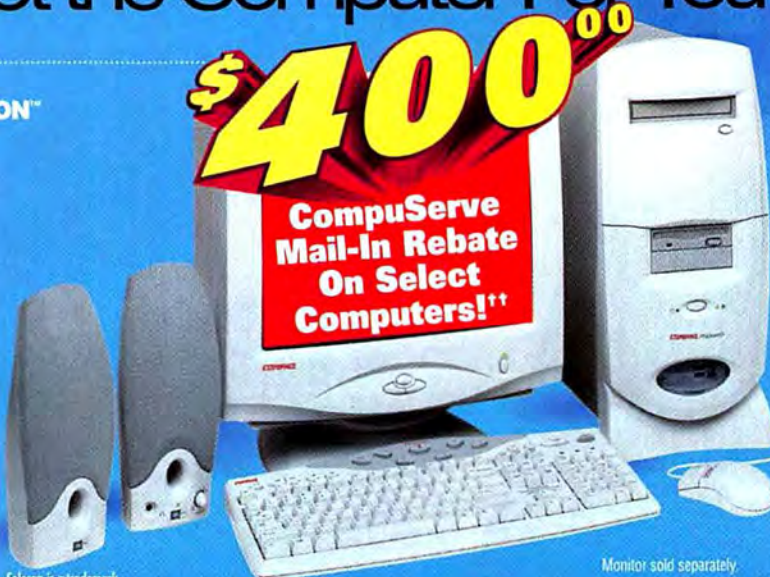
1199.98 - 75.00 Package Mail-In Rebate = 1124.98
(Computer and Monitor)
Computer package rebate good with the purchase of Compaq 5714 computer (984-154) and Compaq MV520 15" monitor (984-760).



Celeron is a trademark of Intel Corporation.

\$400⁰⁰

**CompuServe
Mail-In Rebate
On Select
Computers!††**



Monitor sold separately.

\$400 CompuServe Mail-In Rebate††

- ✓ Any **HEWLETT PACKARD** Expanding Possibilities Computer
- ✓ Any **emachines** Computer
- ✓ Any **COMPAQ** Computer/Monitor or Notebook

††CompuServe \$400.00 Internet Mail-In Rebate offer is subject to credit approval and your acceptance of CompuServe Terms of Service. Access to CompuServe may be limited especially during peak times. Offer also requires (1) the purchase of a qualifying machine PC; any qualifying HP Pavilion 4500 or 8500 series PC (excluding Model 4530) or any qualifying Compaq PC AND Compaq monitor or any qualifying Compaq notebook computer (2) a contract commitment to a 3-year/36-month subscription for CompuServe 2000 Internet Service at a monthly rate of \$21.95 (3) a completed mail-in rebate form (4) a purchase receipt and (5) a major credit card. All of the above must be completed and received by CompuServe within 30 days of purchase. Consumers without a valid credit card may pre-pay for 36 months at \$21.95 per month. Within 45 days of credit approval, the \$400 CompuServe Internet Service rebate will be credited to your designated credit card or fulfilled by check sent to the name and address provided on the credit application. Early termination of the 3-year CompuServe 2000 Internet Service requires repayment of the \$400 rebate plus a \$50 cancellation fee. HP/CompuServe \$400 Internet Rebate offer expires 9/30/99. emachines/CompuServe \$400 Internet Rebate offer expires 10/31/99. Compaq/CompuServe \$400 Internet Rebate offer expires 11/30/99. Age 18 or older. Limit one per household or business. See store for details. CompuServe provides various pricing plans, some of which may be lower than the \$21.95 monthly rate required for this promotion. CompuServe is a trademark of CompuServe Interactive Services, Inc.



Celeron is a trademark of Intel Corporation.



TOSHIBA

2595CDT NOTEBOOK COMPUTER WITH INTEL® CELERON™ PROCESSOR 400MHz

- 64MB Memory
- 6.4GB Enhanced IDE Hard Drive
- 24x (max speed) CD-ROM
- Internal V.90 Modem (actual download speeds may vary)
- 64-bit Graphics Accelerator
- 12.1 TFT Active Matrix Display
- Rechargeable, Removable Lithium Ion Battery
- Includes Microsoft® Windows 98 And Microsoft® Internet Explorer And More

412-985-7411699.99

Monitors

SONY.

CPD-420GS 19" COMPUTER DISPLAY

Ultimate precision for demanding applications

- 18.0" Viewable Image Area
- Super fine pitch 0.25-.027 mm aperture grille
- Resolution up to 1600 x 1200 at 75Hz

412-164-584649.99

SONY.

CPD-200ES 17" COLOR MONITOR

Perfect images edge to edge

- 16" Viewable Image Area
- Super Fine Pitch™ .25 mm Aperture Grille
- 1280 x 1024 maximum resolution

412-342-446349.99

Available in store only.



Office DEPOT®

Leasing arranged by Newcourt Financial USA Inc., an independent entity. All leases are subject to credit approval and availability. Lease terms subject to change without notice. Other business and consumer leases available. Terms may vary. See store for details.

BUSINESS LEASE 12-60 MONTHS

*On combined lease of Computers, Business Machines, and Furniture costing \$900 or more.**

COMPAQ Built for you...

Created by You... for you!

COMPAQ

5700T COMPUTER WITH INTEL® PENTIUM® III PROCESSOR 550MHz

- 256MB 100MHz SyncDRAM
- 18.0GB UltraDMA Hard Drive
- 52X True X CD-ROM
- 6.0Mbps Digital (DSL) Modem
- 16MB s# Savage 4 Pro Graphics Accelerator
- Diamond Monster MX300 PCI Audio Card + DCIC
- CV 915 19" Monitor (18.0" Viewable Image Area)
- JBL Pro Premium Powered Speakers with Subwoofer
- Includes Microsoft® Small Business Edition 2000 Software (Shipping not included)



The Intel Inside Logo and Pentium III are registered trademarks and MMX is a trademark of Intel Corporation.



COMPAQ

1800T COMPUTER WITH INTEL® PENTIUM II® PROCESSOR 400MHz

- 14.1" TFT Active Matrix Display
- 64MB Memory SyncDRAM
- 4.8GB UltraDMA Hard Drive
- 24x (max speed) CD-ROM Drive
- 56K ITU V.90 Modem (actual download speeds may vary)
- Includes Microsoft® Featured Home Collection Software (Shipping not included)



No Interest 6 Months
NO Payments

On Computers, Business Machines and Furniture, \$299 or more*

*Zero interest, no payments for 6 months on Computers, Business Machines and Furniture purchases of \$299 or more made with the Office Depot "Technology Card" - a consumer credit card. The purchase price must be paid in full within the 6 month period; otherwise, interest (accruing on the purchase price from the date of purchase) will be charged to customer's account. As of April 1, 1999, APR is 22% (rate may vary); 18% in CO, IA, ME, NC, WI. A min. monthly finance charge of \$1.00 may apply; 50¢ in IA.

Handheld PCs



JORNADA 680 COLOR HANDHELD PC

Leading-edge mobile technology

The HP Jornada 680 allows you to work up to eight hours without recharging. It is the perfect mobile solution for email and Internet browsing with its built-in 56Kbps modem and preloaded Microsoft Pocket Inbox and Pocket Internet Explorer.

- MS Windows CE, Pocket Word, Excel, Powerpoint, Access, Pocket Outlook and Pocket Internet Explorer
- Internal modem 56Kbps
- Internet email support
- One PC Card Type II Card Slot
- One Compact Flash Type I Card Slot
- Rechargeable Lithium Ion Battery (7-hour life)

412-913-052899.99

JORNADA 680 EXTENDED BATTERY

412-913-105169.99



Powered by
Microsoft
Windows CE

FREE
Encarta Reference
Suite 2000 By Mail
with the Purchase of an
HP Jornada 680
~~\$99.00~~
Value

Palm IIIx
Connected Organizer

3COM PALM IIIx™ CONNECTED ORGANIZER

You'll be organized, connected and ready to go

The Palm IIIx™ is an excellent value offering all the features and twice the memory of the Palm III™ organizer.

- Features include datebook, address book, to-do list, memo pad, expense application, email, upgradeable memory, 4MB of RAM and infrared capability for transferring data without cable
- Includes the Palm Desktop organizer software for Windows® and a docking cradle for synchronization with Windows® PC
- LCD screen technology and backlighting provide crystal-clear clarity
- Built in synchronization with Microsoft Outlook™

412-161-765369.99

PalmPilot Modem 412-218-644129.99

Palm III Cradle 412-368-21229.99

Palm III Stylus 3-pk 412-367-9909.99

Leather Case 412-383-33924.99

Hot Sync Cable For Laptops 412-218-76819.99

FREE
Bumper Case By Mail
with the Purchase of a
3COM Palm IIIx™
~~\$39.00~~
Value



1-888-GO-DEPOT
(1-888-463-3768)

Online: www.officedepot.com
AOL Keyword: Office Depot

The Best Choices In Business Machines

**\$50
Mail-In
Rebate**



WORKCENTRE XD155df

Our fastest digital copier/laser printer

Get more work done with this great machine. The XD155df features easy-to-use, automatic 2-sided copying and the advantage of a laser printer. The hands-free convenience of a 30-page automatic document feeder and an output volume of up to 2,000 copies/prints a month help complete jobs efficiently.

- Copier — 15 cpm
- Laser Printer — 8 ppm
- 2 paper drawers will hold a total of 500 sheets
- Exclusive Xerox 3-Year Warranty

412-181-9301249.99 (After Rebate)

1299.99 - 50.00 Mail-In Rebate = 1249.99



OFFICEJET R80 COLOR ALL-IN-ONE

One-touch faxing, flatbed design and automatic document feeder

The reliable HP OfficeJet R80 delivers top-of-the-line office essentials in one full-featured professional product. It combines a photo-quality color printer, color flatbed scanner, digital color copier and 30-page automatic document feeder. It also features a plain paper fax with crisp monochrome quality and access to the document feeder for unattended multipage faxing.

- Plain paper fax — 14.4 bps modem, 6 sec.-per-page
- Color printer — 8.5 ppm color/11 ppm black, 600 dpi
- Color scanner — 600 x 2400 dpi optical (9600 enhanced)
- Color copier — 600 x 2400 dpi optical black and color
- Photo-quality output with HP PhotoREt II color layering technology

412-189-816799.99



brother.

MFC-4350 LASER ALL-IN-ONE

Laser-quality printing and faxing — a best seller

The Brother MFC-4350 is the perfect addition to any small office because it does it all ... and with great results! Professional laser-quality printing at the touch of a finger. Need to fax? With the Brother MFC-4350 you can send and receive faxes at the same time! And it's also a multi-function copier. Includes printer cables, starter toner and 90-day on site warranty/1-year replacement warranty.

- Plain paper laser fax — up to 130-page fax memory, 6 sec.-per-page
- Laser printer — 6 ppm, 600 x 600 dpi resolution
- Laser copier — 400 dpi

412-358-786399.99



WORKCENTRE 470CX COLOR ALL-IN-ONE

Fast, easy and economical

You get a color printer, fax, personal copier, scanner, and award-winning software all in one easy-to-use machine. Printer cable included.

- Plain paper fax — 6 sec.-per-page, 14.4Kbps modem, up to 40 pages of memory, 300 x 300 dpi
- Color Printer — 6 ppm black/ 3 ppm color, 1200 x 1200 dpi
- Color Scanner — 300 x 300 dpi
- Copier — 5 cpm black, 600 x 300 dpi

412-994-492299.99



Office DEPOT®

Visit our Website

HP Technology Means Great Results



LASERJET 2100se

Superior image quality without cables

The HP LaserJet 2100se printer is a high performance printer that delivers superior image quality through true 1200 x 1200 dpi resolution. With a print speed of 10 ppm, the HP 2100se offers both speed and performance. But that's not all this printer has to offer. The HP 2100se also offers the flexibility of printing without cables through superior infrared technology. The HP 2100se is everything you want in a high performance laserjet printer...and more! Includes HP's 1-Year limited warranty.

412-696-867 699.99

LASERJET 2100TN

Get all the great performance features of the HP LaserJet 2100se, plus a pre-installed HP JetDirect 600N (EIO) Internal Print Server, making it network ready out-of-the-box.

412-170-336 999.99



DESKJET 895Cse PROFESSIONAL SERIES COLOR INKJET PRINTER

The perfect small office printer

Whether it's for business or at-home use, the HP DeskJet 895Cse delivers the high-quality and performance you would expect from an HP printer. Equipped with HP PhotoREt II color layering technology, you get more shades and vibrant colors. The results...outstanding image quality and detail. Also includes optional network capabilities which make the HP 895Cse the ideal small office or home office printer.

- Prints 11 ppm black/8.5 ppm color
- HP PhotoREt II color layering
- 600 x 600 dpi resolution
- 1-Year Express Exchange Warranty
- Optional networking capabilities

412-417-507 399.99



812C COLOR INKJET PRINTER

Great color, priced right

The HP DeskJet 812C makes color printing a snap. HP's built-in photo quality means there's no need to swap ink cartridges. And with HP's exclusive PhotoREt II color layering technology you get vivid photo-quality color no matter what paper you print on...plain paper, card stock, envelopes, banner, or photo paper. Plus with HP's exclusive fast drying inks, you can grab your projects off the printer as soon as they print, without smudging the ink. Photo-quality printing has never been easier! You'll also love the 812C's quiet printing and speed - 6.5 ppm black/4.5 ppm color. And the best thing about the HP DeskJet 812C is you can get started today! It's compatible with both PC or a USB-connect Macintosh. Includes HP's 1-Year Limited Express Exchange Warranty.

412-956-194 199.99



SCANJET 4200C COLOR SCANNER

Scanjet allows you to scan or copy at the touch of one button

The HP ScanJet 4200C color scanner helps you complete all of your projects quickly and easily. You can scan photos or drawings into your documents or make color copies right at your desk! HP's built-in Intelligent Scanning Technology lets you edit scanned documents effortlessly with fully automated OCR software, and it automatically optimizes images for electronic viewing and transmission. With the HP ScanJet 4200C, quality color scanning and printing are only four easy steps away.

412-121-853 199.99



1-888-GO-DEPOT

(1-888-463-3768)

Online: www.officedepot.com

AOL Keyword: Office Depot

Network & Storage Solutions



LINKSYS HOMELINK™ NETWORK STARTER KIT

- Build a network using existing telephone lines
- Share a modem and ISP connection
- Free technical support

412-122-00489.99



LINKSYS FAST ETHERNET STARTER KIT

- Includes everything to build a 2-computer Fast Ethernet Network
- Supports blazing 100Mbps Fast Ethernet Speed
- Free technical support and software upgrades
- Limited lifetime warranty

412-418-276119.99



3Com

FAST ETHERNET 4-PORT HUB

- Pass data between users without use of floppy disks
- Centralize key applications such as finance and accounting
- Simple installation and trouble-shooting

412-362-922119.99

Available in store only.



EtherFast 10/100 PC Card

High Speed 10/100 Ethernet Networking for Notebook Computers

Available in store only.

LINKSYS ETHERFAST 10/100 PC CARD

- Combo 10/100 PC card network adapter for notebook computers
- Runs with both 10 Base T and 100 Base TX networks automatically

412-418-26769.99



Available in store only.

MEMOREX CD-RW 2X24

- CD-RW, CD-R, CD-ROM — all in one box
- Speeds: 2x Write, 2x Rewrite, 24x Read
- CD mastering software for video, audio & data recording

412-951-288189.99



PRO SERIES ETHERNET CABLES

- RJ-45 Ethernet/Token Ring
- Category 5 rated cable
- Gold-plated copper contacts

7 ft. 412-360-8627.99

14 ft. 412-360-9249.99

25 ft. 412-360-95112.99

50 ft. 412-360-97921.99



EtherFast 10/100 LAN Card

High Performance 10/100 Ethernet Networking for PC Desktop Computers

LINKSYS 10/100 LAN CARD

- Auto-sensing
- 10 Base T and 100 Base TX Port
- Fast Ethernet
- 32-bit, PCI adapter card

412-160-27629.99



\$30 Mail-In Rebate

WESTERN DIGITAL

13.0GB HARD DRIVE

- 5400RPM Ultra ATA/66 speed
- Easy to install
- 3-year warranty
- 3.5" Enhanced IDE
- IDE interface cable included

412-747-624169.99 (After Rebate)

199.99 - 30.00 Mail-In Rebate = 169.99



\$30 Mail-In Rebate

WESTERN DIGITAL

20.4GB HARD DRIVE

- Ultra fast 5400RPM speed
- Easy to install
- 3-year warranty
- Includes Data Lifeguard software

412-819-627229.99 (After Rebate)

259.99 - 30.00 Mail-In Rebate = 229.99

Available in store only.

Office DEPOT®

The Latest In Digital Photography



SONY

MAVICA MVC-FD88 DIGITAL CAMERA

Great photographs begin with excellent technology

The Sony Mavica MVC-FD88 Digital Camera offers the finest, most innovative technology on the market today...MPEG movie mode, voice memo mode, built-in picture freeze, quick replay and 1.3 million Megapixels (1280 x 960) high resolution for amazing image detail. There's no limit to what you can create with the Sony Mavica MVC-FD88 and your imagination.

412-972-309 899.99



KODAK

DC240Z DIGITAL CAMERA

Efficient digital photography

Improve your efficiency with faster start up and shorter shutter lag with Kodak's DC240Z Digital Camera, a great combination of simplicity and Megapixel image quality (1280 x 960). A 3x zoom lens, 3x optical and 2x digital provide photo-realistic 5" x 7" images. An 8MB picture card is included. The DC240Z's USB interface makes it Windows® 95/98 and Macintosh compatible, giving you a download option that is more than 10x the speed of a serial connection.

412-820-651 599.99



KODAK

DC265Z DIGITAL CAMERA

Everything you want in a digital camera

The Kodak DC265Z includes audio record and playback, scripting capability for automated and customized camera operation, improved multi-picture burst capabilities and USB connectivity for rapid transfer of images to your PC. And that's just the beginning of what the Kodak DC265Z has to offer. Also includes a 6x zoom to get you up close and 1.6 Megapixel resolution (1548 x 1032) for crisp, clear, photo-realistic digital images. Amazing detail is the best way to describe the Kodak DC265Z Digital Camera.

412-820-660 899.99



SANDISK COMPACTFLASH MEMORY CARD

10MB 412-221-120 49.99

40MB 412-354-156 129.99



CAMERA CASE

Nylon 412-431-082 14.99

Leather 412-431-091 24.99

1-888-GO-DEPOT

(1-888-463-3768)

Online: www.officedepot.com

AOL Keyword: Office Depot

Software For The New Millennium

Software From Microsoft



\$10
Mail-In
Rebate

404-824.....14.99
(After Rebate)
24.99 - 10.00 Mail-In Rebate = 14.99



\$40
Mail-In
Rebate

968-662.....109.99
(After Rebate)
149.99 - 40.00 Mail-In Rebate = 109.99



973-022.....89.99



\$50
Upgrade
Mail-In
Rebate

915-755.....379.90
(After Upgrade Rebate)
429.90 - 50.00 Upgrade Mail-In
Rebate = 379.90
For existing MS Office users. Proof of
ownership required. See box for details.



\$40
Upgrade
Mail-In
Rebate

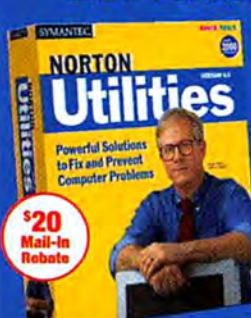
915-700.....189.90
(After Upgrade Rebate)
229.90 - 40.00 Upgrade Mail-In
Rebate = 189.90
For existing MS Office users. Proof of
ownership required. See box for details.

Get Ready For Y2K



\$20
Mail-In
Rebate

404-806.....19.99
(After Rebate)
39.99 - 20.00 Mail-In Rebate = 19.99



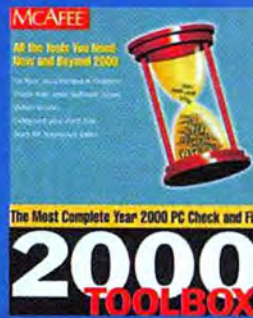
\$20
Mail-In
Rebate

920-320.....29.99
(After Rebate)
49.99 - 20.00 Mail-In Rebate = 29.99



\$20
Mail-In
Rebate

965-932.....39.99
(After Rebate)
59.99 - 20.00 Mail-In Rebate = 39.99



393-113.....19.99



\$20
Mail-In
Rebate

408-465.....29.99
(After Rebate)
49.99 - 20.00 Mail-In Rebate = 29.99

Your One Stop BACK-TO-SCHOOL Headquarters



987-892.....49.99



950-948.....49.99



516-211.....19.99



\$19.99
Mail-In
Rebate

417-115.....FREE
(After Rebate)
19.99 - 19.99 Mail-In Rebate = FREE

Take Control



**LOGITECH WINGMAN
EXTREME DIGITAL**

412-289-157.....39.99



**Microsoft
INTELLIMOUSE
TRACKBALL**

412-972-808.....49.99



**Microsoft
SIDEWINDER PRECISION
PRO JOYSTICK**

412-368-141.....69.99

FREE
Reader Rabbit Software
Instantly With Purchase
Of Any Reader Rabbit Title
Choose From Toddler - 5th Grade



988-784.....29.99



988-347

Offer good with the purchase of any Reader Rabbit software title. Present this coupon at time of purchase. Limit one coupon per customer/item. Quantities limited. Sorry, no rainchecks or substitutions. Valid for in-stock items only. Offer expires 9/30/99. Coupon redeemable in store only. See store for qualifying titles.

Office DEPOT

Coupon Code 7512

Office DEPOT

Software
Available in store only.

new **2.4GHz** digital technology **CORDLESS PHONE SYSTEMS**



Fellows

COMPACT HEADSET MICROPHONE

Makes conversation easy to understand, even in noisy environments

Lightweight, ultra compact headset for use with mobile and cordless phones. Easy-on ear piece for safety and convenience. The headset features a noise cancelling microphone and wide bandwidth receiver. Requires phone with 2.5 mm jack or adapter. Includes a 2-year warranty.

Short Boom 412-903-79549.99

Long Boom 412-903-83949.99

SIEMENS

GIGASET 2402 MULTI-USER CORDLESS 2-LINE SYSTEM FOR HOME OR SMALL OFFICE

New digital technology and 2.4GHz operation

System expandability means the days of buying multiple cordless phones are over. Just add cordless handsets as you need them — up to eight, with no additional jacks required. And up to four handsets may be used simultaneously. Only the Gigaset offers true multi-user capabilities. Make calls to outside parties, call others handset-to-handset or do both at the same time.

Call Waiting/Caller ID†

Call Transfer

Intercom & Conference

Room Monitor

Easy To Install

412-904-311279.99

†Call Waiting/Caller ID service is required from your local telephone company.

ADDITIONAL CORDLESS HANDSET AND CHARGER

412-915-817129.99

**Expandable
Up To 8
Handsets!**
No Additional
Phone Jacks
Required!



SIEMENS

2420 MULTI-USER CORDLESS 2-LINE SYSTEM FOR HOME OR SMALL OFFICE

New digital technology and 2.4GHz operation

This is the ultimate phone system, with the expandability of up to eight cordless handsets in your home or small office. The desk station is the only phone that requires a jack, so there's no additional expense for rewiring or phone jacks; simply plug the charger base into any electrical outlet. Its digital answering machine handles your calls when you're out, and each of the two lines are answered separately. This unique system handles up to five different outgoing messages and 26 minutes of recording. With 2.4GHz, it is the largest frequency on the market with the clearest sound for secure conversations and virtually no interference. 2 AA NiCad batteries included with each handset.

- Call Waiting/Caller ID†
- Digital Speaker Phone
- Call Transfer
- Digital Answering Machine
- Intercom & Conference
- Handset Paging
- Room Monitor
- Easy To Install

412-445-889379.99

(Includes Base Phone, Cordless Handset and Charger)

†Call Waiting/Caller ID service is required from your local telephone company.



Electronics Hands-Free Headset 412-406-127...39.99

Electronics Headset Adapter 412-406-05629.99

1-888-GO-DEPOT

(1-888-463-3768)

Online: www.officedepot.com

AOL Keyword: Office Depot

Office DEPOT®

Low Prices every day.



MOTOROLA
Pagers

PAGERWRITER 2000X

*Designed for the way you work and live.
True 2-way messaging anytime, anywhere*

The Pagerwriter 2000X is the most powerful handheld messaging device known! Stay in touch with the office and your family — send and receive email from the palm of your hand. And with new features like increased memory and an enhanced operating system, it's never been easier to manage your world. Plus the lighted keyboard means you can enter data anytime...day or night. The "X", only from Office Depot, includes the Motorola Productivity Pack and Entertainment Pack — stay organized and play games too!

412-983-431 389.99
Skywriter Basic Pack \$24.95/mo.

FREE
Activation
Courtesy Of
Office Depot
A \$20 Value

Sprint PCS™



NOKIA 6185

Not just a phone: a calendar, alarm clock and calculator all-in-one

This dual band phone gives you the flexibility to make calls on Sprint's PCS Nationwide Network or roam on analog cellular networks. Plus you'll get all the other great features Nokia is known for: voice mail, Caller ID, calendar, alarm clock, calculator, and 32 distinctive ring tones.

412-954-613 179.99



GPS III+ PERSONAL NAVIGATOR

*Street and highway level mapping
in a compact handheld device*

Garmin's® new GPS III+ offers cartographic capabilities formerly found only in high-end automotive navigation and marine chart-plotting units. To add detail to the internal maps, simply plug it into a PC and download data from Garmin's line of MapSource™ CD-ROM's and you've got detailed maps, ideal for street level navigation or exit information. Now you'll always know where to go for food, lodging, gas and more! The GPS III+ also displays your speed, estimated time of arrival and current location on an electronic map of highways and cities. It's the ideal travel companion. Uses AAA batteries (not included).

412-900-495 399.99



NEXTEL® AUTHORIZED REPRESENTATIVE

i1000+ BY MOTOROLA

*A cellular phone with
great business functions*

The i1000+ is an integrated, all-digital cellular phone with business-enhancing features you'll love...text and numeric paging, voice mail, 3-way calling capabilities, Vibra alert, Conference-capable speakerphone and more! The Nextel i1000+ also offers built-in protection from cloning, crosstalk and eavesdropping, wherever you go on the Nextel National Network.

412-995-525 249.99

Prices and offers good 8/15/99 through 9/15/99 (unless otherwise noted). Quantities limited. Offers limited to in-stock only. No rainchecks or substitutions. Rebate forms available in store only.

Wireless products shown are not available in all stores.

4 EASY WAYS TO SHOP

- Call 24 hours a day 1-888-GO-DEPOT (1-888-463-3768)
- Fax 24 hours a day 1-800-685-5010
- Online 24 hours a day www.officedepot.com
- AOL Keyword: Office Depot
- Locate a superstore near you 1-888-GO-DEPOT (1-888-463-3768)

ABSOLUTELY FREE DELIVERY

Order by 5 p.m. your time and we'll deliver your order FREE the next business day. Free next business day delivery available on orders of \$50 or more in most areas. Call for details. Need it faster? You can have your order ready for same-day pickup at any of our 700+ superstores.



LOW PRICE GUARANTEE

It's this simple: If you find the same item advertised locally for less at any other office product supplier - even up to 7 days after you bought it - we'll not only match that price, we'll give you 55% of the difference - Instantly! Just give us the details - And we'll take your word for it! (Maximum \$55 credit. We reserve the right to limit quantities. Of course, Internet offers, ad errors, cellular service close-outs, and clearances do not qualify. In-stock items only.)



YEAR 2000

Everyone needs to know more about the Y2K problem, which will potentially affect old and new computers, software, and business machines. To obtain Y2K compliance information for these products, contact the manufacturer's help line or website. For more information, visit www.officedepot.com, visit our stores, or call 1-800-444-4054.

**LAPTOP COMPUTER CART***Sleek, compact design*

Assembly is required.

412-384-034119.99

**36" DESK, HUTCH AND KEYBOARD TRAY***Perfect for a small home office or dorm room*

Assembly is required.

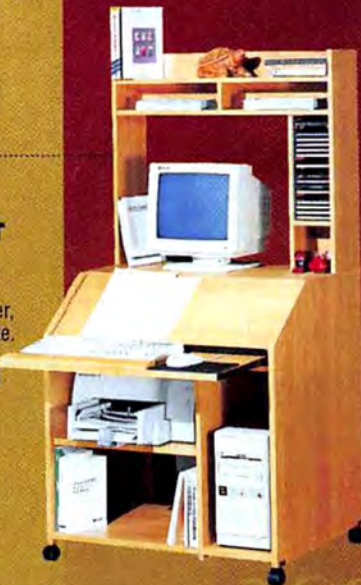
Oak/Black Laminate 412-426-490

Cherry Laminate 412-160-614199.99

**O'SULLIVAN****COMPUTER CART***Slanted desk front to hold paperwork*

Comes in Norwegian alder, oak or black/gray laminate. Assembly is required.

412-156-19299.99

**SAUDER****COMPUTER CART***Brings easy mobility to your computer*

Assembly is required.

Fruitwood Laminate 412-323-190

Cherry Laminate 412-323-181129.99

**ERGONOMIC CHAIR***Sculptured seat and back cushions provide support in all the correct places*

Burgundy 412-527-283

Gray 412-527-275

Blue 412-527-26799.99

**HIGH STYLE PNEUMATIC TASK CHAIR***Task chair features pneumatic seat height, depth and back angle adjustment*

Green 412-866-418

Cream 412-715-02979.99

**CHENILLE TASK CHAIR***Soft and supple chenille will provide hours of comfort*

Gray 412-178-169

Blue 412-178-19639.99

**FURNITURE AT WORK® EXECUTIVE LEATHER CHAIR***Built-in lumbar support for added comfort*

Features 5-star base for easy mobility and durability. Pneumatic lift and tilt-lock, plus four-point arms for added stability. Its solid steel frame is rated for up to 350 pounds.

412-141-50099.99

**HON****MANAGERIAL MEMORY FOAM CHAIR***Features distinctive "Euro" styling and uniquely sculpted arms*

Upper layer of visco-elastic memory foam conforms to the body's contours to relieve pressure points. Inner layer of super resilient foam holds its shape and provides superior overall support.

Black 412-370-995

Gray 412-371-002149.99

**POSTURTECH II***High back design relieves lower back pressure*

This multifunctional chair is designed for intensive use. Features include knee tilt mechanism, built-in lumbar support, height adjustable arms and back angle adjustment.

Black 412-632-620

Gray 412-513-846299.99

**1-888-GO-DEPOT**

(1-888-463-3768)

Online: www.office depot.com

AOL Keyword: Office Depot

Personalize Your Own Office Design



OFFICE ADVANTAGE SYSTEM

This versatile system features durable 1" thick melamine work surfaces in a non-glare, scratch and water resistant white spectrum and pewter finish. The system's rubberized edge molding is dent resistant. Functional and modular components are sold separately. Assembly is required

(A) 36" Desk, Gray 412-159-073	149.99
(B) 36" Hutch, Gray 412-159-082	199.99
(C) 48" Desk, Gray 412-159-091	149.99

(D) 48" Hutch, Gray 412-160-212	249.99
(E) Corner Desk, Gray 412-159-064	199.99
(F) Corner Hutch, Gray 412-160-249	379.99
(G) Corner Connector, Gray 412-160-294	69.99
(H) Peninsula, Gray 412-160-588	169.99
(I) Center Drawer, Gray 412-160-542	69.99
(J) Keyboard Shelf, Gray 412-160-490	59.99
(K) 3-Drawer File, Gray 412-160-604	189.99
(L) Lateral File, Gray 412-160-613	299.99
(M) Reference Table, Gray 412-426-631	199.99
(N) 42" Round Conference Table, Pewter 412-426-855	149.99

Office DEPOT®

TOP 100

204 Power Desktops



210 Budget Desktops



216 Notebooks



220 Home PCs



231 Printers



235 Monitors



237 Graphics Boards



239 Modems

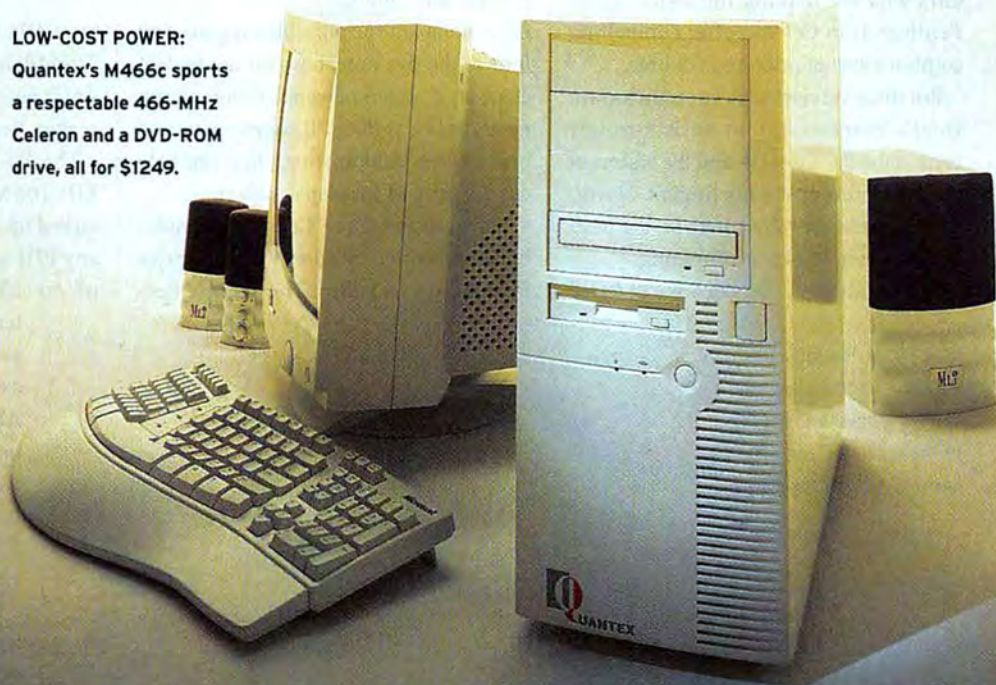


The Cheap Get Cheaper, The Fast Get Faster

By Andrew Brandt and Alan Stafford

LOW-COST POWER:

Quantex's M466c sports a respectable 466-MHz Celeron and a DVD-ROM drive, all for \$1249.



IT'S A CYCLE OF EVENTS AS predictable as the passing of seasons: Intel releases a faster processor, and systems with the previous flavor-of-the-month CPU migrate from our power to our budget chart. But in recent months that ripple effect has turned into a tsunami, with ever more powerful systems getting ▶

swept up in a tide of price cuts. That means good fishing for PC consumers who must stick to a budget.

The rate at which former power desktops systems wash up on the beach of our budget chart is astounding. Price cuts of early-release Pentium III systems have pushed many Pentium III-450 PCs below our price cutoff for the budget chart. The result: nearly half of the PCs on this month's budget chart, and three of the Best Buys (one a 500-MHz system) use Intel's high-performance, multimedia-enhanced Pentium III processor.

CELERON AND PIII PLAY CHICKEN

SO, WHAT OF Celeron, Intel's black-sheep chip designed for low-cost computers? About a quarter of our budget desktops contain Celerons in speeds ranging from 366 to 466 MHz (though PCs based on the slowest Celeron may disappear soon). With prices starting at around \$1000 for many of these systems, the vendors who are making the switch from Pentium II to Celeron offer compelling combinations of price and features.

But those vendors may be on their own: Intel's marketing muscle is strongly behind the Pentium III, and the stigma of early Celeron problems lingers. Nevertheless, Celeron values may be the best-kept secret in low-cost computing.

Our numbers tell the story. We've tested

two systems with brand-new Celeron-466 processors, and 18 with Pentium III-450. The Celeron systems average a PC WorldBench score of 210, while the PIII PCs earned an average of 231—or about 10 percent faster. But those Celerons perform speedily enough for every business application (save for graphics, which put the squeeze on CPUs).

The real difference is the price: the average Celeron PC costs \$1300, compared to \$1800 for a PIII-450. For most businesses, such a price difference—38 percent—can make the difference between a big sale and a passing fancy. So the real story is that PIIIs offer a moderate performance gain, but Celeron-based PCs still provide the best value for average business users.

The Celeron seems to be an even better-kept secret in notebook PCs. We receive relatively few Celeron-equipped laptop computers, but Celeron's price bonanza for portables means that four of the five notebooks on the budget chart are Celeron-powered. Celerons run nearly as fast as their PII counterparts and cost far less. And anything that can help cut the price of a laptop is welcome.

We've tested three Celeron-333 notebooks recently, and they range in price from \$1499 to \$1899. The average Pen-

tium II-333 notebook costs nearly \$1000 more, and offers a speed boost of a barely noticeable 4 percent. Faster Celerons are also strong values: Micron's TransPort Trek2, which debuts in fifth place on the budget chart, packs the newest laptop-version Celeron-400 but costs just \$2299. For more information about new notebooks, see *Top 10 Notebooks*, page 224.

ALTERNATIVE CHIPS STILL FIGHTING FOR TURF

ADVANCED MICRO DEVICES may be a marketing also-ran, but it's starting to take the lead in the performance race. Some of the latest versions of its K6-2 and K6-III CPUs beat faster-rated Celerons and Pen-

The real story is that Pentium IIIs offer a moderate performance gain, but Celeron-based PCs still provide the best value for average business users.

tium IIIs by a significant margin in PC WorldBench tests, and like the Celeron, AMD processors are significantly cheaper than Pentium IIIs.

The K6-III-400-equipped Enthusiast KIII-400A from Cybermax, for example, racked up a faster WorldBench score than any PIII-450 system running Windows 98 on either chart. And the K6-III sys-

tems tend to fall around the same price point as Celeron systems. If early reports are any indication, AMD's new K7 processor could beat the Pentium III in performance tests by an even wider margin. For more on the AMD K7, see this month's *Top of the News*, page 56.

Intel's response to this challenge should be simple: The flurry of non-Pentium systems that beat PIIIs in both price and performance will push down the prices of low-end PIII chips—possibly to Celeron levels. As Celeron, K6, and K7 PCs continue to lower the price bar, PIII systems will trail them closely.

COMPAQ'S Prosignia Desktop 330 PIII-550 bundles Intel's fastest processor, a great 19-inch monitor, and Altec Lansing ACS46 speakers.



500 IS THE MAGIC NUMBER

THE POWER CHART IS still heavily dominated by Pentium III-500s—four of the five Best Buys have that CPU—and for good reason. With an average price of around \$2250, the typical PIII-500 system costs over \$300 less than a 550-MHz PC. For now, then, PIII-500s give power users the best available combination of performance and economy.

Price cuts also helped last month's Best Buys hang on to their top positions, but a few of the new systems we tested turned our heads. For example, Midwest Micro's Business Solution XPP-550, running Windows NT 4.0, turned in the second-fastest PC World-Bench score ever. At \$2149, the XPP-550 also includes both a 56-kbps modem and network interface card.

We also received a system this month that broke the Windows 98 performance record. Compaq's \$2688 Prosignia Desktop 330 PIII-550 is pricey, but includes a larger-than-average monitor, 32MB graphics adapter, a leviathan 22GB hard drive, and the fastest-rated CD-ROM drive you can get—12X-52X. In ninth place on our Power chart, the new \$2499 SM500 from Quantex sports both DVD-ROM and CD-Rewritable drives for media mavens.

High-end PCs can still be in the \$2500 to \$3000 range, but the average price of a Top 20 power desktop is only \$2280. As with budget desktops, the price floor is quickly falling out from underneath power systems. Soon, even the most stalwart top-end corporate workstation might be available for less than \$2000.

FLAT-OUT FANTASTIC MONITORS

OUR TOP 10 MONITORS chart features a flurry of new 19-inch units with extremely flat screens. These new monitors—built around Diamondtron NF tubes—are sharper and clearer than conventional displays with curved faces. Both Best Buy 19-inch monitors, as well as Iiyama's eighth-

place ViewSonic PT795 (below) and fellow chart-makers Iiyama, Mitsubishi, and NEC all use ruler-flat Diamondtron NF tubes, which are sharper and clearer than conventional tubes.



place VisionMaster Pro 450 and NEC's fifth-place MultiSync FP950, feature the new technology, and they turned in exceptional text and graphics. Expect to pay a premium, however: Prices for 19-inch flat CRT models are hovering around \$700, while those for standard 19-inch monitors are dropping below \$500.

If you're looking for lots of screen real estate at a moderate price, there are great values in conventional displays for under \$600. Dell's Ultrascan P990 (with a Sony Trinitron tube) produces colorful graphics and text for just \$549. Samsung's SyncMaster 900SL, another new unit we tested this month, offers business users sharp text for \$569, but may not be the best choice for graphics users. Iiyama's Vision Master 450 is a reasonably good 19-inch display that costs only \$459.

Andrew Brandt is an associate editor and Alan Stafford a senior associate editor for PC World. Senior Associate Editors Vince Bielski, Cameron Heffernan, and Karen Silver; Associate Editors Michelle Campanale-Surkan and Acife McEvoy; Staff Editors Grace Aquino and Mick Lockey; and Assistant Editor Kalai Murugesan contributed to the Top 100. Testing by Ulrike Diehlmann, Robert James, Elliott Kirschling, Jeff Kuta, Nancy Miller, and Mike Salayko of the PC World Test Center. See page 14 for contact information. ►

YOUR GUIDE TO THE TOP 100

QUESTIONS ABOUT OUR CHARTS? The following section should answer most of them.

How do the charts work? The Top 20 and Top 10 charts are evolving lists of the best PCs, printers, monitors, graphics boards, and modems that we've tested. System charts are divided by price. Power desktops cost \$1800 or more; power notebooks cost \$2300 or more. We compare new products to previously reviewed hardware, updating the charts to reflect price cuts and other changes.

Where do you get your prices? We estimate street prices based on vendor information and our own research, including surveys of retail outlets. We recheck all prices every month.

What does the overall rating mean? This 100-point scale reflects results from our hands-on evaluations and performance tests. A score in the 90s is exceptional, while one in the 80s is among the best and one in the 70s above average.





What does the PC WorldBench 98 score mean? It's a measure of how fast a PC is in relation to our baseline machine, a Gateway PMMX-200 configured with 32MB of RAM, a 2GB hard drive, and 512KB of secondary cache. A PC that scores 200, for instance, is twice as fast as the baseline system.

Where do the scores for reliability, support quality, and support policies come from? Reliability and support quality scores are based on surveys of PC World readers and anonymous support calls made by PC World staff. The policies score is based on vendor support policies.

What do all those word scores mean? Word scores for performance and price are based on a product's rating in relation to other products in its category. For instance, we score the performance of Windows NT PCs separately from that of Windows 95 machines. (Based on our PC WorldBench 98 tests, Windows NT machines are faster on average than Win 95 PCs.)

Check out PC World's Top 400 reviews online. Point your browser to PC World Online (www.pcworld.com/top400) to explore our Top 400, which provides comprehensive reviews and ratings for products in 16 different categories. You'll also find reviews not available in print.

TOP 20 POWER DESKTOPS

	SYSTEM	Last month	Month tested	Street price (6/4/99)	CPU	Comments
1	 Dell Dimension XPS T550 800/388-8542 www.dell.com	1	Aug 99	\$2579	Pentium III-550	SOHO screamer with CD-RW drive and 250MB Zip drive sheds \$80.
2	 Gateway E-4200 500 800/315-2536 www.gateway.com	3	Apr 99	\$2405	Pentium III-500	Network-managed corporate system gets \$224 price cut.
3	 Dell OptiPlex GX1p 500 800/388-8542 www.dell.com	2	June 99	\$2519	Pentium III-500	Corporate PC has speed, strong features and design, and top reliability rating.
4	 Micron Millennia Max 500 888/634-8799 www.micronpc.com	6	Apr 99	\$2415	Pentium III-500	Speedy SOHO PC with 22GB hard drive and 6X DVD-ROM drive costs \$368 less.
5	 CyberMax Enthusiast 500 888/402-1515 www.cybermaxpc.com	4	May 99	\$1899	Pentium III-500	Fast, low-cost system includes sharp 19-inch monitor.
6	Compaq Prosignia Desktop 330 PIII-550 800/345-1518 www.compaq.com	n/a	NEW	\$2688	Pentium III-550	Top Windows 98 performer includes 19-inch monitor and Iomega Zip 250 drive.
7	MidWest Micro Business Solution XPP-450 800/728-8582 www.mwmicro.com	7	Aug 99	\$1819	Pentium III-450	Inexpensive; sports LS-120 drive, ergonomic keyboard; sound is mediocre.
8	NEC PowerMate VT 300 888/632-8701 www.nec-computers.com	8	Aug 99	\$2113	Pentium III-500	Sparkling display, great support, and a low price tag on this robust SOHO unit.
9	Quantex SM500 800/896-4898 www.quantex.com	n/a	NEW	\$2499	Pentium III-500	Pricy for its class, but includes both DVD-ROM and CD-RW drives.
10	IDot.com 500P3BX 888/388-4368 www.idot.com	9	July 99	\$2098	Pentium III-500	\$76 trimmed from fast SOHO PC with 4.8X DVD-ROM drive and 14.4GB hard drive.
11	MidWest Micro Business Solution XPP-550 800/728-8582 www.mwmicro.com	n/a	NEW	\$2149	Pentium III-550	Fairly inexpensive Windows NT workstation has V.90 modem and network card.
12	Sys Performance AX-500P3 800/613-9963 www.sys.com	13	May 99	\$2099	Pentium III-500	Feature-rich NT PC now \$200 less, but documentation and support need work.
13	NEC PowerMate 8100 888/632-8701 www.nec-computers.com	11	Jan 99	\$1978	Pentium II-450	Inexpensive corporate PC drops \$91 in price and comes with network card.
14	IBM PC 300PL 800/772-2227 www.ibm.com/ibmpc	14	Aug 99	\$2595	Pentium III-500	Corporate PC sheds \$110, has Zip drive, 20.4GB hard drive, 19-inch monitor.
15	Acma ZPower 8500 PIII-500 800/786-6888 www.acma.com	15	Aug 99	\$1978	Pentium III-500	Low-priced business PC drops \$121, but is sluggish for its class.
16	Compaq Deskpro EN 6450+ 800/345-1518 www.compaq.com	16	Aug 99	\$2754	Pentium III-450	Expensive managed PC now \$128 less; loads of features, innovative design.
17	Compaq Deskpro EN 6500+ 800/345-1518 www.compaq.com	n/a	May 99	\$2423	Pentium III-500	Fast, networkable PC has \$203 price cut; support quality could be better.
18	Xi Computer 500 MTower SP 800/432-0486 www.xicomputer.com	n/a	July 99	\$1949	Pentium III-500	Expandable Windows NT workstation is fast but lacks high-quality support.
19	CompUSA AmericanPro 500 888/226-6772 www.compusera.com	n/a	Apr 99	\$2499	Pentium III-500	\$150 off quick business PC with good sound, a Zip drive, and a 19-inch monitor.
20	Tagram ThunderBolt H2810 800/824-7267 www.tagram.com	n/a	July 99	\$2149	Pentium III-500	A price drop of \$850 since July brings this quick desktop onto the chart.



Best Buy

See features chart, page 206; test report, page 208.

Find updated street prices online (www.pcworld.com/powerdesktops/late_prices).

n/a = not applicable

¹A system's performance word score is relative to the scores of other PCs running the same operating system. For more details see "Your Guide to the Top 100" on page 203.

²For more information about all of the products listed in this table, select product info number 901 or visit www.pcworld.com/productinfo.



MANY HIGH-PERFORMANCE PCs cost less this month, thanks to Intel's price drops on its Pentium III chips. Gateway trimmed \$224 off its second-place E-4200 500, and Compaq cut \$203 from the price of its Deskpro EN 6500+ system. The reigning power desktops champ, Dell's Dimension XPS T550, holds on to the top spot with a blazing PC WorldBench 98 score (running Windows NT) and a modest \$80 price reduction. And MidWest Micro's \$2149 Business Solution XPP-550 joins the chart as the least-expensive PIII-550 system here. Meanwhile, many vendors have started including removable-storage drives in their standard configurations; Iomega Zip drives are the norm, but CD-RW popularity is growing.

SCORECARD

★ Overall rating	PC WorldBench 98/operating system	Performance ¹	Features and design	Vendor's system reliability	Price	Vendor's support quality/policies	Product info number ²
96	309/Win NT 4.0	Outstanding	Very good	Outstanding	Average	Good/Good	—
93	235/Win 98	Outstanding	Very good	Good	Average	Good/Outstanding	637
92	284/Win NT 4.0	Very good	Very good	Outstanding	Average	Good/Outstanding	—
91	237/Win 98	Outstanding	Very good	Good	Average	Fair/Good	638
89	236/Win 98	Outstanding	Very good	Fair ²	Very inexpensive	Fair ² /Good	639
86	246/Win 98	Outstanding	Very good	Fair	Expensive	Fair/Good	640
86	261/Win NT 4.0	Good	Very good	²	Very inexpensive	Fair ² /Outstanding	641
85	231/Win 98	Outstanding	Good	Good	Inexpensive	Good ² /Outstanding	642
84	226/Win 98	Very good	Outstanding	²	Average	Good ² /Good	643
84	232/Win 98	Outstanding	Very good	²	Inexpensive	Fair ² /Good	644
83	300/Win NT 4.0	Outstanding	Good	²	Inexpensive	Fair ² /Outstanding	645
83	287/Win NT 4.0	Very good	Very good	²	Inexpensive	Fair ² /Good	646
82	218/Win 95	Good	Good	Good	Inexpensive	Good ² /Outstanding	647
80	232/Win 98	Outstanding	Good	Good	Expensive	Good/Good	—
80	218/Win 98	Good	Very good	²	Inexpensive	Good ² /Good	648
79	268/Win NT 4.0	Good	Very good	Fair	Expensive	Fair/Good	649
79	232/Win 98	Outstanding	Good	Fair	Average	Fair/Good	650
79	277/Win NT 4.0	Very good	Good	²	Very inexpensive	Fair ² /Good	651
76	230/Win 98	Outstanding	Very good	²	Average	Fair ² /Good	652
76	234/Win 98	Outstanding	Very good	²	Inexpensive	Fair ² /Poor	653
Scorecard weightings ▶		Performance 25 percent	Features 25 percent	Reliability 15 percent	Price 15 percent	Quality/policies 10 percent each	

¹ Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs.

² Due to insufficient data from the Reliability and Service survey for the vendor's work PCs, this rating is derived from anonymous support-quality calls, from survey scores for the vendor's home PCs, or from both.

This Month's Best Buys

1 DELL DIMENSION XPS T550

PRO: Superfast performance, includes CD-RW and 250MB Iomega Zip drives

CON: Mediocre keyboard and entry-level speakers



There's no question why Dell's 550-MHz Dimension XPS T550 is top dog on our power desktops

chart for the second month in a row. Its PC WorldBench 98 score of 309 set a Windows NT 4.0 speed record and beats the score of its closest competitor, Midwest Micro's Business Solution XPP-550, by 9 points. The system's truckload of features includes not one but two removable-storage devices: an Iomega Zip 250 drive and a 2X CD-Rewritable drive. Even with both units installed, the Dimension XPS

T550's spacious and easy-to-open case still has three open drive bays for future upgrades.

A system this high on the food chain **Dell Dimension XPS T550** normally features top-of-the-line sound. Instead, Dell paired Yamaha's powerful XG Wavetable sound chip with good—but entry-level—Harman/Kardon speakers. The keyboard also feels a bit flimsy.

Dell garnered top honors in PC World's recent Reliability and Service survey, in which our readers rated the reliability of Dell PCs as Outstanding. Based on our anonymous support calls, Dell's staff continues to give accurate, though not effusive, advice. In addition, Dell offers good service and support policies, including a three-year parts/one-year labor warranty and free 24-hour support.

2 GATEWAY E-4200 500

PRO: Great speed, good management features

CON: Still pricey when compared to similar PCs



After a \$224 price cut, Gateway's imposingly tall and wide E-4200 500 no longer remains one of the most expensive PIII-500 machines on the power chart. The \$2405 midsize tower's many other assets easily qualify it as one of our top choices for offices seeking a power-packed, multimedia-equipped business workstation.

Besides bearing corporate accoutrements like an ethernet card and DMI software, the E-4200 500 delivers top-notch performance and an excellent audiovisual experience. Its PC WorldBench 98 score of 235 puts it in a dead heat with the other two Best Buys that run on Windows 98.

The system's ATI Rage 128GL graphics card helps the 19-inch Gateway monitor display images vividly, and the Altec Lansing GCS100 speakers and subwoofer offer rich sound. Gateway supplies excellent documentation, and the company's record for reliability and service in support of its office PCs remains strong. ▶



Gateway E-4200 500

	SYSTEM	CPU	Operating system	RAM (MB)	Level 2 cache (KB)	Hard drive (GB)	Graphics adapter (AGP unless noted)	Video RAM (MB/type)	Monitor tube/viewable diagonal (inches)	56-kbps modem protocol
1	Dell Dimension XPS T550*	Pentium III-550	Windows NT 4.0	128	512	20	Diamond Viper TNT 3D	16/SDRAM	17/15.8	V.90
2	Gateway E-4200 500*	Pentium III-500	Windows 98	128	512	22	ATI Rage 128GL	16/SDRAM	19/18	Not included
3	Dell OptiPlex GX1p 500*	Pentium III-500	Windows NT 4.0	128	512	20	STB NVidia TNT (PCI)	16/SDRAM	17/15.9	Not included
4	Micron Millennia Max 500*	Pentium III-500	Windows 98	128	512	22	Diamond Viper V550	16/SDRAM	19/17.9	V.90
5	CyberMax Enthusiast 500*	Pentium III-500	Windows 98	128	512	13.6	STB Velocity 4400	16/SDRAM	19/17.9	V.90
6	Compaq Prosignia 330 PIII-550	Pentium III-550	Windows 98	128	512	22	Diamond Viper V770	32/SDRAM	19/18.5	V.90
7	MidWest Micro Business XPP-450	Pentium III-450	Windows NT 4.0	128	512	13	ATI Rage Fury	32/SDRAM	17/16	V.90
8	NEC PowerMate VT 300	Pentium III-500	Windows 98	128	512	13	Diamond Viper V550	16/SDRAM	17/16	V.90
9	Quantex SM500	Pentium III-500	Windows 98	256	512	17	ATI Rage Fury	32/SDRAM	19/17.9	V.90
10	IDot.com 500P3BX	Pentium III-500	Windows 98	128	512	14.4	Creative Graphics Blaster RIVA TNT	16/SDRAM	17/15.8	V.90
11	MidWest Micro Business XPP-550	Pentium III-550	Windows NT 4.0	128	512	13.6	ATI Rage 128	16/SDRAM	17/15.9	V.90
12	Sys Performance AX-500P3	Pentium III-500	Windows NT 4.0	128	512	10.1	Matrox Millennium G200	8/SGRAM	19/17.9	Not included
13	NEC PowerMate 8100	Pentium II-450	Windows 95	64	512	14.4	Accel Graphics AccelStar 3D II	8/SDRAM	17/15	Not included
14	IBM PC 300PL	Pentium III-500	Windows 98	128	512	20.4	STB Velocity 4400	16/SDRAM	19/17.8	Not included
15	Acma ZPower 8500 PIII-500	Pentium III-500	Windows 98	128	512	16.8	STB Velocity 4400	4/SGRAM	19/18	Not included
16	Compaq Deskpro EN 6450+	Pentium III-450	Windows NT 4.0	128	512	22.7	Matrox Millennium G200	16/SGRAM	19/17.9	Not included
17	Compaq Deskpro EN 6500+	Pentium III-500	Windows 98	128	512	14.4	STB Velocity 4400	16/SDRAM	17/15.9	Not included
18	Xi Computer 500 MTower SP	Pentium III-500	Windows NT 4.0	128	512	17.2	Matrox Mystique G200	16/SGRAM	17/16	V.90
19	CompUSA AmericanPro 500	Pentium III-500	Windows 98	128	512	14.4	STB Velocity 4400	16/SDRAM	19/17.6	V.90
20	Tagram ThunderBolt H2810	Pentium III-500	Windows 98	256	512	14	Diamond Viper V550	16/SDRAM	19/18	V.90

* Best Buy

† Configuration as tested. Vendor may have since changed components.

‡ PC World defines vertically oriented cases as towers (taller than 20 inches), midtowers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontally oriented cases as desktop (5 inches or taller) or compact (shorter than 5 inches).

Price-conscious buyers should consider the PIII-450 version of the E-4200. At \$1905, it costs \$500 less than this model, and it includes the same massive 22GB hard drive; it also chalked up a creditable PC WorldBench 98 score of 220.

3 DELL OPTIPLEX GX1P 500

PRO: Good performance, easy-access case, top-notch company reliability and support policies

CON: PCI-based graphics, so-so monitor



If you are looking for a high-performance corporate system, then put Dell's \$2519 OptiPlex GX1p 500 on your shopping list. For fast upgrades or repairs, the case's side panels lift off quickly, and you can easily pull out the card-slot tray for board-swapping.

Our test machine bundled Microsoft's

Natural Keyboard, whose keys are arranged for ergonomically proper positioning of your hands and arms during typing. Though we found it comfortable to use and reasonably easy to adjust to, the layout won't please everybody; you should definitely test-drive a Natural Keyboard before purchasing one.

Besides a whopping 20GB hard drive, you also get a 100MB Zip drive. The system offers six open slots—plenty of room for additional adapters—but a scant two open drive bays. In keeping with the OptiPlex line's corporate focus, a network interface card comes standard on the GX1p; for \$89 more you can opt for an Aztech Rockwell V.90 modem instead.

The unit's only significant flaw is the 17-inch Dell 1028L monitor, which produced somewhat dark images and slightly fuzzy text. Upgrading to the superior 19-inch Dell UltraScan 1200HS costs about \$200.

Setting up the OptiPlex is straightforward. Thanks to color-coded ports, devices are a snap to hook up. Dell's documentation—surprisingly detailed for a corporate machine—consists of user guides for all the peripherals, an in-depth system installation manual, and a guide to assist you once you're up and running. Respondents to our most recent survey give the company Outstanding marks for reliability; its service, while not perfect, still ranks among the best in the industry.



Dell OptiPlex GX1p 500

EXPANDABILITY

CUSTOMER SUPPORT

CD/DVD-ROM drive speed	Sound board
2X CD-RW	Yamaha XG WaveTable Sound
13X-32X	Sound Blaster AWE64D
17X-40X	Integrated Crystal Audio
6X DVD-ROM	Sound Blaster Live Value
4.8X DVD-ROM	Aztech PCI 338-A3D
12X-52X	Sound Blaster Live Value
17X-40X	Sound Blaster PCI128
14X-32X	Integrated Sound Blaster Audio
4.8X DVD-ROM	Aureal Vortex2
4.8X DVD-ROM	Turtle Beach Montego II PCI
17X-40X	Sound Blaster PCI128
14X-40X	Sound Blaster AWE64
17X-40X	Integrated Crystal 4235
17X-40X	Integrated Crystal Audio
24X-40X	Integrated Yamaha DSI-L
12X-52X	Integrated ESS 1869
14X-40X	Integrated ESS 1869
12X-40X	Sound Blaster PCI128
5X DVD-ROM	Sound Blaster Live
14X-40X	Yamaha DS-XG PCI Audio

Case style ²	Max. RAM (MB)	Open RAM sockets	Open drive bays (ext./int.)	Open slots
Midtower	768	2	2/1	4
Midtower	384	2	3/2	2
Midtower	768	2	1/1	6
Midtower	384	2	2/1	3
Midtower	384	1	3/3	4
Midtower	384	2	0/1	3
Midtower	768	2	3/1	2
Minotower	256	1	1/1	3
Midtower	384	1	2/3	4
Midtower	1024	3	3/0	3
Midtower	768	2	2/1	1
Midtower	1024	3	3/2	4
Midtower	384	2	2/1	5
Midtower	384	2	1/1	5
Midtower	384	2	2/1	4
Midtower	384	2	2/0	5
Desktop	384	2	1/0	3
Midtower	1024	3	3/0	1
Midtower	768	2	2/1	3
Midtower	1024	2	1/1	3

Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
3/1	24	Sat, Sun	AOL, BBS, CIS, MSN, WWW
3/3	24	Sat, Sun	AOL, BBS, CIS, MSN, WWW
3/3	24	Sat, Sun	AOL, BBS, CIS, MSN, WWW
Varies ¹ /3	24	Sat, Sun	BBS, CIS, WWW
3/1	24	Sat, Sun	BBS, WWW
3/1	24	Sat, Sun	AOL, BBS, CIS, Prodigy, WWW
Varies ¹ /3	24	Sat, Sun	BBS, WWW
3/3	24	Sat, Sun	AOL, BBS, CIS, MSN, WWW
3/1	24	Sat, Sun	BBS, WWW
Varies ¹ /3	24	Sat, Sun	WWW
Varies ¹ /3	24	Sat, Sun	BBS, WWW
Varies ¹ /5	24	Sat, Sun	WWW
3/3	24 ³	Sat, Sun	AOL, BBS, CIS, MSN, WWW
3/1	24	Sat, Sun	AOL, BBS, CIS, WWW
3/1	24	Sat, Sun	BBS, WWW
3/1	24	Sat, Sun	AOL, BBS, CIS, WWW
3/1	24	Sat, Sun	AOL, BBS, CIS, WWW
3/3	24	Sat, Sun	WWW
Varies ¹ /1	24	Sat, Sun	WWW
3/1	9	None	BBS, WWW

² Five years on CPU and main RAM, three years on other parts.

⁴ Six years on CPU and main RAM, three years on other parts.

¹ Toll-free tech support limited to three years.

³ One year on monitor, three years on other parts.

4 MICRON MILLENNIA MAX 500

PRO: Blazing speed, 6X DVD-ROM drive

CON: Still rather expensive despite huge price cut



If you crave speed, check out Micron's Millennia Max 500, still one of the fastest Win 98 systems on the chart. Micron slashed \$368 from the price, and the feature-rich system comes with a 100MB Iomega Zip drive; a crisp, bright 19-inch monitor; and one of the few 6X DVD-ROM drives we've seen. However, PC World subscribers have rated Micron's support quality as just Fair.

The Max 500's multimedia capabilities impressed us. Our unit's Diamond Viper V550 graphics card—although no longer listed on our *Top 10 Graphics Boards* chart—is still a fine performer. The Monsoon MM1000's combination of a mas-

sive subwoofer and satellite speakers produces a rich, full range of tones.

Micron provides comprehensive documentation with the Max 500, as well as solid warranties that cover labor and most parts for three years (and main RAM and CPU for five years).

5 CYBERMAX ENTHUSIAST 500

PRO: Terrific performance, competitive price, attractive features

CON: Cover tricky to remove, technical support difficult to reach



CyberMax's speedy small-office/home-office entry slips from fourth to fifth place this month. This \$1899 midsize tower remains a top



Micron Millennia Max 500

contender in test-suite performance among the Windows 98 systems on the chart and is priced exceptionally well for a full-featured Pentium III-500 computer. Only the vendor's reliability and service ratings keep the Enthusiast from ranking higher.

Its 236 score on PC WorldBench 98 puts the Enthusiast only a point below our fastest PIII-500 PC running Windows 98, Micron's Millennia Max 500, and no one will be able to detect a whit of speed difference between these two PCs. The Enthusiast offers so much power that, even with several applications running in the background and without a dedicated MPEG decoder board, DVD movie ▶

images appear both vibrant and silky smooth. We played the movie *Twister* at full-screen size with no problem. The included Altec Lansing ADA305 Digital PowerCube speakers and subwoofer's great sound made the tornado in the movie sound frighteningly true to life.

CyberMax also supplies a generous software bundle that includes Corel's WordPerfect Suite 8 and such useful reference titles as Compton's World Atlas and Encyclopedia.

We had to fiddle a bit with the Enthusiast's case cover to remove it, but the system's interior layout is good, providing easy access to memory slots and sensibly organized cables. CyberMax includes clear documentation with the PC, and like most companies in the Top 20, it backs its systems with a long parts warranty and around-the-clock support.

However, the quality of CyberMax's



CyberMax Enthusiast 500

phone support was lackluster. In our anonymous calls, reps—though courteous and informative—tended to miss our tougher questions. We also waited up to 55 minutes on hold, and had to call three times before reaching a live person.

In our recent Reliability and Service survey, *PC World* readers rated the reliability of CyberMax's home PCs as Fair and the quality of the company's support as Good.

TOP 20 POWER DESKTOPS

TEST REPORT

	SYSTEM	CPU	Operating system	RAM (MB)	Level 2 cache (KB)	PC World-Bench 98 score	Faster	Average of all tested Pentium III-500s ¹
1	Dell Dimension XPS T550*	Pentium III-550	Win NT 4.0	128	512	309		
2	Gateway E-4200 500*	Pentium III-500	Win 98	128	512	235		
3	Dell OptiPlex GX1p 500*	Pentium III-500	Win NT 4.0	128	512	284		
4	Micron Millennia Max 500*	Pentium III-500	Win 98	128	512	237		
5	CyberMax Enthusiast 500*	Pentium III-500	Win 98	128	512	236		
6	Compaq Prosignia 330 PIII-550	Pentium III-550	Win 98	128	512	246		
7	MidWest Micro Business XPP-450	Pentium III-450	Win NT 4.0	128	512	261		
8	NEC PowerMate VT 300	Pentium III-500	Win 98	128	512	231		
9	Quantex SM500	Pentium III-500	Win 98	256	512	226		
10	IDot.com 500P3BX	Pentium III-500	Win 98	128	512	232		
11	MidWest Micro Business XPP-550	Pentium III-550	Win NT 4.0	128	512	300		
12	Sys Performance AX-500P3	Pentium III-500	Win NT 4.0	128	512	287		
13	NEC PowerMate 8100	Pentium II-450	Win 95	64	512	218		
14	IBM PC 300 PL	Pentium III-500	Win 98	128	512	232		
15	Acma ZPower 8500 PIII-500	Pentium III-500	Win 98	128	512	218		
16	Compaq Deskpro EN 6450+	Pentium III-450	Win NT 4.0	128	512	268		
17	Compaq Deskpro EN 6500+	Pentium III-500	Win 98	128	512	232		
18	Xi Computer 500 MTower SP	Pentium III-500	Win NT 4.0	128	512	277		
19	CompUSA AmericanPro 500	Pentium III-500	Win 98	128	512	230		
20	Tagram ThunderBolt H2810	Pentium III-500	Win 98	256	512	234		

*Best Buy

Application test times in minutes

0 5 10 15 20

Word 97 Word Pro 97 Excel 97 1-2-3 97 Paradox 8.0 Picture Publisher 7.0

TEST HOW WE TEST All systems are tested with PC WorldBench 98, *PC World's* application-based benchmark. A higher PC WorldBench score is better. All PCs are tested with Windows 95, Windows 98, or Windows NT 4.0, and video resolution is set to 800 by 600 in 65,536 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench 98 score is a sum of the weighted, normalized result of each script: Word 97 (10 percent), Word Pro 97 (10 percent), Excel 97 (20 percent), 1-2-3 97 (20 percent), Paradox 8.0 (20 percent), and Picture Publisher 7.0 (20 percent). For more details on our benchmark and how we run it, see *PC World Online* (www.pcworld.com/testing). ¹Under Windows 98 with 128MB of RAM; also includes systems tested in this and previous months that do not currently rank among the Top 20.

New This Month

The following systems made our power desktops chart for the first time this month. For brief reviews of all previously tested machines on the chart, visit our Web page (www.pcworld.com/top400).

6 COMPAQ PROSIGNIA DESKTOP 330 PIII-550

PRO: Excellent monitor, good software bundle, included Iomega Zip 250 drive

CON: Loose floppy drive faceplate and eject button, unlabeled rear ports

Compaq's new Prosignia Desktop 330 offers speedy performance and a large array of extra features for the money. As the chart's only PIII-550 system running Windows 98, the PC earned the highest PC WorldBench 98 score for a Win 98 machine to date. You also get a built-in Iomega Zip 250 drive and Microsoft's Office 97 suite to help sweeten the deal.

The system's 19-inch Compaq S900 monitor remains crisp even when displaying small text—all the way up to its maximum resolution of 1600 by 1200, and the Diamond Viper V770 graphics board provides plenty of 2D and 3D punch. A Sound Blaster Live Value card and Altec Lansing ACS46 speakers produce excellent sound, and the solidly constructed keyboard has sensitive keys that make typing a pleasure.

The tall, sleekly designed midsize tower marks a departure from the jaunty curves of Compaq's ProLiant line. Alas, our test model lacked some of the polish of other Compaq PCs we've seen: Several front bezel fittings that protect drive bays were loose, and the rear ports came with neither labels nor color coordination with cables. An easy-to-remove case cover offered access to a spacious interior—unsurprising considering the system's paltry expandability: one ISA, one PCI, and one combo slot.

Users will have at their disposal excellent manuals that explain everything from general product line information to detailed trouble-

shooting help for this specific model. The company covers all parts for three years and labor for one year.

9 QUANTEX SM500

PRO: Excellent manual, CD-RW and DVD-ROM drives, well-organized interior

CON: Relatively pricey, average speed for its class
At \$2499, the Quantex SM500 costs about \$200 more than the average power chart system, but you get a lot of features at this price, including twice as much RAM as the average power system carries. Still, performance rated just below the average for similarly configured PCs.

Our SM500 test system was a multimedia machine in the most literal sense: It arrived with both a 4.8X DVD-ROM drive and a CD-RW drive installed. Software-decoded DVD movies played well even while other applications churned away in the background. The excellent Altec Lansing ADA 305W USB speakers round out the package. Quantex didn't scrimp on the small stuff, either: The Intellimouse and ergonomic extended keyboard are comfortable to the touch.

The 19-inch Quantex AT1097F monitor, powered by a 32MB ATI Rage Fury graphics card, fuzzed out a bit at 1600 by 1200 resolution, but remained sharp at every lower setting. One-touch, on-screen monitor controls offer powerful screen manipulation, including a zoom feature.

With a case cover that requires no tools to open, and a spacious, neatly organized interior, the SM500 is an upgrader's dream machine. Cables are bundled out of the way, making expansion painless. The manual includes lots of helpful diagrams and excellent explanations of everything from setup to virus-scanning. Quantex offers a standard three-year parts/one-year labor warranty, and around-the-clock phone support every day.

11 MIDWEST MICRO BUSINESS SOLUTION XPP-550

PRO: Easy-open case, includes Iomega Zip drive
CON: Soft keyboard, generic system manual
Running Windows NT and shipped with MS Office 97 Small Business Edition, the

MidWest Micro Business Solution XPP-550 lives up to its corporate-focused name. A PC WorldBench score of 300 places this PC among the fastest we've tested.

The easy-to-open case uses sliding locks instead of screws to provide entry from both sides. The interior's not roomy, but good hardware fills the slots, including an ATI Rage 128 graphics board, a Sound Blaster PCI128 sound card, a 3Com Win-Modem, and a network card. Outside the box, Altec Lansing's ADA 305 speakers-and-subwoofer set provides excellent sound; you can also connect the speakers to the USB port to gain access to enhanced on-screen digital controls.

However, we do have a few minor complaints about the system's hardware. The 17-inch KDS-7316 monitor couldn't operate at the maximum resolution the video card could provide (1600 by 1200), though text and images remained sharp at lower resolutions. The Business Solution XPP-550 includes an Iomega Zip drive, but its placement right below the floppy drive means you'll have to pay closer attention when you insert either variety of disk. The system also comes with a Microsoft Intellimouse, but the somewhat flexible keyboard's keys are mushy.

MidWest Micro ships the XPP-550 with a generic system manual that provides a decent level of detail and includes a glossary of computing terms. The company offers a five-year warranty on the processor and memory, and a three-year warranty that covers remaining parts as well as any labor charges. ▶



Quantex SM500



MidWest Micro Business Solution XPP-550



Compaq Prosignia Desktop 330 PIII-550



We evaluated the following systems along with the others, but they didn't score high enough to reach the Top 20 Power Desktops chart. For write-ups, visit PC World Online (www.pcworld.com/t20pcs).

- ◆ HP Vectra VL18 MT PIII-550
- ◆ Polywell Poly 800B9/P3-500

TOP 20 BUDGET DESKTOPS

	SYSTEM	Last month	Month tested	Street price (6/4/99)	CPU	Comments
1	 Micro Express MicroFlex-50C 800/989-9900 www.microexpress.net	4	Aug 99	\$1199	Pentium III-450	Price of highly expandable PC slashed by \$300. Superfast and loaded; support needs work.
2	 Dell Dimension XPS T450 800/388-8542 www.dell.com	2	June 99	\$1489	Pentium III-450	Fast PC priced \$210 less this month; top reliability rating.
3	 Quantex M400c 800/896-4898 www.quantex.com	1	June 99	\$1499	Celeron-400	Near-PiI-400 speed, Zip drive, DVD-ROM drive, and 19-inch monitor for under \$1500.
4	 Micro Express MicroFlex-5B 800/989-9900 www.microexpress.net	n/a	NEW	\$1599	Pentium III-500	Lots of room for expansion, but upgrading can be tricky.
5	 CyberMax Enthusiast KIII-400A 888/402-1515 www.cybermaxpc.com	3	Aug 99	\$1249	AMD K6-III-400	Fast Windows 98 performance on low-priced, feature-rich system.
6	Quantex M466c 800/896-4898 www.quantex.com	n/a	NEW	\$1249	Celeron-466	Least expensive of newcomers boasts DVD-ROM drive and 16MB graphics card.
7	Micro Express MicroFlex-34C 800/989-9900 www.microexpress.net	n/a	July 99	\$1399	AMD K6-III-400	Zippy SOHO PC cheaper by \$100; 18GB hard drive, weak documentation.
8	MidWest Micro Office Pro 400 800/728-8582 www.mwmicro.com	8	Aug 99	\$1099	Pentium II-400	Second-cheapest PC on budget chart performs well, but support quality is subpar.
9	Racer LXI500 800/308-8767 www.raceronline.com	n/a	NEW	\$1799	Pentium III-500	Pricey for budget system, but Racer throws in Office 97 training CD-ROM.
10	MidWest Micro Office Pro XP0 450 800/728-8582 www.mwmicro.com	5	Aug 99	\$1399	Pentium III-450	Swift business system sports 6X DVD-ROM drive.
11	Xi Computer 400A MTower 800/432-0486 www.xicomputer.com	6	June 99	\$1249	Celeron-400	Xi's small-business system is fastest Celeron-400 we've tested; \$50 price cut.
12	Micron Millennia Max 450 888/634-8799 www.micronpc.com	7	July 99	\$1608	Pentium III-450	\$51 off fast PC with 6X DVD-ROM drive and hardware decoder; cover is hard to remove.
13	Gateway E-3200 450 800/315-2536 www.gateway.com	n/a	NEW	\$1599	Pentium III-450	Average-priced corporate PC is easy to service; bundled monitor is mediocre.
14	Sys Technology TaskMaster Z366C 800/613-9963 www.sys.com	10	Apr 99	\$1249	Celeron-366	\$50 less this month on PC with great expandability and super parts warranty.
15	NEC PowerMate VT 300 888/632-8701 www.nec-computers.com	n/a	Aug 99	\$1209	Celeron-366	NEC offers good support and crisp monitor in low-cost, SOHO version of VT 300.
16	Sys Technology AX-450 P3 800/613-9963 www.sys.com	13	Aug 99	\$1699	Pentium III-450	Managed PC boasts power chart performance, sheds \$100.
17	CyberMax Entrepreneur PIII-450A 888/402-1515 www.cybermaxpc.com	n/a	Aug 99	\$1799	Pentium III-450	\$200 slashed off powerful system bundled with 19-inch monitor and Zip drive.
18	Axis Systems Metropolis NX5-333C 800/378-9014 www.axisssys.com	12	Mar 99	\$915	Celeron-333	Only sub-\$1000 machine on chart comes with excellent support policies.
19	Acma Exp 6433 800/786-6888 www.acma.com	19	July 99	\$1398	Celeron-433	LS-120 drive, 4.8X DVD-ROM with decoder offered on speedy, small-biz PC.
20	CyberDyne Micro Centron 450 BMN 877/862-3792 www.cyberdynemicro.com	n/a	Feb 99	\$1750	Pentium II-450	\$149 off PC with Zip drive, network card, and 11.5GB hard disk.



Best Buy

See features chart, page 212; test report, page 214.

Find updated street prices online (www.pcworld.com/budgetdesktops/late_prices).

n/a = not applicable

¹ A system's performance word score is relative to the scores of other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 203.

² For more information about all of the products listed in this table, select product info number 906 or visit www.pcworld.com/productinfo.



IF YOU'VE BEEN HOLDING OFF on buying a fast, new Pentium III system until the cost becomes more palatable, wait no longer. This month, we tested two new PIII-500 machines priced to be digestible, especially given their meaty feature sets. Of these, the MicroFlex-5B from Micro Express earned the top performance score among budget PCs running Windows 98, and its \$1599 cost includes a 4X DVD-ROM drive and a capacious 18GB hard drive. For those on a leaner budget, Quantex offers the Celeron-based M466c. At \$1249, it's the least expensive new system this month and features a fast DVD-ROM drive and the most room for expansion of any PC on the budget desktops list.

SCORECARD

★ Overall rating	PC WorldBench 98/operating system	Features and design	Price	Performance ¹	Vendor's system reliability	Vendor's support quality/policies	Product info number ²
97	222/Win 98	Very good	Inexpensive	Outstanding	3	Fair */Good	654
96	218/Win 98	Good	Average	Outstanding	Outstanding	Good/Good	—
92	198/Win 98	Outstanding	Average	Good	Good 3	Good */Good	655
91	234/Win 98	Very good	Average	Outstanding	3	Fair */Good	656
91	223/Win 98	Good	Inexpensive	Outstanding	3	Good */Good	657
91	209/Win 98	Very good	Inexpensive	Very good	Good 3	Good */Good	658
88	217/Win 98	Very good	Average	Outstanding	3	Fair */Good	659
86	199/Win 98	Good	Very inexpensive	Good	3	Fair */Outstanding	660
86	227/Win 98	Very good	Expensive	Outstanding	3	Fair */Outstanding	661
86	211/Win 98	Good	Average	Very good	3	Fair */Outstanding	662
86	199/Win 98	Very good	Inexpensive	Good	3	Fair */Good	663
86	216/Win 98	Good	Expensive	Outstanding	Good	Fair/Good	664
84	211/Win 98	Satisfactory	Average	Very good	Good	Good/Outstanding	665
83	193/Win 98	Good	Inexpensive	Good	3	Fair */Good	666
82	181/Win 98	Satisfactory	Inexpensive	Satisfactory	Good	Good */Outstanding	667
82	266/Win NT 4.0	Very good	Expensive	Very good	3	Fair */Good	668
80	257/Win NT 4.0	Very good	Expensive	Very good	3	Fair */Good	669
80	198/Win NT 4.0	Satisfactory	Very inexpensive	Satisfactory	3	Good */Outstanding	670
78	195/Win 98	Good	Average	Good	3	Good */Good	671
78	206/Win 98	Very good	Expensive	Very good	3	Fair */Good	672
Scorecard weightings		Features 25 percent	Price 22 percent	Performance 18 percent	Reliability 15 percent	Quality/policies 10 percent each	

¹ Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey for its home PCs.

² Due to insufficient data from the Reliability and Service survey for the vendor's work PCs, this rating is derived from anonymous support-quality calls, from survey scores for the vendor's home PCs, or from both.

This Month's Best Buys

1 MICRO EXPRESS MICROFLEX-50C

PRO: Speedy and feature-packed

CON: No removable storage



Last month, the MicroFlex-50C caught our eye with a fast processor and a very nice multimedia

setup. This month, a \$300 price drop—which makes the MicroFlex-50C the least expensive Pentium III-450 system here—and some upgraded features help this machine rise to the top of the chart.

The PIII-450 processor boosts performance to a relatively impressive PC WorldBench 98 score of 222. The system comes with an ATI Rage 128GL graphics card packing 32MB of RAM—an amount

matched by only one other budget-chart unit. Paired with a 5X DVD-ROM drive, a good 17-inch monitor, and a decent set of Altec Lansing ACS44 speakers, the MicroFlex-50C comes ready to rock.

The 18GB hard drive is among the largest we've seen on a budget system. You don't get any removable storage at this price, but you can add an internal Zip drive for \$100. The system has plenty of space for expansion, with four free external bays and six open PCI slots.



They're covered by **Micro Express MicroFlex-50C** a rugged case that we found easy to slide open without having to use tools. Inside, cables are well-organized, but drives could be easier to access.

Micro Express backs the system with a four-year warranty on parts and labor and provides around-the-clock technical support. But in our anonymous calls to the company's support line, we found the representatives abrupt and standoffish.

2 DELL DIMENSION XPS T450

PRO: Good manuals and support, terrific company reliability and performance

CON: Monitor quality just adequate; not cheap

For most small businesses (especially those that lack an IS staff), PC reliability and service are key concerns. With Dell's top-notch reputation for reliable PCs, well-written documentation, and high-quality support, this PIII-450 midsize tower is a solid value. And a \$210 price drop (the second three-digit price cut in as many months) makes the \$1489 Dimension XPS T450 more affordable than ever.

Quick for a budget system, the T450 is a great alternative to the more expensive PIII-500 PCs on the power and budget charts. However, a few features, such as the monitor, are nothing to e-mail home about. If you don't like the T450's bundled 17-incher, you can upgrade to a 19-inch UltraScan 1200HS for \$200 more. Belying its name, the Dell QuietKey



Dell Dimension XPS T450

	SYSTEM ¹	CPU	Operating system	RAM (MB)	Level 2 cache (KB)	Hard drive (GB)	Graphics adapter (AGP)	Video RAM (MB/type)	Monitor tube/viewable diagonal (inches)	56-kbps modem protocol
1	Micro Express MicroFlex-50C *	Pentium III-450	Windows 98	64	512	18	ATI Rage 128GL	32/SDRAM	17/16	V.90
2	Dell Dimension XPS T450 *	Pentium III-450	Windows 98	64	512	13.6	STB NVidia TNT	16/SDRAM	17/16	V.90
3	Quantex M400c *	Celeron-400	Windows 98	128	128	13	STB Velocity 4400	16/SDRAM	19/17.7	V.90
4	Micro Express MicroFlex-5B *	Pentium III-500	Windows 98	128	512	18	ATI Rage 128GL	16/SDRAM	17/15.9	V.90
5	CyberMax Enthusiast KIII-400A *	AMD K6-III-400	Windows 98	128	256 ²	10	Joy Media Apollo Media 2	16/SGRAM	17/15.6	V.90
6	Quantex M466c	Celeron-466	Windows 98	64	128	13	Joy Media Apollo 3D Banshee	16/SGRAM	17/16	V.90
7	Micro Express MicroFlex-34C	AMD K6-III-400	Windows 98	128	256 ⁴	18	Diamond Monster Fusion	16/SGRAM	19/18	V.90
8	MidWest Micro Office Pro 400	Pentium II-400	Windows 98	64	512	10	ATI Xpert@Play98	8/SGRAM	15/13.8	V.90
9	Racer LXI500	Pentium III-500	Windows 98	128	512	14.4	ATI All-In-Wonder Pro	32/SDRAM	19/17.8	V.90
10	MidWest Micro Office Pro XPO 450	Pentium III-450	Windows 98	64	512	10.1	ATI Rage 128GL	16/SDRAM	17/15.8	V.90
11	Xi Computer 400A MTower	Celeron-400	Windows 98	128	128	14	Matrox Mystique G200	8/SDRAM	17/16	V.90
12	Micron Millennia Max 450	Pentium III-450	Windows 98	64	512	13	Diamond Viper V550	16/SDRAM	17/15.9	V.90
13	Gateway E-3200 450	Pentium III-450	Windows 98	128	512	16.8	ATI Rage 128VR	4/SGRAM	17/16	Not included
14	Sys Technology TaskMaster Z366C	Celeron-366	Windows 98	64	128	6.4	Diamond Monster Fusion	16/SGRAM	17/15.7	V.90
15	NEC PowerMate VT 300	Celeron-366	Windows 98	64	128	8.4	ATI Xpert98	8/SDRAM	17/16.1	Not included
16	Sys Technology AX-450 P3	Pentium III-450	Windows NT 4.0	128	512	10	Matrox Millennium G200	8/SGRAM	17/15.9	Not included
17	CyberMax Entrepreneur PIII-450A	Pentium III-450	Windows NT 4.0	128	512	20	STB Velocity 4400	16/SDRAM	19/17.9	K56flex
18	Axis Systems Metropolis NX5-333C	Celeron-333	Windows NT 4.0	64	128	4.3	Intel 740	8/SDRAM	17/15.7	Not included
19	Acma Exp 6433	Celeron-433	Windows 98	64	128	10.1	STB Velocity 128	8/SGRAM	17/16	V.90
20	CyberDyne Micro Centron 450 BMN	Pentium II-450	Windows 98	128	512	11.5	STB GlyderMax-2	8/SGRAM	17/16.1	V.90

* Best Buy

¹ Configuration as tested. Vendor may have since changed components.² PC World defines vertically oriented cases as towers (taller than 20 inches), midtowers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontally oriented cases as desktop (5 inches or taller) or compact (shorter than 5 inches).

keyboard clacked when we typed on it; still, it felt comfortable and durable.

Images on the 17-inch Dell M780 monitor appeared a tad fuzzy, but the screen is fine for basic tasks. The Harman/Kardon HK195 speakers yield decent audio, though we've heard fuller, richer sound from a number of Altec Lansing models. The T450's software bundle includes Microsoft Office Small Business Edition and Microsoft Streets Plus.

The Dimension is nicely designed for users who need to get their machines up and running in a hurry. Color-coded cables make connecting peripherals a breeze, and the well-written manuals include many helpful illustrations.

A tidy interior provides plenty of room in which to work. And with four free card

slots and four open drive bays, expandability isn't a problem. The system comes without a Zip drive, but you can add a 100MB model from Dell for \$79. One nice touch: Dell has placed a ventilation hood over the CPU to shunt heat from the processor out the PC's back panel.

3 QUANTEX M400C

PRO: Fast and well-appointed for a budget PC

CON: More expensive than most Celeron systems



PC users on the prowl for a small-office/home-office system will be hard-pressed to find a better-configured budget machine than the M400c. This \$1499 midsize tower is fast and bears features commonly found on much more expensive systems. The M400c's PC WorldBench 98 score of 198 isn't the

highest we've seen, but the PC is fast enough for basic business applications.

Controls on the Quantex XP190N 19-inch monitor are intuitive and easy to use. The system has a 100MB Iomega Zip drive and a 4.8X DVD-ROM drive with a software decoder. Its software bundle includes Corel WordPerfect Suite 8—not the most popular office package, but suitable for home and business uses.

An easy-to-follow system manual accompanies the M400c. Phone-based technical support is available 24 hours a day, and Quantex backs the machine with a three-year parts and one-year labor warranty.



Quantex M400c

EXPANDABILITY

CUSTOMER SUPPORT

CD/DVD-ROM drive speed	Sound board	Case style	Max. RAM (MB)	Open RAM sockets	Open drive bays (ext./int.)	Open slots	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
5X DVD-ROM	Sound Blaster PCI128	Midtower	768	2	4/0	6	4/4	24	Sat, Sun	WWW
17X-40X	Integrated Yamaha YM724F-V	Midtower	768	2	3/1	4	3/1	24	Sat, Sun	AOL, BBS, CIS, MSN, WWW
4.8X DVD-ROM	Sound Blaster PCI64	Midtower	384	1	2/3	4	3/1	24	Sat, Sun	BBS, WWW
4X DVD-ROM	Sound Blaster PCI128	Midtower	768	2	4/0	4	4/4	24	Sat, Sun	WWW
4.8X DVD-ROM	Aztech ASC338A	Midtower	384	1	2/3	2	3/1	24	Sat, Sun	BBS, WWW
4.8X DVD-ROM	Aureal Vortex2	Midtower	256	2	3/3	6	3/1	24	Sat, Sun	BBS, WWW
14X-32X	Sound Blaster PCI128	Midtower	384	2	4/0	4	4/4	24	Sat, Sun	WWW
17X-40X	Sound Blaster PCI128	Midtower	768	2	3/1	4	Varies ¹ /3	24	Sat, Sun	BBS, WWW
6X DVD-ROM	Sound Blaster Live	Midtower	768	2	2/3	3	3/3	24	Sat, Sun	WWW
6X DVD-ROM	Sound Blaster PCI128	Midtower	768	2	3/1	4	Varies ¹ /3	24	Sat, Sun	BBS, WWW
4X DVD-ROM	Sound Blaster PCI128	Midtower	384	2	3/2	4	3/3	24	Sat, Sun	WWW
6X DVD-ROM	Sound Blaster Live	Midtower	384	2	3/1	4	Varies ¹ /3	24	Sat, Sun	BBS, CIS, WWW
13X-32X	Integrated Crystal Audio	Compact	384	2	0/0	6	3/3	24	Sat, Sun	AOL, BBS, CIS, MSN, WWW
14X-32X	Sound Blaster AWE64	Midtower	1024	3	3/2	4	Varies ¹ /5	24	Sat, Sun	WWW
14X-32X	Integrated Sound Blaster PCI64	Minitor	256	1	1/1	3	3/3	24	Sat, Sun	AOL, BBS, CIS, MSN, WWW
14X-32X	Sound Blaster AWE64	Midtower	1024	3	3/2	4	Varies ¹ /5	24	Sat, Sun	WWW
32X-40X	Creative Ensoniq AudioPCI	Minitor	384	1	2/5	3	3/1	24	Sat, Sun	BBS, WWW
17X-40X	Yamaha 724	Midtower	384	2	3/0	4	3/3	24	Sat, Sun	WWW
4.8X DVD-ROM	Integrated Yamaha YM740B-V	Minitor	768	2	2/0	3	3/1	24	Sat, Sun	BBS, WWW
14X-40X	TBS Daytona	Midtower	1024	3	2/0	3	3/3	24	Sat, Sun	WWW

¹ Also has 512KB level 3 cache.

² Also has 1024KB level 3 cache.


³ Five years on CPU and main RAM, three years on other parts.

⁴ Six years on CPU and main RAM, three years on other parts.

In our anonymous calls to tech support, reps were easy to reach and responded courteously, but they didn't always give accurate answers to our tough and intermediate-level questions. Respondents in our latest Reliability and Service survey gave Quantex's home PCs Good ratings in both of these categories.

4 MICRO EXPRESS MICROFLEX-5B

PRO: Excellent monitor, smooth DVD playback
CON: Case tough to remove, system manual available on CD-ROM only

 Micro Express's newest budget offering matches or beats the performance of eight PIII-500 power-chart PCs, at a price (\$1599) that runs a couple hundred less than the average for

similarly configured systems from other vendors. It also includes some nice touches like a sharp monitor and a DVD player.

In our tests, the 17-inch Impression 7VX monitor displayed crisp and clear text and images even at the maximum resolution of 1600 by 1200. The system's jitter-free software DVD decoder played movies smoothly even while other applications cranked in the background, and the Altec Lansing ACS44 speaker and subwoofer set maintained good sound quality even during loud moments in the action sequences of our test DVD movie. The subwoofer is top heavy and could tip over if you use it as a footrest under your desk. Apart from that problem, however, the MicroFlex-5B's multimedia components work flawlessly together.

In the system's roomy interior, you'll find four open drive bays, four open card slots, and two of three RAM sockets open. Neatly bundled cabling allows you to see all the components, but the corrugated side panel makes the case difficult to open, and poorly labeled connectors on the rear of the PC can make setup tricky.

The MicroFlex-5B ships without a printed system manual (instead, you get one on CD-ROM), though there is a quick setup guide. Documentation for the DVD player and monitor is adequate.

Micro Express's four-year parts and labor warranty surpasses what most ►



Micro Express MicroFlex-5B

vendors offer, but you need to have all of your system's serial numbers handy if you want even basic phone support.

5 CYBERMAX ENTHUSIAST KIII-400A

PRO: Low price, top performance for its class, DVD-ROM and Zip drives, great speakers

CON: So-so graphics card, slow tech support



For small-business and home-office users who need to stretch their dollars like rubber bands, it's

hard to beat the Enthusiast KIII-400A from CyberMax. With a PC WorldBench 98 score of 223 (running Windows 98), this 400-MHz, AMD K6-III-based system outperforms most Pentium II-400 and even some Pentium III-450 machines we've tested—yet at \$1249 it costs hundreds of dollars less.

Like the Entrepreneur PIII-450A, the Enthusiast's \$1799 Pentium III-450 sib-



CyberMax Enthusiast
KIII-400A

ling (which rumbles to a 17th-place finish on this month's chart), the KIII-400A packs a 100MB Iomega Zip drive, a V.90 modem, and an ethernet adapter into a spacious case. Inside, it boasts unencumbered access to all components. Five available drive bays—two that can be reached from the exterior, and three from the interior only—offer plenty of room for expansion.

TOP 20 BUDGET DESKTOPS

TEST REPORT



TEST HOW WE TEST All systems are tested with PC WorldBench 98, PC World's application-based benchmark. A higher PC WorldBench score is better. All PCs are tested with Windows 95, Windows 98, or Windows NT 4.0, and video resolution is set to 800 by 600 in 65,536 colors. We run automated scripts on six popular business applications, performing common tasks such as spelling checks, scrolls, saves, sorts, and recalculations. The PC WorldBench 98 score is a sum of the weighted, normalized result of each script: Word 97 (10 percent), Word Pro 97 (10 percent), Excel 97 (20 percent), 1-2-3 97 (20 percent), Paradox 8.0 (20 percent), and Picture Publisher 7.0 (20 percent). For more details on our benchmark and how we run it, see PC World Online (www.pcworld.com/testing). ¹Under Windows 98 with 128MB of RAM; also includes systems tested in this and previous months that do not currently rank among the Top 20.

As for multimedia capabilities, the system's 3D graphics card—the Joy Media Apollo Media 2—maxes out at 1024 by 768 resolution, but its software-based MPEG-2 decoder does a fine job of showing DVD movies. The system's Altec Lansing ACS45.1 speakers will knock you out, especially when the subwoofer kicks in.

CyberMax's support rates as Good, according to home users in our last Reliability and Service survey. When we called CyberMax's support lines, the reps were informative and helpful, though they tended to miss our tough questions. Also, support staff sometimes took too long to pick up the phone. CyberMax backs the KIII-400A with three years of parts coverage and a one-year labor warranty.

6 QUANTEX M466C

PRO: Fastest Celeron system tested includes DVD-ROM drive

CON: Poor monitor in our test unit

What a difference a Celeron makes. The M466c contains many of the same hardware components as its big brother, the PIII-500-based SM500 (number nine on this month's power desktops chart), but it costs just half as much. At \$1249, this Quantex slides in well under our average budget-system price, and its PC WorldBench 98 score of 209 is 6 percent above the average for comparable systems running Windows 98.

In fact, the only fault we can find with the M466c involves its display. The 17-inch Quantex AT897C that came with our unit suffered from badly blurred text at its maximum 1600 by 1200 setting, and remained fuzzy at 1024 by 768 resolution.

However, the interior offers plenty of room to work in, with the cables pulled together and out of the way. The Microsoft Intellimouse and the ergonomic extended keyboard make an excellent pair of input devices. The DVD-ROM drive provided smooth, uninterrupted playback

even when we made things more difficult by running several applications in the background. Though not top of the line, the MLI SW190 speakers

offer adequate sound and a funky design.

The system manual features plenty of useful diagrams and general computing information. Quantex covers parts for three years and labor for one year.

9 RACER LX1500

PRO: Great features include USB hub built into large monitor; bundled Office 97 training CD-ROM

CON: Slower than similarly configured systems, one side of case is tough to open

One of just two Pentium III-500 systems on the budget chart this month, Racer's LX1500 is also noteworthy for its terrific software bundle, which includes Office 97 Small Business Edition and a Microsoft training CD-ROM that teaches you how to use the Office 97 applications. At \$1799, it ties for the most expensive system on the chart, but you get great features for the money.

The LX1500's PC WorldBench score of 227 means the system is a mere 3 percent slower than the fastest Windows 98-running rival here. It's sufficiently speedy to run business apps quickly, and it includes a software-based DVD decoder that plays DVD videos with aplomb.

The LX1500 comes with a sharp, 19-inch PD-959M monitor that features intuitive on-screen controls, an integrated microphone, and a built-in powered USB hub with four ports. It also sports an ATI All-in-Wonder Pro video card with onboard composite and S-Video ports. The Sound Blaster Live audio card supports four-way speaker systems, but the LX1500 includes a great-sounding Altec Lansing ACS48 system of two speakers and a subwoofer.

The functionally stylish case features a simple latch-lock handle mechanism that secures the case sides, but we had a tough time removing the right side of the case. Inside, the cables are well organized amid a roomy interior, but a single IDE cable connects both the fast hard drive and the slower DVD player to the motherboard—a setup that could account for this system's slight lag in performance.

Racer offers a generous three-year parts and labor warranty and 24-hour phone support. However, in our anonymous

calls, support representatives sometimes tried to pawn off the hardest questions to individual component manufacturers.

13 GATEWAY E-3200 450

PRO: Compact business PC includes detailed manual and troubleshooting guide

CON: Low-quality monitor, flimsy plastic case

The E-3200 450's \$1599 price tag is a bit high for a budget-chart system, but it's exceptional for a compact corporate desktop unit. Gateway does make a few compromises to arrive at the cost savings. For example, Gateway EV700

monitor bundled with the machine displayed fuzzy text at 1024 by 768 resolution; upgrading to the sharper EV910 display costs only \$130 extra.

Fortunately, the PC includes integrated sound and networking, and the resulting interior space savings make this a good basic workstation in an office where desk space is at a premium.

This highly serviceable, compact desktop system measures a little larger than a small pizza box. The system's rather flimsy plastic case opens without tools—just loosen a single captivated thumbscrew. You must disconnect the PC power cord before opening the case—not necessarily a bad thing, but a step that's rarely required in larger systems.

The system comes with an excellent manual, a quick-setup guide, and a detailed maintenance and troubleshooting guide. **Gateway E-3200 450**

Although Windows 98 comes preinstalled on the E-3200 450, Gateway's manuals confusingly refer to Windows 95.

Gateway's support policies include a longer-than-average three-year labor warranty (as well as three years for parts). ▶

BEYOND THE TOP 20



We evaluated the following system along with the others, but it didn't score high enough to reach the *Top 20 Budget Desktops* chart. For a write-up, visit PC World Online (www.pcworld.com/t20pcs).

◆ Polywell Poly 466ME



Quantex M466c



Racer LX1500



Gateway E-3200 450

TOP 10 NOTEBOOK PCs

POWER NOTEBOOK		Last month	Month tested	Street price (6/4/99)	CPU	Comments
1	 Dell Latitude CPl A366XT 800/388-8542 www.dell.com	3	May 99	\$2898	Pentium II-366	Thin, well-designed corporate laptop now \$200 less; modem optional.
2	Dell Inspiron 7000 A366LT 800/388-8542 www.dell.com	1	Apr 99	\$3113	Pentium II-366	Heavy notebook with DVD-ROM drive and 15-inch screen sheds \$80.
3	Gateway Solo 5150LS 800/315-2536 www.gateway.com	2	Apr 99	\$2999	Pentium II-366	Desktop replacement with DVD-ROM drive and big screen gets \$250 price cut.
4	Fujitsu LifeBook E360 888/466-8434 www.fujitsu-pc.com	4	Aug 99	\$2599	Pentium II-333	Inexpensive, with many multipurpose bay options and a unique pointing device.
5	Fujitsu LifeBook L470 888/466-8434 www.fujitsu-pc.com	n/a	NEW	\$3100	Pentium II-366	Very thin media base; ideal for travel except for poor battery life.
BUDGET NOTEBOOK						
1	 Dell Inspiron 3500 C366GT 800/388-8542 www.dell.com	n/a	NEW	\$2057	Celeron-366	Versatile, with many upgrade options; great performance for the price.
2	HP OmniBook XE2 800/322-4772 www.hp.com	2	July 99	\$1899	Celeron-333	Compact, speedy portable includes pleasing audio features.
3	Toshiba Satellite 4030CDT 800/867-4422 www.toshiba.com	n/a	NEW	\$1799	Celeron-300	Light notebook with fixed floppy and CD-ROM drives travels well.
4	Chem USA ChemBook 7200 800/866-2436 www.chemusa.com	3	Aug 99	\$1499	Celeron-333	Won't win a design contest, but has lowest price here and power features.
5	Micron TransPort Trek2 888/634-8799 www.micronpc.com	n/a	NEW	\$2299	Celeron-400	Desktop replacement equipped with Intel's latest budget chip is loaded.



Best Buy

See features chart, page 218.

n/a = not applicable

¹Includes computer; adapter; power cord; and floppy, DVD-ROM, or CD-ROM drive.²For more about products here, select the number on the product information card or visit www.pcworld.com/productinfo.

ARE THE NEW PENTIUM II-400 notebooks a good buy? Not if we're to judge from the first machines we've tested. The mobile-ready CPU adds between \$200 and \$500 to the price of a notebook. Yet NEC's \$3799 Versa SX, a PII-400 that failed to make this month's Top 10 list, performed barely 3 percent better than the average Pentium II-366 notebook in our tests.

Notebooks that use Intel's latest budget processor, the Celeron-400, appear to be a better value. The first Celeron-400 notebook we tested, Micron's \$2299 TransPort Trek2, made our budget chart. This large multimedia desktop replacement performs as well as the average Pentium II-366 notebook we've tested and costs much less. The new 400-MHz mobile processors also appear to be driving down prices of some older Pentium II notebooks by more than \$200.

GET A LIFEBOOK

FOR THE FREQUENT traveler weary of toting an 8-pound computer, an ultrathin notebook can be heaven-sent. Not only do

these 4-pound wonders take the weight of the work world off your shoulders, but they're faster and more full-featured than ever. Fujitsu's \$3100 LifeBook L470, a PII-366 that snags fifth place on the power side of our chart this month, gives you the option of taking along the bare minimum—an ultrathin notebook and external floppy drive—or snapping on a base that can hold lots of extras, including a second battery.

On the budget side, Dell's \$2057 Inspiron 3500 C366GT, an expandable Celeron-366, takes the top spot. Toshiba's Satellite 4030CDT, a \$1799 Celeron-300 with built-in floppy and CD-ROM drives, lands in fourth place.

This Month's Best Buys

POWER NOTEBOOKS

1 DELL LATITUDE CPl A366XT

PRO: Fine performance, relatively thin and light, top-notch reliability and support rating

CON: Shorter-than-average battery life, lacks an internal modem



After losing out last month to a heavy desktop replacement, Dell's own Inspiron 7000 A366LT, this thin and light 7-pound notebook bounces back into the Best Buy spot on the strength of a \$200 price cut. Now the second least expensive portable on our power chart, the \$2898 Latitude CPl A366XT is an even better deal for travelers seeking a flexible, well-supported corporate notebook. Only its disappointing battery life—a barely satisfactory 2 hours and 15 minutes—detracts from its appeal.

A PC WorldBench 98 score of 184 confirms that the A366XT is plenty fast for all business tasks. It's also versatile, accom-

SCORECARD

★ Overall rating	PC WorldBench 98 score/performance	Price	Vendor's system reliability	Features and design	Vendor's support quality/policies	Battery life (hours:min)/rating	Traveling weight ¹	Product info number ²
88	184/Very good	Average	Outstanding	Good	Good/Good	2:15/Satisfactory	Light	—
87	191/Outstanding	Average	Outstanding	Very good	Good/Good	3:24/Good	Very heavy	—
87	186/Very good	Average	Good	Very good	Good/Good	2:50/Good	Average	621
84	176/Very good	Inexpensive	Good	Very good	Fair/Fair	2:25/Satisfactory	Average	622
84	186/Very good	Average	Good	Very good	Fair/Fair	1:56/Poor	Light	623
Power scorecard weightings ▶	Performance 22 percent	Price 14 percent	Reliability 22 percent	Features 16 percent	Support 10 percent	Battery life 8 percent	Weight 8 percent	
90	177/Outstanding	Average	Outstanding	Very good	Good/Good	2:59/Good	Average	—
85	166/Very good	Average	Good	Very good	Good ³ /Poor	2:36/Satisfactory	Average	624
85	160/Very good	Average	Fair	Good	Fair/Fair	2:57/Good	Average	625
84	165/Very good	Inexpensive	*	Satisfactory	Adequate ³ /Fair	3:20/Good	Light	626
83	184/Outstanding	Expensive	Good	Very good	Good/Good	2:38/satisfactory	Heavy	627
Budget scorecard weightings ▶	Performance 14 percent	Price 22 percent	Reliability 22 percent	Features 16 percent	Support 10 percent	Battery life 8 percent	Weight 8 percent	All products: 903

¹ Due to insufficient data from survey, score is based on responses to anonymous calls for tech support.

³ Insufficient data to give a rating.

modating a range of thin devices in its modular bay. In lieu of the included 10X-24X CD-ROM drive, the floppy drive, or the weight-saving empty module, the bay can hold a 4X DVD-ROM drive (\$299), a second battery (\$169), a second

hard drive of up to 6.4GB (\$499), or an LS-120 removable-media drive (\$199). All of these devices, as well as either of two optional docking stations (which sell for \$349 and \$649), can be shared across the Latitude CPI notebook line, according to Dell.

With a nicely designed dark-gray case and stylized touchpad and mouse buttons, the A366XT exudes understated business chic. A wrist rest slightly thicker than the notebook keeps your hands floating comfortably over the keyboard. The battery and removable drives slide out easily, and you can access the RAM module, without

fuss, from the bottom. You'll need a screwdriver, however, to remove the 6.4GB hard drive. If you often work with spreadsheets, you can squeeze a little more viewable area out of the A366XT's 13.3-inch screen by setting the resolution to 1280 by 1024 and enabling pan mode.

Dell's support policies for its Latitude line include 24-hour toll-free support, a three-year parts and labor warranty, and three years of free on-site service. The only shortcoming: Dell provides printed documentation only on buyer's request.

BUDGET NOTEBOOKS

1 DELL INSPIRON 3500 C366GT

PRO: Offers Pentium II-333-like speed, modular bay accepts a range of devices, easy to upgrade, good battery life

CON: Indifferent looks

You can find handsomer, less expensive small-business notebooks than Dell's latest Celeron-based portable, the black, boxy \$2057 Inspiron 3500 C366GT. But if you're

shopping for the quickest, most dependable, and most versatile workhorse on the market for around two grand, look closely at this 7.6-pound laptop.

Racking up a PC WorldBench score of 177 and equipped with Intel's Celeron-366 processor, the C366GT is one of the fastest budget notebooks we've ever tested. Dell also boasts the best system reliability rating from PC World readers, a big screen (14.1 inches) for a budget notebook, and the most easily upgradable parts. Compared with its larger sibling—the 10.4-pound, \$3113 Inspiron 7000 A366LT, in second place on our power chart—the Inspiron 3500 C366GT is thinner, lighter, and far cheaper, though it also has only one modular bay instead of two. Yet the cheaper model's modular bay can accommodate any one of the same options as the Inspiron 7000: ▶



Dell's Inspiron 3500 C366GT has a big screen.



The Dell Latitude CPI has a thin 1.6-inch profile.

TOP 10 NOTEBOOK PCs

STANDARD FEATURES

	POWER NOTEBOOK	CPU	Traveling weight (pounds)	RAM (MB)	Hard drive (GB)	Color screen type	Screen diagonal (inches)	Screen resolution	Maximum screen colors	Battery type	Pointing device
1	Dell Latitude CPi A366XT	Pentium II-366	7	64	6.4	Active	13.3	1024 x 768	16.8 million	Lithium ion	Touchpad
2	Dell Inspiron 7000 A366LT	Pentium II-366	10.4	64	10	Active	15	1024 x 768	16.8 million	Lithium ion	Touchpad
3	Gateway Solo 5150LS	Pentium II-366	7.7	64	6.4	Active	14.1	1024 x 768	16.8 million	Lithium ion	Touchpad
4	Fujitsu LifeBook E360	Pentium II-333	8.2	64	6.4	Active	13.3	1024 x 768	16.8 million	Lithium ion	ErgoTrac
5	Fujitsu LifeBook L470	Pentium II-366	6.4	64	4.3	Active	13.3	1024 x 768	16.8 million	Lithium ion	Touchpad
BUDGET NOTEBOOK											
1	Dell Inspiron 3500 C366GT	Celeron-366	7.6	64	6.4	Active	14.1	1024 x 768	16.8 million	Lithium ion	Touchpad
2	HP OmniBook XE2	Celeron-333	7.5	64	4	Active	12.1	800 x 600	16.8 million	Lithium ion	Touchpad
3	Toshiba Satellite 4030CDT	Celeron-300	7.6	64	4.1	Active	13.3	1024 x 768	65,536	Lithium ion	Eraserhead
4	Chem USA ChemBook 7200	Celeron-333	6.9	64	4.8	Active	12.1	800 x 600	16.8 million	Lithium ion	Touchpad
5	Micron Transport Trek2	Celeron-400	8.7	64	4.3	Active	14.1	1024 x 768	16.8 million	Lithium ion	Touchpad, eraserhead

*Best Buy ● Yes ○ No

†Includes computer; adapter; power cord; and floppy, DVD-ROM, or CD-ROM drive.

the included floppy drive or CD-ROM drive, or a second battery (\$119 extra), a DVD-ROM drive (\$229), or a Zip drive (\$139). You can also attach the floppy drive externally to the parallel port so you can use two devices at once.

The C366GT comes with a comfortable keyboard and beautiful manuals. Generous support policies, including around-the-clock toll-free phone lines and three-year warranties on parts and labor, complete the package.

New This Month

POWER NOTEBOOKS

5 FUJITSU LIFEBOOK L470

PRO: Very thin and light, optional base with media bay, comfortable typing slant, nice manual

CON: Fleeting battery life, hard drive not user-upgradable, so-so sound

A major makeover inside and out puts Fujitsu's latest LifeBook on our power list, even though the portable takes a couple of serious hits in the battery life and support departments. Inside, the \$3100 L470 packs Intel's second-fastest notebook processor, the mobile Pentium II-366. The L470 turned in a PC WorldBench 98 score of 186, just a hair faster than that of

the average Pentium II-366 notebook we've tested. Outside, the LifeBook series has a sophisticated new look: a platinum-colored upper case, à la NEC's Versa lines.

Unfortunately, the fast processor doesn't seem to have helped the LifeBook's away-from-a-plug longevity: Its battery ran for not quite 2 hours on one charge in our tests, earning it a score of Poor.

Still, it's difficult to overlook the LifeBook L470's charms, especially if you spend most of your time on the road. Like competing ultrathins from HP and Compaq, it's alluringly slender yet full-featured. Without its base, the notebook measures only half an inch thick with the screen closed and weighs a mere 4.3 pounds, but it comes with all the standard connections and a full-size keyboard. The included external floppy drive connects to a dedicated floppy port, leaving your parallel connection free for a printer.

For review purposes, we've included Fujitsu's thin, 1.3-pound, half-length base (normally a \$101 option) in the L470's price. Snapping easily onto the bottom of the notebook, the base adds two bays, one of which can hold the floppy drive, the



Fujitsu LifeBook L470

included 12X-20X CD-ROM drive, a DVD-ROM drive (\$499 extra), or an LS-120 drive (\$229). A separate compartment on top can hold a second lithium ion battery (\$249), which should help the LifeBook L470 attain an acceptable

life span away from wall outlets.

Thanks to the attachable base and pop-out feet, the L470 possesses an unusually comfortable tilt for typing. Too bad you lose this ergonomic advantage with the \$499 Mobile LAN Dock. The dock adds an ethernet connection, a TV-out jack, and two more PC Card slots, but sits flat.

BUDGET NOTEBOOKS

3 TOSHIBA SATELLITE 4030CDT

PRO: Very good performer, distinctive design, docking station option, good sound

CON: Hard drive not user-upgradable, readers unimpressed with Toshiba's reliability and service With their rounded gray cases and bulbous stereo speakers, Toshiba's Satellite notebooks stand out from the typical boxy budget fare. For people in search of a good basic portable at a reasonable price, with a few niceties thrown in, a Satellite usually fills the bill.

EXPANDABILITY

CUSTOMER SUPPORT

CD/DVD-ROM drive speed	56-kbps modem protocol	Maximum RAM (MB)	Modular expansion bays	Bay for second battery	Optional docking station	Infrared port	Warranty for parts/labor (years)	Weekday toll-free support (hours)	Weekend support	Online support
10X-24X	Not included	256	1	●	●	●	3/3	24	Sat, Sun	AOL, BBS, CIS, WWW
4X DVD-ROM	V.90	192	2	●	●	●	3/3	24	Sat, Sun	BBS, WWW
2X DVD-ROM	V.90	288	1	○	●	●	3/3	24	Sat, Sun	AOL, BBS, CIS, WWW
20X-24X	V.90	192	2	●	●	●	1/1	24 ²	Sat, Sun	WWW
12X-20X	V.90	192	1	●	●	●	3/3	24 ³	Sat, Sun	WWW
10X-24X	V.90	256	1	●	○	●	3/3	24	Sat, Sun	BBS, WWW
12X-24X	V.90	256	0	○	●	●	1/1	24 ³	Sat, Sun	AOL, BBS, CIS
12X-24X	V.90	192	0	○	●	●	1/1	24	Sat, Sun	BBS, CIS, WWW
10X-24X	V.90	160	0	○	○	●	1/3	24	Sat, Sun	WWW
12X-24X	V.90	256	2	○	●	●	Varies ⁴ /3	24	Sat, Sun	BBS, CIS, WWW

¹Free tech support ends after one year.²Free tech support ends after three years.³Five years on CPU and main memory; one year on other parts.

Toshiba's latest, the \$1799 Satellite 4030CDT, would have landed higher on our budget chart were it not for the anemic reader survey scores Toshiba has earned in reliability and support recently. *PC World's* anonymous calls to technical support generally corroborate our readers' finding of so-so service.

Otherwise, there's a lot to like about this 7.6-pound notebook with fixed floppy and CD-ROM drives. Its battery lasted almost 3 hours on a single charge in our tests, and its PC WorldBench score of 160 means you'll get impressive processing speed for the money.

The Satellite 4030CDT comes with an eraserhead pointing device and a quiet, extra-firm keyboard. Vertically stacked soft rubber crescents serve as mouse buttons. You can put the 13.3-inch screen into a more capacious pan mode by setting it for a resolution of 1280 by 1024.

The Toshiba also gives you two unusual protective extras: a plastic tab that locks the power button so you won't accidentally shut off the notebook, and a USB port cover with sturdy metal hinges. You can access the RAM, but unfortunately you cannot remove the 4.1GB

hard drive yourself; the notebook must go back to the factory for that upgrade.

5 MICRON TRANSPORT TREK2

PRO: Reasonably priced, two modular bays, big screen, dual pointing devices

CON: On the heavy side, poor audio

A large, big-screen desktop replacement, the TransPort Trek2 is no slinky traveling companion. But you won't find a more generously configured portable for the money than this new Micron, which is equipped with Intel's latest budget processor, the Celeron-400.

A good performer all around, the \$2299 TransPort Trek2 runs typical business applications almost as fast as the average Pentium II-366 notebook we've tested, for hundreds of dollars less. The 2.6-hour battery life rates as Satisfactory.

The overall design is admirable. An above-average selection of multimedia and

entertainment connections lets you watch DVD movies on a TV screen or hook up multiple devices for recording and playing sound.

The interior of the TransPort Trek2 is one of the most accessible we've seen; RAM and all drives are removable without tools. The Trek2 is

also one of the few notebooks available that includes both a touchpad and a stick pointing device.

We noticed only a few drawbacks. You may want to switch from the pointer to the touchpad for tapping, and the mouse buttons are inconveniently placed below the touchpad.

Finally, with two modular bays, Micron would do well to broaden the range of optional add-in devices that the TransPort can accommodate. You can add only a DVD-ROM drive or a second hard drive (up to 6.4GB)—but no Zip drive or second battery.

—Carla Thornton

Contributing Editor Carla Thornton writes regularly about notebooks.



Micron TransPort Trek2



Toshiba's stylish Satellite 4030CDT stands out.



BEYOND THE TOP 10



We tested three other portables this month, but they didn't score high enough to make the *Top 10 Notebook PCs* chart. For reviews, visit PC World Online (www.pcworld.com/top400).

- ◆ Acer TravelMate 330T
- ◆ Compaq Presario 1800T
- ◆ NEC Versa SX

TOP 10 HOME PCs

	POWER SYSTEM	Last month	Month tested	Street price (6/4/99)	Comments
1	 Dell Dimension XPS T550 800/388-8542 www.dell.com	1	Aug 99	\$2575	PRO: Fastest home system to date, Zip drive, great audio, very expandable; only vendor to earn an Outstanding support rating for its home machines. CON: Short on bundled software.
2	Micron Millennia Max 500 888/634-8799 www.micronpc.com	3	Aug 99	\$2099	PRO: Great performance (nearly as fast as a PIII-550), innovative case design, very expandable. CON: Limited documentation for novices.
3	Gateway Performance 500 800/315-2536 www.gateway.com	5	Apr 99	\$2033	PRO: Lowest-priced power system on chart (sheds another \$196); outstanding sound. CON: Half the memory of other power models here, mediocre software package.
4	Quantex SM550 SE 800/896-4898 www.quantex.com	2	Aug 99	\$2549	PRO: Very fast, terrific speakers, comes with Microsoft Natural Keyboard and tons of storage, including Sony CD-RW and Zip drives. CON: Monitor blurry on small type, poor setup manuals.
5	Sony VAIO Digital Studio PCV-R528DS 888/315-7669 www.sony.com/pc	4	Aug 99	\$2598	PRO: Software and hardware extras for digital imaging and multimedia, Sony CD-RW drive, improved sound system. CON: Priciest PC here despite \$102 cut, smallish hard drive.
BUDGET SYSTEM					
1	 Micron Millennia C466 888/634-8799 www.micronpc.com	n/a	NEW	\$1373	PRO: Fastest budget machine we've seen so far, one year of free classes via Micron's online training program. CON: Flimsy keyboard, connecting cables to drives is a hassle.
2	Gateway Essential 466c 800/315-2536 www.gateway.com	n/a	NEW	\$1393	PRO: Terrific performer, above-average graphics for a budget PC, includes Epson Stylus Color 460 printer. CON: 8GB hard disk is small for the price, middling rating for vendor's system reliability.
3	HP Pavilion 6475Z 800/724-6631 www.hp-at-home.com	n/a	NEW	\$1498	PRO: Real fast, easy to set up with its documentation and color-coded cables, multimedia keyboard, Zip drive. CON: Scanty software bundle, poor expandability, mediocre vendor support rating.
4	Compaq Presario 5240 800/345-1518 www.compaq.com	n/a	Mar 99	\$1248	PRO: Includes 120MB, floppy-compatible LS-120 drive; adequate performance in standard tasks. CON: Substandard rating for vendor support, poor graphics quality in games.
5	Packard Bell Multimedia 7950 888/211-4159 www.packardbell.com	n/a	NEW	\$978	PRO: Very affordable, comes with lots of software, including good training tools. CON: Not too powerful, readers consistently knock the company's reliability and service.
	 Best Buy n/a = not applicable				

* For more about products here, select the number on the product information card or visit www.pcworld.com/productinfo.



A NEW WAVE OF BUDGET PCs hit the shore this month. In all, four new systems made the list—three offering Intel's latest low-cost CPU, the Celeron-466. For you, that means plenty of processing power, lots of extra features, and some great online support and tutorials—for less than \$1500. The new Celeron-466 systems—Gateway's Essential 466c, Hewlett-Packard's

Pavilion 6475Z, and Micron's Millennia C466 (our new top-ranked budget system)—posted PC WorldBench 98 scores within five points of 213—the average score for a power system with a Pentium II-450 CPU just six months ago. Not surprisingly, the Celeron-400 Packard Bell Multimedia 7950 lagged with a score of 168. But at a mere \$978 it's a good deal for modest computing tasks such as exploring the Web or running personal finance software. (However, the 7950 will soon be replaced by the 7951.)

Although not technically a new PC, Compaq's Presario 5240 hops onto the budget list for the first time. It offers good speed and comes with a high-capacity LS-

120 drive (which uses special 120MB SuperDisks—about \$10 a pop) that's compatible with standard, 1.44MB floppies. Perks aside, the Presario 5240 struggled in our graphics tests.

All this movement on the budget chart comes courtesy of good, cheap systems, as well as the phasing out of the Quantex Celeron-333 system that previously dominated the budget list.

On the power chart it's business as usual, with the Dell Dimension XPS T550 leading the pack. Four of the systems have lower prices this month, but their features remain unchanged.

DEAL OF THE MILLENNIA

THE FASTEST BUDGET system we've seen to date, the Micron Millennia C466 rang up a WorldBench 98 score of 211, rivaling the performance of many Pentium II-400 and even some slow Pentium II-450 systems.

Its graphics scores were about average for a fast budget system on the Top 10 list. Both AVI video playback and 3D animations were smooth enough to deliver satisfactory performance when playing games and movies. In addition, both DVD movies and still photos looked crisp on Micron's 700VX 17-inch monitor.

Finally, bass sounds came through clearly on the C466's bundled Advent speakers and subwoofer, though in higher ranges the small satellite speakers produced muddier tones. We

would also have preferred a sturdier keyboard; it felt a little too light for our tastes.

The C466's bundled software includes Microsoft's WorksSuite 99; if you want



Micron Millennia C466

SCORECARD

★ Overall rating	PC WorldBench 98 score/rating	Price	Setup/ease of use	Graphics	Reliability/support	Features	Product info number
92	241/Outstanding	Expensive	Outstanding/Outstanding	Very good	Good/Outstanding	Pentium III-550, 128MB of RAM, 20GB hard drive, 4.8X DVD-ROM drive, Diamond Viper V770 graphics card, 19-inch monitor, Altec Lansing speakers.	—
87	236/Outstanding	Inexpensive	Good/Very good	Very good	Good/Good	Pentium III-500, 128MB of RAM, 19GB hard drive, 4X DVD-ROM drive, Diamond Viper V550 graphics card, 17-inch monitor, Monsoon flat-panel speakers.	628
87	229/Very good	Inexpensive	Outstanding/Very good	Outstanding	Fair/Good	Pentium III-500, 64MB of RAM, 13.6GB hard drive, 4.8X DVD-ROM drive, STB Velocity 4400 graphics card, 19-inch monitor, Boston Acoustics speakers.	629
86	239/Outstanding	Expensive	Good/Good	Very good	Good/Good	Pentium III-550, 128MB of RAM, 17GB hard drive, 4X DVD-ROM drive, 3dfx Voodoo3 3000 graphics card, 19-inch monitor, Altec Lansing speakers.	630
85	219/Good	Expensive	Outstanding/Very good	Outstanding	Good/Fair	Pentium III-500, 128MB of RAM, 13GB hard drive, 4X DVD-ROM drive, ATI Xpert 128 graphics card, 17-inch monitor, SRS-Z050V speakers.	631
Power scorecard weightings	Performance 20 percent	Price 10 percent	Setup/ease 5 percent	Graphics 10 percent	R & S 40 percent	Features 15 percent	
80	211/Outstanding	Average	Good/Very good	Very good	Good/Good	Celeron-466, 64MB of RAM, 15GB hard drive, 4.8X DVD-ROM drive, NVIDIA RIVA 128zx graphics chip, 17-inch monitor, Advent speakers and subwoofer.	632
79	208/Outstanding	Average	Outstanding/Good	Very good	Fair/Good	Celeron-466, 64MB of RAM, 8GB hard drive, 4.8X DVD-ROM drive, ATI Rage 128 graphics chip, 17-inch monitor, Altec Lansing speakers.	633
74	210/Outstanding	Expensive	Outstanding/Very good	Very good	Fair/Fair	Celeron-466, 96MB of RAM, 15GB hard drive, 14X-32X CD-ROM drive, ATI Rage Pro Turbo graphics chip, 15-inch monitor, Polk Audio speakers.	634
72	170/Good	Average	Outstanding/Very good	Fair	Fair/Poor	AMD K6-2-400, 128MB of RAM, 9.5GB hard drive, 14X-24X CD-ROM drive, integrated ATI Rage LT graphic chip, 17-inch monitor, JBL Pro speakers.	635
72	168/Good	Inexpensive	Outstanding/Good	Very Good	Poor/Poor	Celeron-400, 64MB of RAM, 6GB hard drive, 12X-32X CD-ROM drive, ATI Rage Pro Turbo graphics chip, 15-inch monitor, integrated speakers.	636
Budget scorecard weightings	Performance 15 percent	Price 25 percent	Setup/ease 10 percent	Graphics 5 percent	R & S 40 percent	Features 5 percent	All products: 904

Office 97 instead, you'll have to add \$83 to the bill.

Experienced users looking for a speedy, low-cost PC will also appreciate the Millennia C466's expandability: You have unobstructed access to



HP Pavilion 6475Z

one open PCI slot, a free ISA slot, and one open externally accessible drive bay. Connecting cables to the drives, however, can be tough because there's very little space between the bays and the power supply.

You also won't find elaborate documentation with the C466. But buying any new Micron system entitles you to a year of free classes at Micron University—an online educational service that allows you to take courses (ranging from refining your Web search technique to building your own site) that are held in a virtual classroom, with communications via online message boards.

Alternatively, if you want a fast system that comes with a color printer, check out Gateway's Essential 466c. Except for its smaller, 8GB hard drive, the Essential

466c is almost identical to Micron's Millennia C466 in basic hardware configuration and overall performance. Other differences? The Gateway costs a mere \$20 more (because of its bundled printer), offers Corel WordPerfect Suite 8, and comes with a pair of speakers that produces good range but lacks the strong bass of the Micron's speakers.

LESS FOR MORE

ALSO SPORTING A Celeron-466 CPU is HP's new Pavilion 6475Z, which delivers better performance than several other budget Pavilions we've looked at recently. In fact, it earned a PC WorldBench 98 score of 210, just a point below Micron's record-breaking score. The 6475Z also excelled in our AVI video playback test, but it isn't a great choice for running fast-paced animations or 3D shoot-'em-up games due to its sluggish graphics performance in our tests.

At \$1498, the 6475Z costs \$125 more

than the Millennia C466 and comes with a smaller, 15-inch monitor and a CD-ROM drive instead of a DVD-ROM drive.

Nonetheless, HP's undersized screen displayed crisp text in our tests. And the Polk Audio speakers, which conveniently hang over the sides of the monitor, delivered excellent sound—especially considering that they're cheap and lack a subwoofer. The 6475Z also has a great keyboard—complete with a CD-ROM control and a handy volume knob.

This HP system is designed for first-time and technology-shy buyers. Setup is easy, thanks to clearly written directions and well-marked cables. The other side of the coin: Upgrading can be a pain. The PC's interior is cluttered with cables, and the two free slots—one PCI and one ISA—are hard to reach. Even experienced users will find it a challenge to add memory or change the Zip or CD-ROM drive.

—Kirk Steers

Oakland, California, writer Kirk Steers is a contributing editor for PC World. ■

WHY A LOT OF X-XEROX CUSTOMERS ARE CONNECTING WITH SAVIN.



(We're tearing up the competition one customer at a time.)

Why are more and more x you-know-who customers turning to Savin for their document output needs? We think the answer is that Savin has exactly what it takes to win people over.

After all, Savin not only has the award-winning, multi-functional digital imaging systems today's networked offices require, we're just as committed to becoming the fastest, most responsive name in the business. With smart, energetic, highly-trained Savin professionals willing to do whatever it takes to give you the satisfaction and service you deserve.



To find out more about Savin's full line of black & white and full-color digital imaging solutions, as well as our unshakable commitment to service, contact us at 1-800-234-1900 or www.savin.com. We think it will be the start of a great relationship.

savin.

WE'VE GOT WHAT IT TAKES TO WIN YOU OVER™

SAVIN CORPORATION, 333 LUDLOW ST., STAMFORD, CT 06904



©1999 Savin Corporation

Xerox® is a trademark of XEROX CORPORATION.

Circle 130 on card or go to www.pcworld.com/productinfo

Tying It All Together

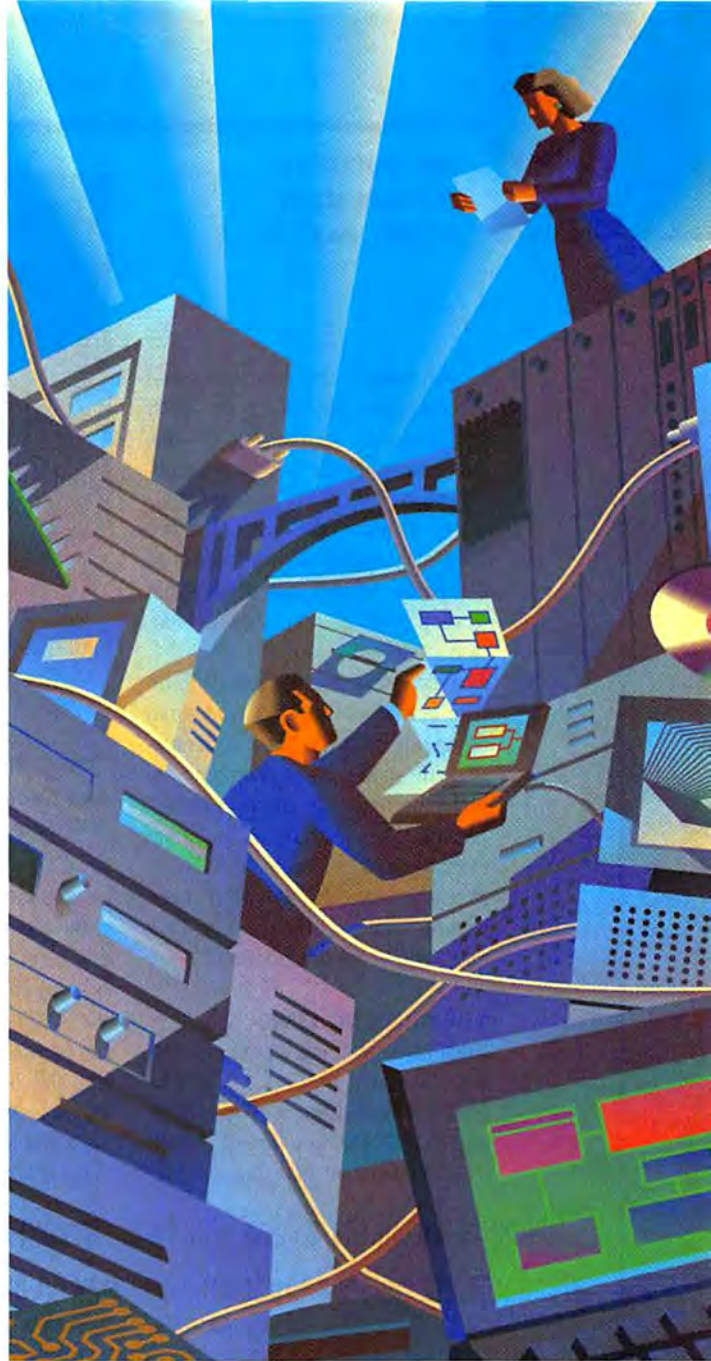
AT THE HEART OF A SUCCESSFUL DOCUMENT MANAGEMENT PLAN IS A STRATEGY FOR LINKING ALL THE DIFFERENT PARTS OF THE SYSTEM.

There's no disputing the fact that document management technology has improved the sharing of information at organizations like the U.S. General Accounting Office (GAO). The federal

agency is charged with independently auditing government agencies, and "can generate enough documents to fill five or six three-inch binders during a typical

project," says Tony Cicco, director of infrastructure operation for the GAO. "With the document management system, finding and storing information is much easier than in the old environment," he says. The GAO is using the DOCS Open document management system from PC

DOCS/Fulcrum, Burlington, Mass. Now 10,000 to 12,000 documents are added to the DOCS Open system each month, which Cicco says proves the system's acceptance among users.



NIKOLAI PUNIN

**THE DOCUMENT
MANAGEMENT
SERIES, PART III**



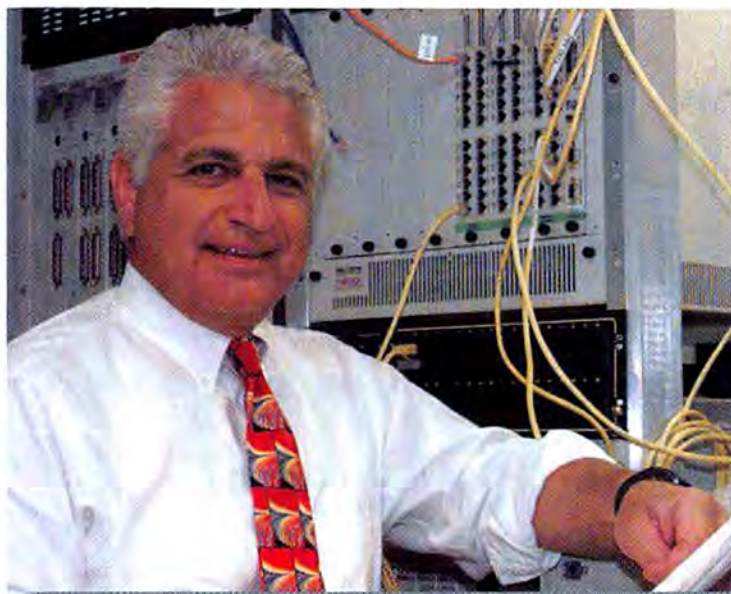
THE DOCUMENT MANAGEMENT SERIES, PART III

Yet despite the success of this system, Cicco says there are many challenges to maintaining it—one being compatibility. "We have problems with integrating all of our software," he says. "We have about 180 tools/utilities that our users want to use on the system, and it is difficult to keep them all integrated and running smoothly."

Cicco adds that the GAO is fortunate in that it is a highly centralized organization. "With very decentralized IT shops these compatibility problems might be unmanageable," he says. "You might have document management systems that don't interface, new file formats that are incompatible—it could create a big mess within the organization."

THE MISSING LINK

Linda Myers-Tierney, industry analyst and principal of Carlisle, Mass.-based Myers-Tierney Associates, agrees that linking different departmental document management sys-



Tony Cicco, director of infrastructure operation for the GAO, says finding and storing information is much easier with document management.

tem analyst with Waltham, Mass.-based Kinetic Information. "Finding a key work application that makes indexing more effective has been a big challenge." She adds that some companies are attempting to deal with this by developing a corporate language of sorts, so terms will have the same meaning from department to department.

that there is no de facto leader in the market driving standards and definitions—no one creating a wake that smaller vendors can jump into," says Myers-Tierney. She adds that a big problem with standards is the time it takes to develop them, which makes it difficult for them to keep up with the accelerating document management marketplace. Says Regina Casonato, vice president and research area director for development, end user, and workplace at Gartner Group's European office, "Timing is not on the side of standards, because by the time the standards are finished the technology may no longer be relevant."

Boyle adds that another obstacle facing standards is that "having a proprietary system works to the vendor's advantage, whereas open systems don't benefit vendors."

THE INTERNET TO THE RESCUE?

The Internet might offer some relief in the document management interoperability dilemma. As Casonato points out, on the Web "you can access information regardless of

"Timing is not on the side of standards, because by the time the standards are finished the technology may no longer be relevant."

**REGINA CASONATO, VICE PRESIDENT AND
RESEARCH AREA DIRECTOR, GARTNER GROUP**

tems can create headaches. "Typically document management has sprung up organically, in departments without IT input. Now these departments need to communicate with each other, and they find they can't do this easily with other vendors' systems," she explains.

For instance, something like search engines can vary from system to system. "People use search engines to find data, but what if the data tags vary from department to department?" asks Paula Boyle, sen-

ARE STANDARDS THE ANSWER?

Some organizations, like the Association for Information and Image Management's Document Management Alliance (DMA), are trying to address these interoperability problems by establishing standards. DMA says its Specification 1.0 "defines a programming interface standard that allows document management products from differing vendors to work together."

Is it working? "One challenge is

When it comes to speed, this printer
PUSHES the **ENVELOPE**.
Also the letter, legal, and 11x17 sheet.



PAGWORKS™ 25
\$1,499

There's no question, it's a fast-paced world. And it's only getting faster. Whether we're waiting for our food or waiting for our printer, we want it, and we want it now. Slow and steady no longer wins the race—we're talking fast, fast, fast.

Well, finally, there's a laser printer designed to keep up the pace, the Minolta PageWorks™ 25 printer. In fact, at a blistering 25 pages per minute, this thing sets its own pace, leaving all the other sub-\$1,500 printers totally in the dust.

Okay, so it's fast, but what else, you might be asking. Well, the Minolta PageWorks 25 printer is also the most expandable printer in the sub-\$1,500 category, easily upgradable from a 750-sheet paper capacity to 3,750 sheets. It features 11"x17" paper handling and even has 5- or 10-bin mailbin capabilities. Oh, and did we mention power? With its 90MHz Power PC processor with QuickPrint®, the Minolta PageWorks 25 printer pushes the envelope even further. For more information or a free CD-ROM, call 1-888-264-6658, or visit us at: www.minoltaprinters.com



PageWorks BL, 3/99



PageWorks BL, 1/99



Color PageWorks PS, 5/98



© 1999 Minolta Co., Ltd., Osaka, Japan. PageWorks is a trademark of Minolta Co., Ltd. QuickPrint is a registered trademark of Peerless Systems Corporation. All other trademarks or registered trademarks are the property of their respective companies. Information herein is subject to change without notice.

Circle 150 on card or go to www.pcworld.com/productinfo

THE DOCUMENT MANAGEMENT SERIES, PART III

which system was used to generate the information." She adds, however, that users "should not underestimate the interoperability issues. It is still important to make sure documents can interchange with other documents."

What about eXtensible Markup Language (XML)? Can this pared-down version of the Standard Generalized Markup Language, and



The SDC306 and SDC306E digital imaging systems from Savin Corp. work both as networked color and black-and-white printers and walk-up copiers.

official Web standard, have an impact on making document management systems more compatible?

"XML is one of the biggest hopes, because it tells about the context as well as the content," says Boyle. "Context not only tells you what the document is about, but also who wrote the document and why this author is important. It gets the 'why' of a story."

"The coupling of base-level infrastructure functionality like searching, version con-

"XML is one of the biggest hopes, because it tells about the context as well as the content."

—PAULA BOYLE, SENIOR ANALYST, KINETIC INFORMATION

trol, check in and check out, with XML, portends interesting opportunities for universal access to document management," says Myers-Tierney. "It may well be a common denominator."

In the meantime, there are some steps users can take to improve the current or future compatibility of their document management systems. "Ask for an architectural diagram of how the document management system is integrated—where will documents connect?" advises Boyle. "If there are too many levels, watch out! Also consider what is involved in software changes or upgrades—how many pieces of software will be affected? How expensive will it be, and will it involve custom work?"

"Companies need to have a broad view when they implement a document management system," says Myers-Tierney. "They need to think about the vision of document management across the enterprise or beyond. They should also look at vendors that are addressing scalable solutions and interoperability. One thing is sure—their document management requirements will grow and they'll need more."

MULTIFUNCTION PRODUCTS

Another way users can avoid some compatibility problems is by selecting multifunctional or scalable products. For example, the SDC306 and SDC306E digital imaging systems, from Savin Corp., Stamford, Conn., work both as networked color and black-and-white printers and walk-up copiers. They offer 600 x 600 dpi at four pages per minute and scan in full color and black-and-white.

The DP3580 35-page-per-minute digital copier from Toshiba, Irvine, Calif., offers multifunctions, such as copying, printing, and faxing, and can replace two or more separate office devices. Pageworks L from Minolta Corp., Ramsey, N.J., is also a product that can easily be added to a growing document management system network, and features Minolta's patented Super Fine MT printing system to produce color and black-and-white 2400 dpi photo quality images.

For a variety of network environments, the OKIPAGE 6e from Okidata, Mount Laurel, N.J., features advanced LED technology, ruggedness, and high productivity. This 6 ppm printer offers 600 dpi class output using OKI Smoothing Technology, High Performance Windows printing (Hiper-W), enhanced memory management, and flexible paper handling.

Despite these solutions, there is still "lots to be done regarding the standardization of document management systems," Cicco says. "But," he adds, "there will be lots of payoffs—like faster and easier sharing of documents."



The DP3580 35-page-per-minute digital copier from Toshiba can replace two or more separate office devices.

SUPPLEMENT SPONSORS:

- MINOLTA
www.minoltausa.com
- OKIDATA
www.okidata.com
- SAVIN CORP.
www.savin.com

WHAT'S THIS YEAR'S SMARTEST LINE ON PRINTING?



“

”



OKIOFFICE 84

OKIPAGE 8w

OKIPAGE 10e

OKIPAGE 10ex

OKIPAGE 12i

OKIPAGE 18

OKIPAGE 24DX

OKIPAGE 8c

INTRODUCING THE NEW SMART LINE OF DIGITAL LED PRINTERS FROM OKI

Nothing provides a smarter solution to your printing needs than Digital LED Technology from OKI. It's simpler. Reliable. And fast. In fact, the OKIPAGE 8c Digital LED color printer is the fastest in its class – an incredible 8 pages per minute in full color! The OKI Digital LED printhead has no mirrors. And no moving parts. So it's not surprising that it's the only printhead in the business that's warranted for 5 years.

OKI provides the most comprehensive line of Digital LED business printing solutions for the desktop and the network, as well as faxes and MFP's. All of which makes the new OKI Digital LED line the smartest choice for small to medium sized businesses.

For more information call 1-800-OKIDATA (1-800-654-3282), or visit www.okidata.com. Then find out how smart OKI really is.



Digital LED Printing. Simply Smarter Than Laser.™

©1999 Okidata, a division of Oki America, Inc. All rights reserved. OKI and OKIPAGE are registered trademarks, and People to People Technology and design is a trademark of Oki Electric Industry Co., Ltd. Single Pass Color is a trademark of Oki Data Corporation. Digital LED Printing Simply Smarter Than Laser is a trademark of Oki America, Inc. Adobe, Postscript Reg T.M. Adobe Systems, Inc., PCL Reg. T.M. Hewlett-Packard Company. All rights reserved.

For More information on the new full-line of OKI Digital LED Printers visit www.okidata.com.



Save \$400

Get a \$400 rebate* off all notebook prices shown, when you sign up for CompuServe Internet service for just \$21.95 a month. Call today for details.

Base price includes:

**PRESARIO 1600s-380/2
INTERNET NOTEBOOK PC**

AMD-K6-2 380 MHz Processor
14.1" TFT Active Matrix Display
32 MB SyncDRAM expandable to 64 MB
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
ATI Rage LT Pro™ Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
2X AGP for Enhanced Video Graphics
1 MB L2 Pipeline Burst Cache
Microsoft® Featured Home Collection & Windows®98

\$1799⁺ As low as
\$51 per month⁴

**Personalize
by choosing:**

64 MB SyncDRAM: Add \$50
6.4 GB UltraDMA Hard Drive¹: Add \$100
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)⁵

Shown with Presario 1800T Internet Notebook PC.

**PRESARIO 1600s-380/3
INTERNET NOTEBOOK PC**

AMD-K6-3 380 MHz Processor
14.1" TFT Active Matrix Display
64 MB SyncDRAM
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
2X AGP for Enhanced Video Graphics
1 MB L3 Pipeline Burst Cache
Microsoft® Featured Home Collection & Windows®98

\$1899⁺ As low as
\$53 per month⁴

128 MB SyncDRAM: Add \$200
6.4 GB UltraDMA Hard Drive¹: Add \$100
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)⁵

Y2K

COMPAQ PRODUCTS ARE YEAR 2000 HARDWARE COMPLIANT.⁶

COMPAQ

Better answers™



**PRESARIO 1600s
INTERNET NOTEBOOK PC**

All prices shown are Compaq Direct selling prices and do not include applicable sales tax and shipping, are valid in the U.S. only and are subject to change or cancellation without notice. Not all models available in retail stores. Illustrations may not accurately represent exact configurations priced. Compaq is not liable for editorial, pictorial, or typographical errors in this advertisement. Financing available on approved credit. Payment based on 48-month term at 14.99% APR. Your APR may be higher. 2% check transaction fee (\$2 min.-\$15 max.). Free waived for Compaq purchases billed directly to your account. ¹System tested using NIST YMARK2000 hardware test. Non-compliant third-party software/hardware products may affect roll-over results. For more details, see www.compaq.com/year2000. ²For hard drives, GB=billion bytes. ³ITU V.90 modems are designed only to allow faster downloads from K56flex- or V.90-compliant digital sources. Maximum achievable download transmission rates are currently unknown, may not reach 56 Kbps, and will vary with line conditions. ⁴24X Max CD-ROM data transfer rates may vary from 1500 to 3600 Kbps. ⁵4X DVD-ROM drives run at a higher maximum transfer rate of up to 5400 Kbps compared to 2nd-Generation DVD-ROM Drives which run at a maximum transfer rate of up to 2705 Kbps. ⁶\$400.00 mail-in rebate from CompuServe with purchase of a qualifying Compaq Presario notebook from 7/25/99 to 10/9/99 and contract

Attention all modem-plugging, drive-swapping, peripheral-obsessed notebook users: Your all-in-one notebook is ready.

The Compaq Presario 1600s Series Internet Notebook PC. Starting at \$1799.

While it may be impossible to be all things to all people, there now exists a notebook which is all things to certain people.

People whose pulses race at the mere mention of features like Accelerated 3D Graphics, JBL Pro Audio, and a fourteen-inch display. People who have been itching for bonuses like one-touch Internet access, DVD, and a superfast 56K modem? People who get an extra charge out of knowing that they can get all this stuff built into one sleek notebook.

This little powerhouse even comes with your choice of AMD-K6®-2 or K6-3 processor, for that high performance you need when you're on the road.

The all-in-one Compaq Presario 1600s Series Internet Notebook PC. The only thing missing from it is you.

PRESARIO 1600s-400/2 INTERNET NOTEBOOK PC

AMD-K6-2 400 MHz Processor
14.1" TFT Active Matrix Display
64 MB SyncDRAM expandable to 128 MB
4.8 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
2X AGP for Enhanced Video Graphics
1 MB L2 Pipeline Burst Cache
Microsoft Featured Home Collection & Windows98

\$1999⁺ As low as
\$56 per month⁴

128 MB SyncDRAM: Add \$200
6.4 GB UltraDMA Hard Drive¹: Add \$100
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)⁵

PRESARIO 1600s-380/3 INTERNET NOTEBOOK PC

AMD-K6-3 380 MHz Processor
14.1" TFT Active Matrix Display
64 MB SyncDRAM
6.4 GB UltraDMA Hard Drive¹
4X DVD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
2X AGP for Enhanced Video Graphics
1 MB L3 Pipeline Burst Cache
Microsoft Featured Home Collection & Windows98

\$2149⁺ As low as
\$60 per month⁴

Extra AC Adapter: Add \$49
Port Replicator: Add \$99
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)⁵

PRESARIO 1600s-400/2 INTERNET NOTEBOOK PC

AMD-K6-2 400 MHz Processor
14.1" TFT Active Matrix Display
64 MB SyncDRAM expandable to 128 MB
4.8 GB UltraDMA Hard Drive¹
4X DVD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
2X AGP for Enhanced Video Graphics
1 MB L2 Pipeline Burst Cache
MS Office 2000 SBE⁶ & Windows98

\$2199⁺ As low as
\$62 per month⁴

128 MB SyncDRAM: Add \$200
6.4 GB UltraDMA Hard Drive¹: Add \$100
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)⁵

PRESARIO 1600s-380/3 INTERNET NOTEBOOK PC

AMD-K6-3 380 MHz Processor
14.1" TFT Active Matrix Display
192 MB SyncDRAM
6.4 GB UltraDMA Hard Drive¹
24X Max CD-ROM Drive²
ATI Rage LT Pro Hardware Accelerated
3D Graphics with 8 MB Video Memory
56K ITU V.90 Modem (PCI)³
Hi-Capacity Lilon Battery
2X AGP for Enhanced Video Graphics
1 MB L3 Pipeline Burst Cache
Microsoft Featured Home Collection & Windows98

\$2499⁺ As low as
\$70 per month⁴

4X DVD-ROM Drive²: Add \$150
Extra Smart Lilon Battery: Add \$129
Extra Hi-Capacity Lilon Battery: Add \$99
(includes free notebook backpack)⁵

1-800-328-8986 www.compaq.com

Buy direct from Compaq, or purchase yours at your favorite retailer.

Compaq Retailers

ABC Warehouse, American Appliance, **American TV**, Best Buy, Big City Express, **Brandsmart USA**, CDW, **Circuit City**, **CompUSA**, CompUSA Direct, Computer Town, Conn's, DataVision, Fred Meyer, Fry's Electronics, the good guys!, **h.h. Gregg**, Insight, **J & R Computer World**, Micro Center, **MicroWarehouse**, Multiple Zones, Nationwide Computers & Electronics, **Nebraska Mega Mart**, **Office Depot**, OfficeMax, Outpost.com, PC Connection, PC Mall, PC Richard & Son, PC Warehouse, **RadioShack**, RCS Computer Experience, Sears, **Shopping.com**, **Staples**, State Street Discount, The Wiz, **Tiger Direct**, Tops Appliance City, ValueAmerica.com. Visit a **Compaq Built For You Custom PC Center** at select retailers highlighted in bold above.

commitment to a 36-month subscription for CompuServe 2000 Internet Service at the monthly rate of \$21.95. Completed mail-in rebate form, original purchase receipt, and a valid major credit card are required. Service must be initiated and CompuServe Terms of Service must be accepted within 30 days of purchase. Mail-in rebate materials must be received by 11/30/99. Offer valid in the U.S. only and void where prohibited by law. You must be 18 years or older. Limit one per household. Additional terms and conditions apply. Full details are available in store or by calling 1-800-328-8986. ²Free backpack with purchase of Extra Hi-Capacity Lilon Battery. Backpack will ship with Battery. Offer valid in U.S. until 09/30/99 or while supplies last. One year parts and labor. Labor for notebooks is pick-up service. Compaq, the Compaq logo, and Presario are registered in the U.S. Patent and Trademark Office. Better answers is a service mark of Compaq. Microsoft, MS, and Windows are registered trademarks of Microsoft Corporation. AMD-K6 is a registered trademark of Advanced Micro Devices, Inc. Product and company names mentioned herein may be trademarks and/or registered trademarks of other companies. Call Compaq Monday-Friday, 7:00 am-11:00 pm (CT). ©1999 Compaq Computer Corporation. All rights reserved.

EXTRAORDINARY VALUE IS AS EASY AS THE ABC's



DPP560 8/99



EO500 11/98
EO500 3/99



AGX900 7/99



EO500 7/99



C2001 2/99



AWARD WINNING PERFORMANCE: 2 PC World BEST BUY Awards and 3 PC World Top Ten Awards in 1999 alone.

BEST PRICE IN ITS LEAGUE: Compare us with others such as ViewSonic, NEC and Sony.

COVERED BY OUR EXCLUSIVE 48-HOUR ADVANCE REPLACEMENT PROGRAM*: Most of our competition either doesn't offer this service or expects you to pay for it.

Princeton EO Series monitors are available in 15" through 21" various viewables, with 11 different models to choose from. For more information on Princeton and our products, visit our website or call us.

EO505

15" (13.8" VIS) Color Monitor

- Flat Square Technology (FST) CRT
- 0.28mm Fine Diagonal Dot Pitch
- 1280 x 1024 Maximum Resolution

EO705

17" (15.9" VIS) Color Monitor

- Flat Square Technology (FST) CRT
- 0.27mm Fine Diagonal Dot Pitch
- 1280 x 1024 Maximum Resolution

EO930

19" (18.0" VIS) Color Monitor

- Short-Depth FST CRT with Crystal Pigmented Phosphors
- 0.25mm Super Fine Diagonal Dot Pitch
- 1600 x 1200 @ 76Hz Max. Res.

EO2000

21" (19.9" VIS) Color Monitor

- High Contrast FST CRT with Invar Shadow Mask
- 0.22mm Super Fine Horizontal Dot Pitch
- 1920 x 1440 @ 76Hz Max. Res.

www.princetongraphics.com

Call us at 800.747.6249 ext. 1073

PRINCETON®

©1999 Princeton. Product features subject to change without notice. All brand names, trademarks and registered trademarks are the property of their respective owners. *Additional terms and conditions apply. This program applies to end-users only. This program is subject to the Princeton limited warranty and is subject to change without notice. Refer to the Princeton website at www.princetongraphics.com or call 800-747-6249 ext. 1073 for complete details.

Circle 151 on card or go to www.pcworld.com/productinfo

TOP 10 PRINTERS

	SMALL-BUSINESS/HOME COLOR	Street price (5/28/99)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/color graphics	Comments	Product info number
1	 HP DeskJet 812C <small>800/752-0900 www.hp.com</small> NEW	\$199	85	3.6/0.5	Good/Good	 FEATURES: Ink jet, rated 4.6 ppm monochrome/3.1 ppm color. 600-by-600-dpi maximum resolution, 100 sheets input, 50 output. SUMMARY: Good print quality, especially at this price. Printer is nearly identical to the HP DeskJet 882C in fifth place, but costs \$100 less and is slower at both graphics and text.	673
2	 Lexmark Z51 Color Jetprinter <small>800/539-6275 www.lexmark.com</small> NEW	\$279	80	3.3/0.4	Good/Very good	FEATURES: Ink jet, rated 10 ppm monochrome/5 ppm color. 1200-by-1200-dpi maximum resolution, 100 sheets input, 50 output. SUMMARY: Great extras, USB port, and paper-handling abilities outweigh underwhelming performance for the price. Print quality is good, but beware of manufacturing problems that may cause striped gray scales.	674
3	Lexmark 5700 Color Jetprinter <small>800/539-6275 www.lexmark.com</small>	\$199	77	2.9/0.3	Good/Good	 FEATURES: Ink jet, rated 8 ppm monochrome/4 ppm color. 1200-by-1200-dpi maximum resolution, 100 sheets input, 25 output. SUMMARY: Sturdy model delivers high-quality output across the board and now costs \$30 less. Text speed is adequate, but graphics are a bit slow. Cost-conscious users can save \$20 with the slower 3200 Color Jetprinter.	675
4	Epson Stylus Photo 700 <small>800/463-7766 www.epson.com</small>	\$249	75	1.3/0.4	Adequate/Good	 FEATURES: Ink jet, speed unrated. 1440-by-720-dpi maximum resolution, 100 sheets input, 30 output. SUMMARY: Former number one offers good graphics print quality on plain paper—and outstanding quality on specialty media—but text speed is particularly slow. Includes a strong photo-oriented software bundle.	-
5	HP DeskJet 882C <small>800/752-0900 www.hp.com</small>	\$299	74	4.3/0.8	Good/Good	 FEATURES: Ink jet, rated 5 ppm monochrome/2 ppm color. 600-by-600-dpi resolution (maximum resolution unrated), 100 sheets input, 50 output. SUMMARY: Impressive print quality on both text and graphics, but somewhat steep price keeps it from climbing the chart. HP's slower but cheaper DeskJet 812C looks like the better deal overall.	676
6	Canon BJC-6000 <small>800/652-2666 www.ccsi.canon.com</small>	\$249	73	4.6/0.9	Very good/Adequate	 FEATURES: Ink jet, rated 8 ppm monochrome/5 ppm color. 1440-by-720-dpi maximum resolution, 130 sheets input and output. SUMMARY: This quick, reasonably priced ink jet stays near the bottom of the SOHO chart despite strong text print quality and optional networking. Graphics could be better.	677
7	Lexmark Z11 Color Jetprinter <small>800/539-6275 www.lexmark.com</small>	\$119	71	2.1/0.3	Good/Adequate	 FEATURES: Ink jet, rated 4 ppm monochrome/2.5 ppm color. 1200-by-1200-dpi maximum resolution, 100 sheets input, 25 output. SUMMARY: A great price and acceptable output make this the first single-cartridge printer to appear on the chart in several years. Colors are adequate, if a bit oversaturated, and text is slightly shadowed.	678
CORPORATE COLOR							
1	 QMS Magicolor 2 DeskLaser <small>800/523-2696 www.qms.com</small>	\$1299	86	8.8/1.0	Very good/Very good	 FEATURES: Laser, rated 16 ppm monochrome/4 ppm color. Standard 8MB of RAM, 600-by-600-dpi maximum resolution, 250 sheets input and output. SUMMARY: Not only is it the cheapest model on the corporate chart, this well-designed QMS is relatively quick at printing both text and graphics, with high overall output quality.	679
2	Tektronix Phaser 740/N <small>800/835-6100 www.tektronix.com</small>	\$1850	85	8.9/0.5	Good/Adequate	FEATURES: Laser, rated 16 ppm monochrome/5 ppm color. Standard 32MB of RAM, 1200-by-1200-dpi maximum monochrome/600-by-600-dpi maximum color resolutions, 350 sheets input, 500 output. SUMMARY: You can upgrade this quick, affordable laser to include even more features. Strong text quality, but graphics output can be inconsistent.	680
3	Lexmark Optra SC 1275 <small>800/539-6275 www.lexmark.com</small>	\$1899	85	7.5/0.5	Good/Good	 FEATURES: Laser, rated 12 ppm monochrome/3 ppm color. Standard 16MB of RAM, 600-by-600-dpi maximum resolution, 400 sheets input, 250 output. SUMMARY: This great choice for busy offices features strong print speeds, extensive paper-handling options, good all-around print quality, and an easy-to-use design.	681
 Best Buy		 Recommended for home		 Windows 95-certified Plug and Play		All products: 907	

TEST **PC WORLD** **CENTER** **HOW WE TEST** The overall rating for both small-business/home and corporate printers is based on print quality (25 percent), price (25 percent), features (15 percent), speed (10 percent), service and support (10 percent), and ease of use (15 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



WHAT A DIFFERENCE a driver makes. Witness the QMS Magicolor 2 DeskLaser, our new corporate Best Buy. When we first tested it in April, we were disappointed by its slow text

speed—the only reason this color laser, priced at a phenomenal \$1299, missed our Top 10. At just 3.3 pages per minute, it was as poky as a home-oriented ink jet. When QMS revised the DeskLaser's drivers, we ran it through its paces again, and ►

found that it now produces text at a respectable 8.8 ppm—fast enough to propel it to first place.

The DeskLaser's output quality hasn't changed: It still prints sharp text and subtle, attractive colors. Getting inside the DeskLaser to clear paper jams and replace components remains exceptionally easy for a color laser. Offices that need special features might be better served by QMS's new \$2199 Magicolor 2 DeskLaser Duplex, which comes with a built-in duplexer and 32MB of memory, and supports a color copier option for \$399.

This month's chart changes aren't limited to the corporate segment. Among the five other new printers we tested, two debut as Best Buys on the small-business/home chart. Hewlett-Packard's inexpensive, high-quality DeskJet 812C, aimed at home users, storms into first place, while Lexmark's nicely designed Z51 Color Jetprinter takes second place and our recommendation for small offices. Tests of three supercheap single-cartridge ink jets yielded one contender: Lexmark's Z11 Color Jetprinter. The other two—Canon's BJC-1000 and Apollo's P-1200 (from a subsidiary of HP)—miss the chart due to their cut-rate designs.

TWO WINNERS

THE SOHO front-runner, HP's \$199 DeskJet 812C, looks like the \$299 DeskJet 882C and produces the same strong out-

put. The only difference is speed: The 812C prints text 19 percent slower, at 3.6 ppm, and graphics 60 percent slower, at 0.5 ppm. Text looks slightly rough in places, while gray-scale and color graphics show sharp detail and shading. If you need speed, the fifth-place 882C remains a good deal; but if performance isn't your main concern, the 812C is a true steal.

What earns the Lexmark Z51 our second-place Best Buy? Not speed. The Z51's 3.3 ppm text performance is above average, but you can find faster printers for \$279. However, the Z51 offers lots of extras. We like its paper-handling capabilities, including a hand-feed slot for printing a single sheet or envelope without emptying the main paper tray, a rear flap for feeding a stack of fanfold paper; and a long output tray that disappears under the printer when it's not needed. Another plus: Like HP's DeskJet 812C, the Z51 includes a USB port as standard equipment. Finally, the Z51 prints crisp, black text, and graphics with very good detail and colors.

Even so, the Z51 has been plagued with manufacturing problems. We've been wrestling with defective units for several months, and even the printer we tested this month had a paper-feeding problem that produced striped gray scales. Lexmark claims the ink jets we received were preproduction units, and that the striping problem has since been resolved. We'll



LIKE MAGIC: A new driver for the QMS Magicolor 2 DeskLaser moves the affordable corporate printer to the top spot.

test this printer again in the coming months to confirm the company's claims.

PENNY WISE, POUND FOOLISH

IT MAKES SENSE to go cheap on disposable items. But do you really want a disposable printer? Canon and Hewlett-Packard think you do; Lexmark is hedging its bets. All three companies have just released very cheap single-cartridge printers—units that hold either the black or color cartridge, but not both at once. (For details, see "Printers for \$80?" www.pcworld.com/aug99/cheap_printers.) Lexmark's Z11 (in seventh place) is the first single-cartridge printer to make our Top 10 chart in many years.

Like all previous single-cartridge printers, Canon's \$79 BJC-1000 and Apollo's \$79 P-1200 print limp, pale colors and purplish black text. By contrast, Lexmark's Z11 pulls off believable colors and solid type marred only slightly by shadowing. But the Lexmark costs \$40 more than the other two. If your budget won't let you consider a fine \$200 printer such as the HP DeskJet 812C, opt for the Lexmark Z11. But remember that you'll pay another \$30 to \$40—a third of the purchase price—for a black ink cartridge; none of these three ultracheap models comes with one. Canon doesn't even bother with an output tray, so prints drop straight onto your desk—or the floor. Finally, be warned that all three printers run considerably slower than most other ink jets.

—Dan Littman

PRINT QUALITY SAMPLES

New HP DeskJet Delights



HP DESKJET 812C

Clear, readable text and vibrant, sharp colors are the hallmarks of our new Best Buy for home users. We did notice a hint of roughness in text and colors.

LEXMARK Z51 COLOR JETPRINTER

You'll get strong overall print quality from our new SOHO Best Buy. The Z51 delivers good text with only slightly jagged edges.

QMS MAGICOLOR 2 DESKLASER

Our new corporate Best Buy produces clean, crisp text and gray-scale images. Colors look rich and well-saturated on the whole.

Never Let Your Clients Know You Work In The Dining Room.



"This is a true story about small business success. I should know because it's my business – Homeowners Association Assistance Corporation. Basically, I help my clients create newsletters and directories, manage properties, create web pages, and even provide software training. And, if my clients knew that I did it all from my dining room, they might not think that I was big enough or responsive enough to get the job done. But with TalkWorks PRO™, the professional voice and fax messaging software, they'll never know."

"It's like having a personal assistant who never takes a break. And it's a lot cheaper, too. Whether I'm at a client site or watching my kids' soccer game, TalkWorks PRO is always back at the office answering phones, taking messages, paging me

for important calls or faxes, and even faxing customer-requested information on the spot. So, when a title company calls in a panic for association forms, TalkWorks PRO faxes it to them faster than if I'd done it myself. And potential customers can automatically receive a summary of my services and a price list. Which means TalkWorks PRO not only takes care of my business – it brings in new business as well."

"Voice mail, message notification, call tracking and fax on demand. Those are the features I need to stay in touch with my clients.

And TalkWorks PRO has them all. But bottom line, what I care about most, is that TalkWorks PRO gives me the freedom and flexibility to run a successful business while raising my kids. I couldn't ask for more from a piece of software."

Kimberly P. Huff



Try TalkWorks PRO for free at www.symantec.com/talkpc

SYMANTEC.

Symantec, the Symantec logo, Norton Utilities, Norton AntiVirus, pcAnywhere, ACT!, and WinFax are U.S. registered trademarks of Symantec Corporation. TalkWorks PRO, WinFax PRO and Norton 2000 are trademarks of Symantec Corporation. All other brand names and trademarks are the property of their respective owners. © 1999 Symantec Corporation. All Rights Reserved.

Circle 214 on card or go to www.pcworld.com/productinfo

ABOVE ALL, ELSA.



Yes! You can create PowerPoint™ presentations and speed through business applications in a fraction of the time. How? With the new ELSA

ERAZOR III graphic accelerator card.

It's powered by the astonishing technology of ELSA and the  processor.

Together they turn your PC into a high performance productivity center.

Stop waiting and start creating spreadsheets, charts, reports...virtually any kind of business presentation in record time. Find us on the web or call 800-272-ELSA for a dealer near you.

ELSA

TOP 10 MONITORS

	19-INCH MONITOR	Month tested	Street price (6/15/99)	Overall rating	Quality of text/graphics	Comments	Product info number
1	 ViewSonic PT795 800/888-8583 www.viewsonic.com	May 99	\$699	88	Very good/ Excellent	FEATURES: 18-inch viewable area, .25mm/.27mm Diamondtron NF variable stripe pitch tube, up to 133-Hz refresh rate, Plug and Play ready, TCO'99 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: \$300 off and longer tech support hours propel model into first place. Includes USB ports and BNC connectors. ⁴	692
2	 Mitsubishi Diamond Pro 900u 800/843-2515 www.mitsubishi-display.com	May 99	\$699	87	Very good/ Excellent	FEATURES: 18-inch viewable area, .25mm/.27mm Diamondtron NF variable stripe pitch tube, up to 117-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 12-hour daily toll-free support. SUMMARY: Display with rich colors and crisp text sheds \$100. Has BNC connectors ⁴ and a front-mounted USB port.	693
3	Dell UltraScan P990 800/426-7255 www.dell.com	May 99	\$549	86	Very good/ Very good	FEATURES: 17.8-inch viewable area, .25mm/.27mm Trinitron variable stripe pitch tube, up to 119-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: Nice image quality, a competitive price, and an expanded warranty period eclipse generic design.	—
4	IBM P92 800/289-3355 www.pc.ibm.com/us/accessories	May 99	\$669	83	Very good/ Excellent	FEATURES: 17.9-inch viewable area, .25mm/.27mm Trinitron variable stripe pitch tube, up to 131-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: \$130 price drop; lush colors and sharp text compensate for tiny on-screen control buttons.	—
5	NEC MultiSync FP950 800/632-4636 www.nectech.com	May 99	\$749	83	Very good/ Excellent	FEATURES: 18-inch viewable area, .25mm/.27mm Diamondtron NF variable stripe pitch tube, up to 136-Hz refresh rate, Plug and Play ready, TCO'99 compliant, three-year warranty, 12.5-hour weekday toll-free support. SUMMARY: \$150 price drop on monitor with great graphics, a high refresh rate, and intuitive on-screen controls.	694
6	Iiyama VisionMaster 450 800/394-4335 www.iiyama.com	May 99	\$459	82	Good/ Very good	FEATURES: 17.6-inch viewable area, .26mm dot pitch tube, up to 120-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 12-hour weekday toll-free support. SUMMARY: \$140 price cut makes this display the lowest-priced here. Advanced features and nice on-screen controls make up for uneven text focus.	695
7	Sony Multiscan CPD-420GS 800/352-7669 www.sony.com/displays	May 99	\$649	81	Good/ Excellent	FEATURES: 18-inch viewable area, .25mm/.27mm Trinitron variable stripe pitch tube, up to 85-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: Offers gorgeous colors, image enhancement modes, and a joystick-like control for easy on-screen adjustments.	696
8	Iiyama VisionMaster Pro 450 800/394-4335 www.iiyama.com	NEW	\$699	81	Very good/ Very good	FEATURES: 17.9-inch viewable area, .25mm/.27mm Diamondtron NF variable stripe pitch tube, up to 144-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 12-hour weekday toll-free support. SUMMARY: Provides finely balanced image quality, a high refresh rate, and easy-to-use on-screen controls.	697
9	Samsung SyncMaster 900SL 800/726-7864 www.samsung-monitor.com	NEW	\$569	80	Very good/ Good	FEATURES: 17.8-inch viewable area, .25mm dot pitch tube, up to 85-Hz refresh rate, Plug and Play ready, TCO'99 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: Great text, a low price, and a space-saving design override lagging graphics performance. Good choice for those who don't need top-notch colors.	698
10	Princeton AGX900 800/747-6249 www.princetongraphics.com	May 99	\$595	80	Very good/ Very good	FEATURES: 17.7-inch viewable area, .25mm Trinitron stripe pitch tube, up to 116-Hz refresh rate, Plug and Play ready, TCO'95 compliant, three-year warranty, 24-hour toll-free support. SUMMARY: Combines fine image quality with a low price, but focus deteriorates in corners, and controls require extra button pressing.	699



Best Buy

For reviews of products that didn't make the chart, visit www.pcworld.com/t10monitors.

All products: 909

TEST HOW WE TEST Ten judges rate a monitor's text and graphics quality. We evaluate each unit on how well it displays typical business letters, a newsletter, spreadsheets, Web pages, and scanned images. The overall rating is based on text and graphics quality (25 percent each), features and ease of use (25 percent), price (20 percent), and service and support (5 percent). The best possible overall rating is 100. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

¹ Uses an aperture grille tube with a variable stripe pitch of .25mm at the center and .27mm around the perimeter. ² Highest refresh rate at 1024 by 768 resolution. ³ Plug and Play monitors can communicate bidirectionally. However, Windows 95 does not fully utilize monitor Plug and Play. ⁴ Specialized connectors used with some high-end graphics cards for complex graphic design and publishing. ⁵ Automated after 5 p.m. PST and on the weekend.



THANKS TO a jaw-dropping \$300 price cut and expanded tech support hours, ViewSonic's PT795 jumps to first place this month. Four of the displays here, including Iiyama's new VisionMaster

Pro 450, feature the latest tube technology—the Diamondtron NF flat CRT. Meanwhile, Samsung debuts with the SyncMaster 900SL, which houses a reduced-depth CRT. New models from HP, IBM, Optique, and Sony missed the chart this month. ■

550MHz Pentium® III Xeon™ From Xi!



The Xi MTower™ is the winner of several magazine awards, as best performing and best value workstation. With the newest Xeon 550 MHz PentiumIII processor from Intel, with full speed L2 cache up to 2MB, 100 MHz BUS and 2GB 100 MHz SDRAM expandability, Xi Computers delivers top workstation 3D performance at an incredible price. The search is over!



The Xi NetRAIDER™ has been defined by LANtimes magazine the "hands down winner" of Windows NT Servers, receiving the prestigious award of THE BEST OF LANTIMES (Dec. 1997). Our newest model, with 550MHz dual & quad Xeon scalable processors, i960 cached RAID 3-Channel Ultra2wide SCSI controller, delivers the most powerful and reliable Windows NT & LINUX server performance & value on the market. With a tool-free secure-locked case, hot-pluggable redundant power supply, up to 14 hot-swappable drive bays and up to 3 years on-site service with 24/7 tech support, the Xi NetRAIDER is the server of choice for your network and website applications.

The new level of 3D Performance!

Xi Computer Corporation has been on the forefront of dual processor technology since 1994. Using the multithreaded drivers for the Diamond™ Fire GL-1 & OXYGEN™ 3DLabs®(G)VX1 video cards, the Xi dual processor architecture delivers a higher level of performance, even for non multithreaded CAD packages like AutoCAD® 2000. Just rated by CADalyst as the fastest 3DStudio® MAX Workstation, our Xi MTower DP is, once again, the winner of the CAD race!

BYTE BEST
100-MHZ NT WORKSTATIONS

THE BEST OF
LANTIMES

CADALYST
LABS
★★★★★
HIGHLY RECOMMENDED

1997
Editors' Choice Awards

CADENCE
PC WORLD
TOP 20

BUDGET DESKTOPS

intel inside

pentium® III
Xeon™

ViewSonic

Xi MTower SP

Xi MTower DP

Xi NetRAIDER

- Intel® Pentium® III Processor, SP
- 512KB L2 Write Back Cache
- 128MB SDRAM, 3B Logitech
- Matrox G200 8MB AGP
- 4.3GB HD 9ms.Ultra ATA 33MB
- 17"(16vs) Optiquest.27dp1280NI
- Xi 5Bays M-Tower 145W UL
- MS Windows® 98, 44xCD-ROM

- Intel Pentium III/Xeon. Dual cap.
- Intel 440BX/GX, 512KB Cache
- 256MB SDRAM, 3B Logitech
- OXYGEN 3DL. VX1 32MB AGP
- 9.1GB 8ms 7200RPM ATA66MB
- 19"(18vs)Optiquest.26dp 1600NI
- Xi 7Bays Mid-Tower 300W UL
- MS Win. NT 4.0, 44xCD-ROM

- Intel PentiumIII/Xeon. Dual cap.
- Intel 440GX, 512KB Cache
- 128MB ECC SDRAM exp. 2GB
- Adaptec RAIDport w/16MB Cache
- 27/18GB U2WSCSI RAIDMod.0/5
- 14"(13vs)Mon.Dual300WHotSwap
- Xi 14Bays Tower w/Secure Lock
- MS NT 4.0 Server, 44xCD-ROM

450MHz Pentium III \$ 1,149

450MHz Pentium III \$ 2,149

450MHz Pentium III \$ 4,699

550MHz Pentium III \$ 1,699

550MHz X e o n \$ 3,349

550MHz X e o n \$ 6,949

3D Video Upg.(*): OXYGEN GVX1 \$ 559, Diamond Fire GL-1 \$ 829
Monitor Upg.: Viewsonic G810 21" .25dp \$ 479, P815 21" .25 \$ 739

Xi Certified for AutoCAD® 2000, 3D Studio® MAX/VIZ, LightWave® 3D, Softimage® 3D & Pro/E. We custom configure each Xi system from 100+options to match your application and your budget. Business Lease from \$ 59/month.

30 Days Money-Back Guarantee - 3 years HW System
Warranty available - 1 year & 3 Years On Site Service available - 1 year
Overnight Parts Replacement Service - 24H/7Days Toll-Free HWTech
Support - Next Day Shipping on selected configurations



Intl:(949)498-0858 Fax:(949)492-6571

www.xicomputer.com

Call Toll Free: 800-432-0486

Intel, Pentium, and the Intel Inside logo are registered trade marks and Xeon are trade marks of Intel Corporation. MS, Windows and Windows NT, are registered trade mark of Microsoft Corporation. Xi and the Xi logo are registered trade marks & MTower, NTower, NetRAIDER, NetClient are trade marks of Xi Computer Corp. Prices do not include shipping and are subject to change without notice. 30 days money back does not include software and shipping both ways. On-Site Service is optional and cannot be available in some remote areas. For more details about Xi warranty and service call or write to Xi Computer Corp, 980 Negocio, San Clemente, CA 92673, USA. Mon & Video upg. price fr.V95 & VX1. Not responsible for typos. Copyright (c) 1999 Xi Corp.

TOP 10 GRAPHICS BOARDS

	PCI BOARD	Month tested	Street price (7/5/99)	Overall rating	Mixed-media business rating	3D rating	Features rating	Comments	Product info number
1	 Creative Labs 3D Blaster Banshee 800/998-1000 www.soundblaster.com	Mar 99	\$80	92	Good	Excellent	Good	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, 3dfx Voodoo Banshee chip, no bundled applications. SUMMARY: Least expensive card on chart provides fast 3D performance and comes with a utility for color-calibrating your PC, monitor, and printer.	713
2	Matrox Millennium G200 SD PCI 800/361-1408 www.matrox.com/mga	Feb 99	\$119	86	Good	Good	Good	FEATURES: 8MB of SGRAM, 250-MHz RAMDAC, MGA-G200 chip, bundled 3D modeling tool, image editing application, and 3D game. SUMMARY: Performs well in both business graphics and 3D games, and offers attractive software extras.	714
3	Elsa Erazor II 800/272-3572 www.elsa.com	June 99	\$109	85	Good	Average	Good	FEATURES: 16MB of SGRAM, 250-MHz RAMDAC, NVidia RIVA TNT chip, no bundled software. SUMMARY: Pleasing business graphics performer ran sluggishly in our 3D-gaming tests. It lacks bundled games or applications.	715
4	Creative Labs Graphics Blaster RIVA TNT 800/998-1000 www.soundblaster.com	Apr 99	\$100	85	Good	Average	Good	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, NVidia RIVA TNT chip, no bundled applications. SUMMARY: A good pick if you use basic office applications, it includes a useful color-calibration tool. Runs 3D apps slower than its AGP sibling.	716
5	Quantum3D Raven PCI 888/747-1020 www.quantum3d.com	Feb 99	\$99	83	Good	Excellent	Average	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, 3dfx Voodoo Banshee chip, bundled 3D games. SUMMARY: Outperforms all PCI cards we've seen so far in 3D tests. But it's short on bundled utilities and support policies.	717
AGP BOARD									
1	 Creative Labs Graphics Blaster RIVA TNT 800/998-1000 www.soundblaster.com	Feb 99	\$100	91	Good	Excellent	Good	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, NVidia RIVA TNT chip, no bundled software. SUMMARY: Excellent 3D performance and a top-notch color-calibration utility make this card a great value for business users and gamers alike.	718
2	Matrox Millennium G400 800/361-1408 www.matrox.com/mga	NEW	\$199	89	Excellent	Excellent	Excellent	FEATURES: 32MB of SGRAM, 300-MHz RAMDAC, Matrox G400 chip, bundled image editor, 3D modeling tool, and 3D games. SUMMARY: Fastest AGP board here in mixed-media tests, and only one that lets you run apps simultaneously on two displays.	719
3	ATI Xpert 128 905/882-2600 www.atitech.com	Aug 99	\$99	89	Good	Good	Excellent	FEATURES: 16MB of SDRAM, 250-MHz RAMDAC, ATI Rage 128GL chip, bundled graphics plug-in and 3D games. SUMMARY: Lowest-priced AGP board on chart is an attractive, affordable choice for those who use standard office programs and play games.	720
4	3dfx Voodoo3 3000 888/234-4334 www.3dfx.com	July 99	\$180	88	Excellent	Excellent	Good	FEATURES: 16MB of SDRAM, 350-MHz RAMDAC, 3dfx Voodoo3 chip, bundled 3D games. SUMMARY: Speediest ranked AGP card in 3D lets you view or capture video. No 32-bit rendering, AGP textures, or AGP pipelining (all affect image quality).	721
5	Guillemot Maxi Gamer Xentor 877/484-5536 www.guillemot.com	NEW	\$130	88	Average	Good	Excellent	FEATURES: 16MB of SDRAM, 300-MHz RAMDAC, NVidia RIVA TNT2 chip, bundled 3D games. SUMMARY: Swift 3D performance and video-out port for watching games on TV make it a terrific choice for gamers. But it ran slowly in PowerPoint tests.	722

For reviews of products that didn't make the chart, visit www.pcworld.com/t10graphics.

All products: 910



HOW WE TEST We test boards under Windows 95. Business tests include PC WorldBench 98, a PowerPoint test, and a Macromedia Director script. Our 3D score is based on four games, each evaluated on frame rate and image quality. For AGP cards we add a texturing test using Caligari's TrueSpace3. We tested PCI boards in a Micron Millennia Mmc PC with a Pentium MMX-233 and 32MB of RAM. We tested AGP boards in an NEC Direction 333 with a PII-333 and 64MB of RAM. Overall rating is based on performance (PCI 50 percent, AGP 55 percent), features (25 percent), price (PCI 15 percent, AGP 10 percent), and support policies (10 percent). For all scores, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



TWO NEW BOARDS crack the AGP list. The Matrox Millennium G400 beats out its AGP competitors in our mixed-media tests. Though it costs \$199, the G400 is a fantastic value: It offers video

features for connecting a Windows 98-equipped PC to two displays at once. The less expensive newcomer with NVidia's RIVA TNT2 chip, Guillemot's Maxi Gamer Xentor, performed well in 3D tests but sluggishly in some business programs. ■

FLAT OUT SUPERIOR!



Super Pigment Phosphors

Exclusive "Wide Viewing Technology"

DynaFlat™ Technology

.20mm Dot Mask (H) for Razor Sharp Text

Smart III Coating

Samsung's SyncMaster™ monitors are flat out the best choice for your money.

It's all in the technology. Five proprietary technologies go into these incredibly precision machines. For example, our SyncMaster™

CRT monitors feature DynaFlat™, the most advanced screen technology in the world—

delivering a perfectly flat tube with no visible curvature, for absolutely no distortion from any angle. Additionally, our TFT flat panel monitors, with

Samsung's Color Filter Technology, have one of the widest color ranges on the market. They also have an Auto Advanced Image Scaling and Enhancement function that delivers crisp images at all resolutions.

We have the technology, and produce our own components, including the glass. Top quality from concept to final product. We have the awards and reviews to prove it. Get the proof on our web site at www.samsungmonitor.com or call us at 1-800-SAMSUNG.

SAMSUNG

ELECTRONICS

TOP 10 MODEMS

	INTERNAL V.90 MODEM	Month tested	Street price (6/28/99)	Overall rating	56-kbps downloads/ 33.6-kbps transfers (min:sec per MB)	Comments	Product info number
1	 Zoom FaxModem 56K ISA Dualmode 800/631-3116 www.zoom.com	NEW	\$79	82	3:38/5:54	FEATURES: Supports K56flex, ISA card, Lucent chip set, V.80 videoconferencing, distinctive ring, voice mail, Caller ID, Communicate software. SUMMARY: Faster on 56-kbps downloads than PCI sibling; backed by a seven-year warranty on parts and labor, with 15 hours of phone support daily. The call isn't toll-free, though.	682
2	3Com U.S. Robotics Winmodem PCI 800/342-5877 www.3com.com	NEW	\$80	81	3:37/5:55	FEATURES: Supports x2, PCI card, USB/TI chip set, V.80 videoconferencing, distinctive ring, Caller ID, RapidComm software. SUMMARY: Great performance, but features could use some beefing up. Modem comes with a lifetime warranty, but tech support is available just 10 hours per weekday, and the call will cost you.	683
3	MaxTech XPV56P NetPacer V.90 Internal PCI Data/Voice/Fax Modem 800/936-7629 www.maxtech.com	June 99	\$38	80	4:04/6:01	FEATURES: Supports K56flex, PCI card, Lucent chip set, V.80 videoconferencing, voice mail, speakerphone, Caller ID, SuperVoice software. SUMMARY: This feature-packed modem offers adequate performance and a five-year warranty at a stunningly low price. The bundled SuperVoice software could stand some improvement.	684
4	Digicom Systems Modem Blaster Flash 56K PCI 408/719-5180 www.digicomsys.com	Aug 99	\$50	80	3:43/5:40	FEATURES: Supports K56flex, PCI card, Rockwell chip set, V.80 videoconferencing, MNP-10, distinctive ring, voice mail, speakerphone, ASVD, Caller ID, QuickLink Message Center III software. SUMMARY: Decent combination of speed and features at a good price. Call to tech support (available 14 hours daily) is on your dime.	685
5	Zoom FaxModem 56K PCI Dualmode 800/631-3116 www.zoom.com	Jan 99	\$64	79	4:16/5:40	FEATURES: Supports K56flex, PCI card, Rockwell chip set, MNP-10EC, V.80 videoconferencing, distinctive ring, voice mail, Communicate software. SUMMARY: Great choice for SOHO on a strict budget; offers voice features and comes backed by long support hours. But it runs a little slow on 56-kbps downloads.	686
6	Viking V.90 56K Speakerphone ISA Modem 800/338-2361 www.vikingcomponents.com	NEW	\$110	78	3:51/5:42	FEATURES: Supports K56flex, ISA card, Rockwell chip set, MNP-10EC, V.80 videoconferencing, voice mail, speakerphone, Caller ID, QuickLink Message Center software. SUMMARY: Feature-packed newcomer delivers adequate performance. Tech support is terrific: 24-hour toll-free phone help accompanies a five-year warranty.	687
7	Boca WinStorm 56K Internal Speakerphone Modem 561/997-6227 www.bocaresearch.com	Aug 99	\$70	78	4:11/5:43	FEATURES: Supports K56flex, PCI card, Rockwell chip set, MNP-10EC, V.80 videoconferencing, distinctive ring, voice mail, speakerphone, Caller ID, QuickLink Message Center III software. SUMMARY: Affordable modem with voice features performs at about the average for controllerless PCI modems.	688
PC CARD V.90 MODEM							
1	 3Com Megahertz 56K Cellular Modem PC Card 800/638-3266 www.3com.com/mobile	Mar 99	\$199	83	3:38/5:54	FEATURES: Supports x2, 3Com/TI chip set, direct cellular connection, voice mail, speakerphone, Caller ID, digital line voltage protection, Xjack pop-out phone jack, RapidComm software. SUMMARY: Costs plenty, but it's fast and comes with crystal-clear setup instructions and a retractable phone jack.	689
2	IBM 56K PC Card Modem 800/426-2968 www.ibm.com/options	Mar 99	\$160	82	4:01/6:06	FEATURES: Supports x2, USB/TI chip set, direct cellular connection, Caller ID, digital line voltage protection and alert, Xjack pop-out phone jack, QuickLink III software. SUMMARY: A little poky on 56-kbps downloads, but reasonably priced and comes with a built-in phone jack, digital voltage protection, and 24-hour tech support.	-
3	Pision Dacom Gold Card Global 56K PC Card Modem + Fax 888/322-6601 www.pisiondacom.com	July 99	\$165	77	4:10/5:39	FEATURES: Supports K56flex, Rockwell chip set, MNP-10 error control, callback, manual volume control, direct cellular connection, EasySwitch country-switching software. SUMMARY: You can use it abroad and with some GSM cell phones, so it's suitable for travel. Slower on 56-kbps downloads than other PC Card modems here.	690



Best Buy

For reviews of products that didn't make the chart, visit www.pcworld.com/t10modems.

All products: 908

TEST **PC WORLD CENTER** **HOW WE TEST** We test V.90 (56-kbps) and V.34 (33.6-kbps) performance over a Telecomm Analysis Systems simulated phone network. We connect each modem to two common Internet service provider modems—Ascend's Max 6000 and 3Com's Total Control. Using each ISP modem, we perform two tests. In the Network Model Coverage test, we send a .zip file over several different line conditions. In the File Type test, we send a mix of four files—graphics, text, program, and compressed—over one line condition. We average the results for the two ISP modems to calculate NMC and FT scores, which make up, respectively, 60 and 40 percent of the total performance score. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.



TWO NEW INTERNAL MODEMS sprint to the top of this month's chart. The Zoom FaxModem 56K ISA offers top-notch performance and lots of features. This model outpaces its PCI-based

counterpart on 56-kbps downloads. Close on its heels is the 3Com U.S. Robotics Winmodem PCI, one of the fastest models we've tested. Viking's V.90 56K Speakerphone debuts in sixth place; it's slower on downloads than the other newcomers. ■



www.keystonetraining.com

KEYSTONE LEARNING SYSTEMS

Microsoft Certified
Solution Provider

Real-World Training by Real-World Trainers

You don't have to attend a class or read from a book to get the best instruction! KeyStone offers you real-world training from real-world trainers.

Real-world, self-paced instruction

Cuts through the clutter enabling you to certify quicker, expand your horizons faster, and achieve your goals sooner. You'll gain practical hands on experience as you see, hear, and do. After 72 hours you'll retain 75-85% of what you've learned. Compare that with the 60% retention other methods provide.

Office	Hours	Set Price
Windows 95	12	\$239.95
Windows 98	14	\$279.95
Outlook 2000	6	\$129.95
Project 98	10	\$399.95
Internet Explorer 5.0	2	\$49.95
Word 2000	14	\$279.95
Excel 2000	12	\$239.95
Powerpoint 2000	12	\$129.95
Access 2000	6	\$129.95
Access 2000 Develop.	12	\$499.95
Front Page 2000	6	\$249.95
PhotoDraw 2000	6	\$129.95
Office 2000 Standard	18	\$349.95
Office 2000 Professional	26	\$499.95
Office 2000 Premium	48	\$799.95

You're the captain of your own ship.

You'll train when and where you want. No more lost productivity from missing work. Learn on your laptop. Study from home. Train the entire group for one low price. You'll have a clear advantage over others in the industry.

Networking	Hours	Set Price
Networking Essent.	6	\$249.95
IE Administration	4	\$169.95
Windows NT 4.0	28	\$899.95
IIS 4.x	6	\$249.95
TCP/IP 4.x	6	\$249.95
Netware 5	18	\$699.95
SQL Server 7.0	8	\$349.95
Linux Sys. Admin.	10	\$399.95
Lotus Notes 5.0	12	\$399.95

Over
950
Titles

Dan Balter
Microsoft Certified
Outlook Instructor



We accept C.O.D., Company P.O. or check +



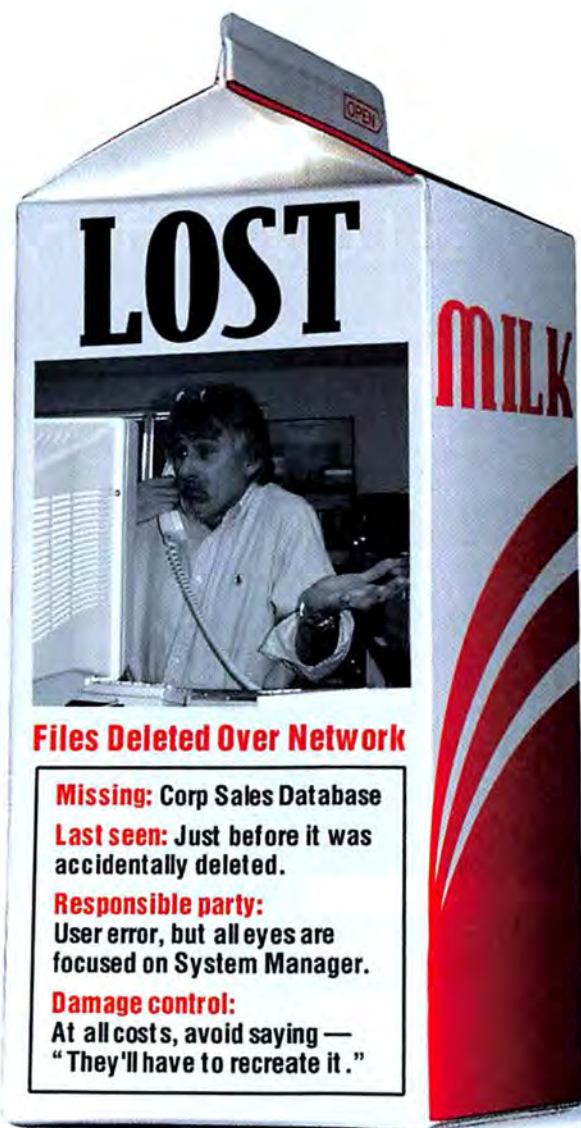
MS Corp., WordPerfect®, MS and Microsoft®, Lotus®, Borland®, Aldus® and their products are trademarks and/or registered trademarks of Novell, Inc., Microsoft Corp., Lotus Development Corp., Borland International Inc., and Aldus Corp., respectively.

To Order:

1-800-976-1040
801-375-8680

Circle 105 on card or go to www.pcworld.com/productinfo

KC# PW99



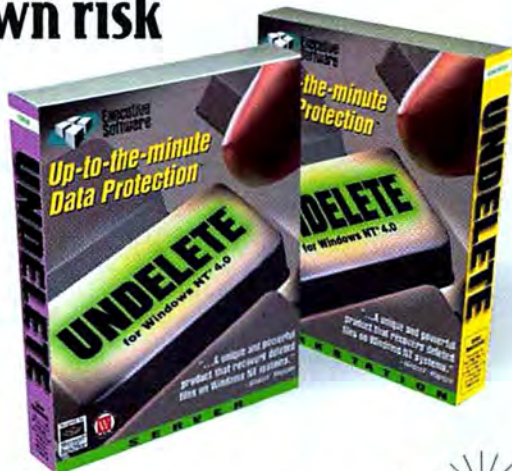
Rely only on backups...at your own risk

As much as 66% of all data loss is caused by accidental deletions, causing time, money and productivity to disappear with them. Because backups are not 100% reliable and do not protect data created between backups — searching to find lost files can be just as time-consuming as recreating the lost data.

UNDELETE® file recovery for Windows NT® provides over the network capability to safeguard servers, shared drives and workstations. Simply UNDELETE to get back what's been lost — fast!

- **EXCLUSIVE!** Easily restores files over the network and those deleted from shared drives.
- **EMERGENCY UNDELETE™** (on CD) Recovers directly from disk, even if Undelete is not installed.
- **EXCLUSIVE!** Captures all deleted files that normally bypass the NT Recycle Bin. This includes files that have been deleted over the network, through the Command Line, or from within a program.

Volume licensing and Government/Education discounts available. For best pricing call your local Reseller or call 1-800-829-6468.



www.undelete.com/info

More info & free 30-day trialware download.



701 N. Brand Blvd., Sixth Floor, Glendale, California 91203

© 1999 Executive Software International, Inc. All Rights Reserved. UNDELETE, Up-to-the-minute Data Protection, EMERGENCY UNDELETE, EXECUTIVE SOFTWARE and the Executive Software logo are registered trademarks owned by Executive Software. Microsoft, BackOffice, the BackOffice logo and Windows NT are trademarks of Microsoft Corporation.

Circle 84 on card or go to www.pcworld.com/productinfo

FREE SOFTWARE DOWNLOAD
Why buy a non-network, direct-disk file recovery utility when **EMERGENCY UNDELETE** does the same job for **FREE!**
Download: www.undelete.com/info



The Most Popular Monitors You've Never Heard of...

Available Now at Low Factory-Direct Prices



Value Series

T554 **\$139**

13.8" Viewable .28mm Pixel
Res: 1024 x 768 (800 x 600 @85Hz)
Compare with: IBM G51, Compaq V55

T570 **\$149**

13.8" Viewable .28mm Pixel
Res: 1280 x 1024 (1024 x 768 @85Hz)
Compare with: IBM G54, NEC M500



T770 **\$209**

15.8" Viewable .27mm Pixel
Res: 1280 x 1024 (1024 x 768 @85Hz)
Compare with: IBM G74, Compaq S700

T770M Multimedia **\$269**

Res: 1280 x 1024 (1024 x 768 @85Hz),
Built-in Speakers & Microphone



Professional Series

T786 **\$279**

16" Viewable .25mm Pixel
Res: 1600 x 1200 (1280 x 1024 @85Hz)
Compare with: IBM P72, Compaq P75



T996 **\$429**

18.3" Viewable .26mm Pixel
Res: 1600 x 1200 (1280 x 1024 @85Hz)
Compare with: IBM G94, Compaq S900



T109 **\$699**

19.7" Viewable .22mm Horiz.
Res: 1600 x 1200 (1280 x 1024 @85Hz)
Features: OSD, 90° deflection

(At Right)

TP15
Flat Panel
Built-in
Mic &
Speakers
\$999

Argon Technologies monitors are made on the same production line, using the same components, to the same specifications as monitors sold by IBM, Compaq, NEC, and others.

Over 500,000 of these monitors are made each month to the highest quality standards in the industry. So you get a better image, along with the lowest failure rates available.

They are now available **FACTORY DIRECT**, with a 3 year limited warranty, and 48-hour Advance Replacement Service. A 30-Day Money Back Guarantee insures your satisfaction.

Get online at
www.argontechnologies.com
and order today!

3 EASY WAYS TO ORDER

1 RESELLERS
TigerDirect.com
800-335-4057
Cyberguys.com
800-892-1010
firstsource.com
800-559-9866

2 DIRECT ONLINE
www.argontechnologies.com

3 BY PHONE
877-840-5655
562-946-9461
PHONE HOURS
M-F 9am-6pm

ARGON
TECHNOLOGIES
www.argontechnologies.com

Write On.



(and on, and on, and on).

Make a full
CD in 20
minutes!

Twice as
fast as the
HP CD-Writer
Plus 7510e!

"Best CD-Rewritable Drive."



Far out! Create your own CDs on the fastest parallel port cd-rewriter available. *Delivers 4x write speed on virtually any*

*Pentium**. With one cool, inexpensive package, you can be your own author and publisher! Plus, you get unlimited rewritable storage—up to 650MB of data or 74 minutes of audio per disc. The backpack cd-rewriter accepts both CD-R and CD-RW media, so you can write once or write and rewrite. It also comes bundled with software that lets you store data, archive photographs and record music. What a



*Or Pentium equivalent. Standard EPP/ECP port required. 4x model writes at 2x on slower computers.



great way to preserve the sounds from those old LPs you've got lying around. (You don't still own a turntable, do you?)

In case you haven't heard, the backpack family of products includes diskette drives, hard drives and cd-rom drives. The backpack cd-rewriter, like all the rest, is compatible with notebook and desktop PCs. It also comes with smart printer-pass-through technology. You're just one cable connection away from a world of music and data. Outasight, man!



backpack cd-rewriter

MicroSolutions

The port•ability leader.

Ph: 800-890-7227 (US and Canada)
or 815-756-3411, Fax: 815-756-2928
Internet: www.micro-solutions.com



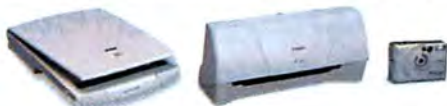
"Best cd-rewritable drive."

Circle 159 on card or go to www.pcworld.com/productinfo



If you've seen any of these children, please call the NCMC hotline at 1-800-THE-LOST.

Every day, more than 2,200 children disappear. A staggering statistic. But there is good cause for hope. Working closely with law enforcement agencies across the country, the National Center for Missing and Exploited Children (NCMEC) has achieved substantial success in finding children. Canon is proud to join the effort by donating state-of-the-art equipment to help disseminate photos and information about missing children faster. We urge you to look at these children and see if you recognize any of them. Then take current photos of your own children just in case of an emergency. Because photos are the best way to help find missing children. For more information about this program, visit our Web site at www.picturethemhome.com.

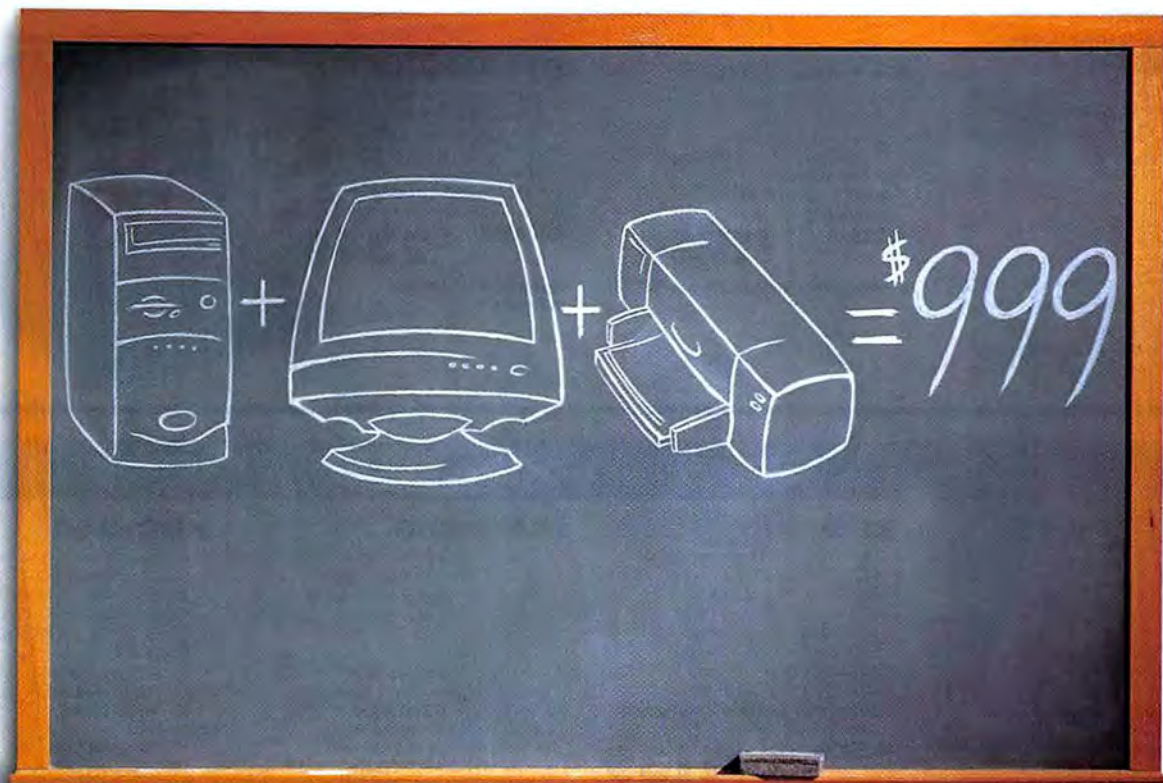


A recent poll among law enforcement found that pictures are the most important tool in the search for missing children. Canon is donating CanoScan® scanners, Bubble Jet® printers and PowerShot® digital cameras to help get the photos out quickly.



Canon

Do the Math



Get a complete PC printer bundle for just \$999

When you're back-to-school shopping, the extras can really add up. But at MidWest Micro, we *include* the extras. Our PC Printer Bundle comes with an Internet-ready PC, 15" monitor, Canon color printer, speaker system, seven-outlet surge protector—plus, Microsoft Works Suite 99, a software collection that's perfect for students. So for just \$999, your scholar is equipped to research, type and print that last-minute term paper.

Do the math. The MidWest Micro PC Printer Bundle adds up to one great deal!

MMB-500c Multimedia PC Printer Bundle

- Intel® Celeron™ processor with 128K Cache 500 MHz
- Canon BJC-1000 Color Printer with cable & APC Per7T SurgeArrest
- 64 MB SDRAM
- 10 GB Ultra ATA Hard Drive & 3.5" Disk Drive
- Intel® 3D Direct AGP integrated Graphics with Dynamic Video Memory
- 1528 Monitor (13.8" display)
- 40X Max CD-ROM Drive
- Microsoft® Works Suite 99—Word, Works, Money Basic, Encarta® Encyclopedia, Graphics Studio Greetings & Expedia™ Streets
- Cyber Acoustics CA-15 Speakers
- 56K PCI V.90 Modem for Windows
- MS® Windows 98 (2nd Edition)
- 5/3 Year Limited Warranty on PC, one year limited manufacturer's warranty on printer

Item #025925

Turn the page for more MidWest Micro PCs!



\$999
No mail-in rebates required!



celeron™
PROCESSOR

MIDWEST MICRO
800-203-2941

Check out our complete line of printer bundles at www.mwmicro.com/backtoschool

Circle 153 on card or go to www.pcworld.com/productinfo

AD# W09



MIDWEST MICRO

Quality PCs — built for less and built to order

Solis ST Notebooks by MidWest Micro

Solis ST Notebooks ship with:

- Modular 3.5" Floppy Drive
- Modular 24X Max CD-ROM Drive
- NeoMagic 256AV AGP Graphics
- 3D Surround Sound with Software Wavetable
- Touchpad
- 9-Cell Intelligent Lithium Ion Battery & AC Adapter
- USB, FIR, Serial, Parallel, PS/2 (Keyboard & Mouse) & VGA Ports
- Microsoft® Windows® 98 (2nd Edition)
- 6.4 Pounds (with floppy drive)
- 1 Year Extendable Limited Warranty* & 7x24 Tech Support

ST14-333c

- Intel® Celeron™ Mobile processor 333 MHz
- 128K L2 On Die Cache
- 14.1" Active-Matrix (TFT) Display
- 32 MB SDRAM
- 4 GB Ultra ATA Hard Drive
- Microsoft Works

#028329

\$1749

Business Lease \$65/mo. (36 months)

ST14-2400

- Intel® Mobile Pentium® II processor 400 MHz
- 256K L2 On Die Cache
- 14.1" Active-Matrix (TFT) Display
- 64 MB SDRAM
- 6 GB Ultra ATA Hard Drive
- MS Office 2000 Small Business

#028332

\$2349

Business Lease \$87/mo. (36 months)



MidWest Micro Office PCs

Office PCs ship with:

- 104-Key Keyboard
- 2 USB Ports
- 3.5" Floppy Drive
- Microsoft IntelliMouse™
- ATX7 Mid-Tower Case
- MS® Windows 98 (2nd Edition)
- 5/3 Year Limited Warranty* & 7x24 Tech Support
- 1* Year On-Site Service provided by 3rd Party Service Provider⁸

MWO-466c

- Intel® Celeron™ processor with 128K Cache 466 MHz
- 64 MB SDRAM
- 10 GB Ultra ATA Hard Drive
- 3D AGP Graphics Card with 8 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- MS Office 2000 Small Business²
- Upgrade to a 2X SuperDisk 120 MB Floppy Drive⁴, add \$69

#025885

\$999

MWO-500c

- (Intel® Celeron™) processor with 128K Cache 500 MHz

#025886

\$1049

Business Lease \$54/mo. (24 months)

XPO-450

- Intel® Pentium® III processor with 512K Cache 450 MHz
- 64 MB 100 MHz SDRAM
- 13 GB Ultra ATA Hard Drive
- 3D AGP Graphics Card with 8 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- MS Office 2000 Small Business²
- 3COM Fast EtherLink XL Network Adapter, add \$56

#025890

\$1139

Business Lease \$58/mo. (24 months)

XPO-500

- Intel® Pentium® III processor with 512K Cache 500 MHz
- 128 MB 100 MHz SDRAM
- 17 GB Ultra ATA Hard Drive
- ATI® XPERT 98 3D 2X AGP Graphics Card with 8 MB & TV-Out
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- MS Office 2000 Small Business²
- Upgrade to a 1926 Monitor (18" display), add \$219

#025891

\$1399

Business Lease \$52/mo. (36 months)

XPO-550

- Intel® Pentium® III processor with 512K Cache 550 MHz
- Intel® SE 440BX-2 Motherboard
- 128 MB 100 MHz SDRAM
- 13 GB Ultra ATA 7200 RPM Hard Drive
- 100 MB Internal Zip Drive (includes one Iomega cartridge)
- ATI RAGE 128 3D 2X AGP Graphics Card with 16 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- MS Office 2000 Small Business²
- Upgrade to an 18 GB Ultra ATA 7200 RPM Hard Drive, add \$59

#025892

\$1799

Business Lease \$67/mo. (36 months)

XPO-600

- (Intel® Pentium® III) processor with 512K Cache 600 MHz

#025893

\$1899

Business Lease \$71/mo. (36 months)

XPO-600

- Intel® Pentium® III processor with 512K Cache 600 MHz
- Intel® SE 440BX-2 Motherboard
- 128 MB 100 MHz SDRAM
- 22 GB Ultra ATA 7200 RPM Hard Drive
- Ultra ATA 66 Controller
- 250 MB Internal Zip Drive (includes one Iomega cartridge)
- Diamond Viper V770 TNT-2 4X/2X AGP Graphics Card with 32 MB
- 1926 Monitor (18" display)
- 52X Max CD-ROM Drive with TrueX™ technology¹
- Sound Blaster® PCI 128 Wavetable Sound Card
- Cyber Acoustics CA-15 Speakers
- MS Office 2000 Small Business²
- Upgrade to a 27 GB Ultra ATA 7200 RPM Hard Drive, add \$69

#025894

\$2499

Business Lease \$93/mo. (36 months)

Go Configure!™



Pictured with Micro-Tower Case and Cyber Acoustics CA-15 Speakers.

*For a complete copy of Guarantees or Limited Warranties, write MidWest Micro, Attn: Warranties, 6910 State Route 36, Fletcher, OH 45326 or visit our Web site at www.mwmicro.com.

⁸Ask Sales Rep for details. On-site service provided pursuant to customer service agreement with the 3rd Party Service Provider.

For complete terms of Service Agreement, write MidWest Micro, Attn: Warranties, 6910 State Route 36 East, Fletcher, OH 45326 or visit our web site at www.mwmicro.com. On-site service provided only for hardware replacement if necessary as determined by telephone-based service technician. The 3rd Party Service Provider is unaffiliated with MidWest Micro.

¹CD-ROM speeds are variable. Maximum speed shown.

²Microsoft Office 2000 Small Business includes Word 2000, Excel, Outlook 2000, Publisher 2000, Expedia Streets 2000 & Small Business Financial Manager 2000.

⁴Maximum data transfer rate may vary due to the particular modem you are communicating with, telephone lines and communication protocols.

⁵Also runs standard 3.5" Floppy Disks. Includes SuperDisk Tools and accelerator software.

Policy: No service charge for credit card orders. Prices are subject to change. Repair or replacement of defective products is at MidWest Micro's discretion. We are not responsible for errors in typography and photography. Original shipping and handling fees, as well as return shipping charges are non-refundable. Prices do not include shipping or applicable sales tax. There are no returns for credit after 30 days. All returns must be shipped in original packaging. Call or write MidWest Micro for more information on warranties and policies.

Disclaimer: Intel, the Intel Inside logo and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation in the United States and other countries. Microsoft®, MS and Windows are registered trademarks of the Microsoft Corporation. All products are trademarks of their respective manufacturers. All registered and unregistered trademarks are the sole property of their respective companies.

Add up to 3 years of MSN Internet access for as little as \$10 per month when you purchase a MidWest Micro PC*.

Special Offer!

1 Year	#045746	\$129.99
2 Years	#045747	\$259.99
3 Years	#045748	\$359.99

*Valid only at the time of purchase. Call your sales rep for details.

<http://pw.mwmicro.com>

MidWest Micro Basics Multimedia PCs

Basics Multimedia PCs ship with:

- 3.5" Floppy Drive • 104-Win Keyboard
- 2 USB Ports • 4 Bay Micro-Tower Case
- Genius® NetScroll Mouse • Microsoft Windows 98 (2nd Edition)
- 1 Year Extendable Limited Warranty* & 7x24 Tech Support
- 1st Year On-Site Service provided by 3rd Party Service Provider* (optional monitor sold separately)

MR-400c

- Intel® Celeron™ processor with 128K Cache 400 MHz
- Intel® 810 Chipset
- 64 MB SDRAM
- 10 GB Ultra ATA Hard Drive
- Intel® 3D Direct AGP integrated Graphics with Dynamic Video Memory
- 40X Max CD-ROM Drive¹
- PCI Wavetable integrated Sound
- Cyber Acoustics CA-15 Speakers
- 56K PCI V.90 Modem for Windows³
- Microsoft Works®
- Upgrade to Cyber Acoustics CA-50 Speakers with Subwoofer, add \$29

#023228

\$599

MR-2400

- Intel® Pentium® II processor with 512K Cache 400 MHz
- 64 MB 100 MHz SDRAM
- 10 GB Ultra ATA Hard Drive
- 3D 2X AGP integrated Graphics with 8 MB shared
- 40X Max CD-ROM Drive¹
- PCI Wavetable integrated Sound
- Cyber Acoustics CA-50 Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Microsoft Works
- 100 MB Internal Zip Drive, add \$79

#023221

\$799

Go Configure!™

With MidWest Micro you've got the green light to mix and match, pick and choose, add or subtract — to create the perfect PC.



Pictured with Mid-Tower Case and optional Monsoon™ MM1000 Flat Panel Speakers.

Toll Sales:

1-937-368-2309

Toll Fax:

1-937-368-2306

Dealers Call:

1-800-883-1461

InfoFax:

1-800-445-2025

MidWest Micro is an ISO 9001 Registered Company



MidWest Micro Multimedia Pro PCs

Multimedia Pro PCs ship with:

- Microsoft® Works Suite 99—Word, Works, Money Basic, Encarta® Encyclopedia, Graphics Studio Greetings & Expedia™ Streets
- Choice of One Lifestyle Series Software Collection • 3.5" Floppy Drive • 118-Win Multifunction Keyboard
- 2 USB Ports • ATX7 Mid-Tower Case • Microsoft IntelliMouse • Microsoft Windows 98 (2nd Edition)
- 5/3 Year Limited Warranty* & 7x24 Tech Support • 1st Year On-Site Service provided by 3rd Party Service Provider*

Lifestyle Series:

- Entertainment 2000—Golf 99, Pinball Arcade, Puzzle Collection & Return of Arcade
- Creative Reference 2000—Bookshelf 99, Encarta Virtual Globe 99 & Picture It 99
- Discovery 2000—My Personal Tutor Preschool & Kindergarten, Goosebumps: Escape from Horrorland, Creative Writer & Magic School Bus Animals (subject to change)
- Gamers 2000—Combat Flight Simulator, Age of Empires & Monster Truck Madness 2

XPH-450

- Intel® Pentium® III processor with 512K Cache 450 MHz
- 1 Year of MSN Internet Access
- 64 MB 100 MHz SDRAM
- 10 GB Ultra ATA Hard Drive
- 3D AGP Graphics Card with 8 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- Aureal Vortex Advantage 256V Sound Card
- Cyber Acoustics CA-50 Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Upgrade to a 13 GB Ultra ATA Hard Drive, add \$25

#025915

\$1199

Business Lease \$61/mo. (24 months)

XPH-500

- Intel® Pentium® III processor with 512K Cache 500 MHz
- 1 Year of MSN Internet Access
- 128 MB 100 MHz SDRAM
- 10 GB Ultra ATA Hard Drive
- 3D AGP Graphics Card with 8 MB
- 1726 Monitor (15.8" display)
- 40X Max CD-ROM Drive¹
- Sound Blaster PCI 128V Sound Card
- Altec Lansing ACS-33W Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Upgrade to a 6X DVD-ROM Drive, add \$85

#025917

\$1399

Business Lease \$52/mo. (36 months)

XPH-600

- Intel® Pentium® III processor with 512K Cache 600 MHz
- 1 Year of MSN Internet Access
- 128 MB 100 MHz SDRAM
- 13 GB Ultra ATA 7200 RPM Hard Drive
- 3Dfx™ Voodoo3 2000 2X AGP Graphics Card with 16 MB
- 1726 Monitor (15.8" display)
- 6X DVD-ROM Drive
- DVD Software Collection
- Sound Blaster PCI 128V Wavetable Sound Card
- Altec Lansing ACS-33W Speakers with Subwoofer
- 56K PCI V.90 Modem for Windows³
- Upgrade to a Sound Blaster Live! Value PCI 512V Sound Card, add \$25

#025920

\$1979

Business Lease \$74/mo. (36 months)

XPH-550

- (Intel® Pentium® III processor with 512K Cache 550 MHz)

#025921

\$1879

Business Lease \$70/mo. (36 months)

XPH-600

- Intel® Pentium® III processor with 512K Cache 600 MHz
- 1 Year of MSN Internet Access
- 128 MB 100 MHz SDRAM
- 27 GB Ultra ATA 7200 RPM Hard Drive
- Ultra ATA 66 Controller
- Diamond Viper V770 TNT-2 4X/2X AGP Graphics Card with 32 MB
- 3Dfx™ Voodoo2 3D Accelerator with 12 MB
- 1926 Monitor (18" display)
- Sony CD-R/RW Drive (4X Write/2X Rewrite/24X Read)
- 6X DVD-ROM Drive
- DVD Software Collection
- Sound Blaster PCI 128V Wavetable Sound Card
- Altec Lansing ADA-305 USB Speakers with Subwoofer & Multichannel Surround Sound
- 56K PCI V.90 Modem for Windows³
- Digital Creativity Imaging Controller with IEEE-1394, add \$75
- Upgrade to Monsoon MM1000 Flat Panel Speakers with Subwoofer, add \$69

#025923

\$2799

Business Lease \$104/mo. (36 months)

GSA Schedule #GS-35F0467J



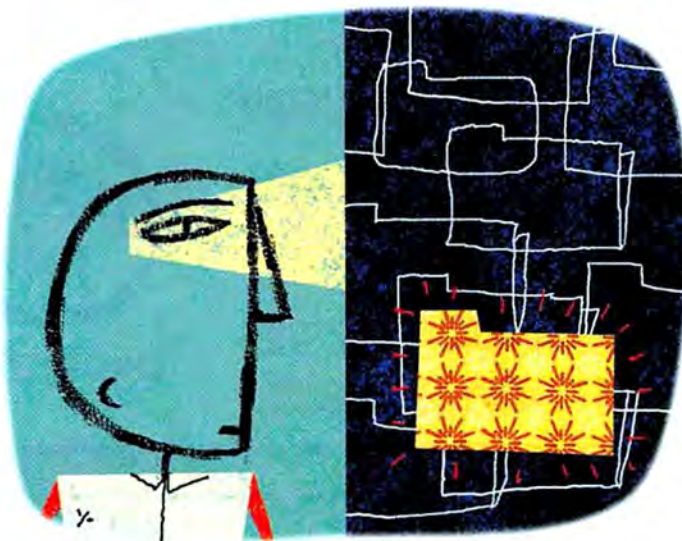
Sales: Mon-Fri 8am-9pm
Sat 10am-4pm EST

1-800-203-2941

Circle 153 on card or go to www.pcworld.com/productinfo

AD# W09

HERE'S HOW



WINDOWS TIPS

SCOTT DUNN

Customize Folders to Find Them Fast



IN THESE DAYS OF gargantuan hard drives and labyrinthine networks, it's easy to lose your place in a complex hierarchy of folders. This is especially true if some of the folders you use have similar-sounding names or contain like contents—for example, backup folders that contain replicas of files you normally work with. If you get confused while disk-housekeeping, you may accidentally

delete the wrong file. To prevent such problems and to remind yourself of where you are in any given folder, try using some of the following “bread crumbs” to mark folder locations and make each folder stand out on your screen (and in your mind).

Parade the path. The easiest way to keep track of a folder is to display its complete

path in the title bar. That way, when you're working with files in the Backup folder, a quick glance will tell you whether it's the backup folder on your local disk or on the network disk, for example. To do this, open any Explorer window or folder and choose **View•Options** (Windows 95) or **View•Folder Options** (Windows 98 or Win-

dows 95 with Internet Explorer 4.x's Desktop Update installed). Make sure the **View** tab is in front, then check the box next to *Display the Full MS-DOS path in the title bar* (Win 95) or *Display the full path in title bar* (Win 98, IE 4.x). Click **OK**.

Brighten the background. Give each folder you regularly use (especially those with similar names or content) a unique background (IE 4.x and Win 98 only). Right-click in a folder or Explorer window and choose *Customize this Folder*. Select *Choose a background picture* and click **Next**. Select one of the available images, or click *Browse* and use the ‘Files of Type’ list box to find a .bmp, .jpg, or .gif graphic elsewhere on your system. Choose a background that's both distinctive and simple enough for easy reading. Depending on the image, you may also want to click the ‘Text color’ box in the ‘Customize this Folder’ dialog box and choose a contrasting color for the text label of each icon in the folder. If the text proves hard to read, return to this dialog box, click the *Background* check box, click its color box, and choose a background color for the text labels. For best results, choose a background color that goes well with your background picture, as shown in **FIGURE 1**. When you've made your choices, click *Next* and then *Finish*.

Sound it out. If you're more attuned to sound than to sight, you may prefer an auditory reminder of a folder's identity each time you open it (IE 4.x and Win 98 only). This tip, submitted by reader Ismail Mohammad, involves adding a bit of HTML code to a folder.

First, make sure you have a sound file in .wav format stored on your hard disk. You can employ music or a sound effect as a subtle reminder, or use Sound Recorder (choose *Start•Programs•Accessories•Multimedia•Sound Recorder*) and a microphone to create something more elaborate. Once you've got the sound you

want, right-click in the folder window you wish to customize and choose *Customize this Folder*. Make sure *Create or edit an HTML document* is selected and click *Next* twice. The HTML file for your folder will open in Notepad. Beneath the line that reads `<html>`, add the following text on a new line: `<bgsound src="c:\windows\media\sound.wav">`, replacing the path (in quotation marks) with one for the .wav file you want to use. Choose *File>Exit* in Notepad

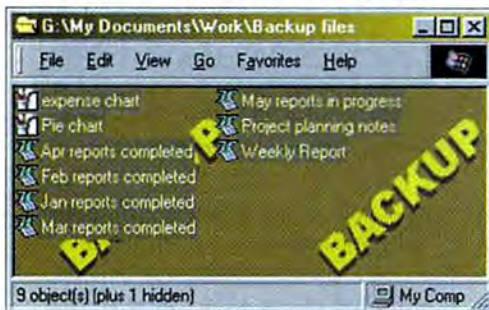


FIGURE 1: WHERE AM I? A background picture and re-configured title bar can help you remember your place.

and click *Yes* when prompted about saving changes. In the 'Customize this Folder' dialog box, click *Finish*. Your folder will be displayed in Web view and will look as it did before. But the next time you open the folder, the .wav file you selected will play automatically. If you want to temporarily disable the sound, choose *View>as Web Page* to uncheck this command. The folder will remain silent until you restore Web view again by choosing this command.

If you subsequently decide to remove the picture background or sound effects permanently, right-click in a folder and choose *Customize this Folder*. Then select *Remove customization*, click *Next*, and follow the on-screen prompts.

THEMES ON DEMAND

98 THE BOSS IS coming! Quick, replace that Austin Powers desktop theme with something more grimly appropriate! You could select *Start>Settings>Control Panel*, double-click *Desktop Themes*, pick a theme, and click *OK*. But by the time you did all that, your job could be, as Austin would say, "Curtains, baby!" To switch to a specific theme on demand, you have to prepare ahead of time.

Open a folder within the Start folder or

make some room on the desktop for a new shortcut. Right-click inside the folder or on the desktop and select *New>Shortcut*. In the Command line, type the full path to the Themes program, using quotation marks if the path has any spaces. Then add a space and `/s` to make Windows apply the theme of your choice. Finally, add another space and the path and name of this new theme; for some reason, this path doesn't require quotation marks. When you're done, your command line should look like this: `"c:\program files\plus!\themes.exe" /s c:\program files\plus!\themes\business.theme` (see FIGURE 2). Click *Next*, type a name for the shortcut, and click *Finish*. To run this shortcut, double-click it on the desktop or choose it from the appropriate menu. For even faster access, make a keyboard shortcut to this theme: Right-click the shortcut and select *Properties*. With the *Shortcut* tab in front, click inside the *Shortcut* key box and press the keys of your choice (you're forced to use at least two modifier keys like *<Ctrl>*, *<Alt>*, or *<Shift>*). Click *OK* to finish. Now whenever you need instant respectability, just hit your shortcut keys. Your alternate theme will display—as long as the shortcut icon is on the desktop or within the Start Menu folder hierarchy.

RANDOM THEME CHANGING

98 WINDOWS 98 comes with a version of Desktop Themes that works with Task Scheduler to let you change themes according to a schedule. For a monthly change, double-click the *Desktop Themes* icon in Control Panel, check the *Rotate theme monthly* box, and click *OK*. Windows will ask for your per-

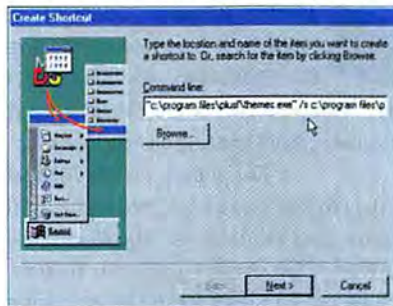


FIGURE 2: GET INSTANT anonymity via a shortcut to a personality-free theme file.

CONTENTS

WINDOWS TIPS

- 250 Make folders distinguishable by sight or sound, empower the *<Shift>* key, change desktop icons.

WINDOWS NT

- 254 Use NT on your laptop, take the frustration out of configuring PC Cards in your dual-boot PC.

ANSWER LINE

- 255 Reinstall Windows without reformatting your hard drive, control the look of your screen.

INTERNET TIPS

- 257 Troubleshoot browser crashes, find out how quickly your ISP downloads your Web page.

WORD PROCESSING

- 263 Extend selected text in Word and WordPerfect; crop, scale graphics in Word and WordPerfect.

SPREADSHEETS

- 264 Avoid the pre-1900 glitch in Excel, calculate complicated-fee problems in Excel and 1-2-3.

HARDWARE TIPS

- 266 Improve video playback on your PC, get Windows 9x to open items with a single click.

UPGRADE GUIDE

- 270 Install an IDE DVD-ROM drive, step by step.



DON'T MISS ADDITIONAL HERE'S HOW information at www.pcworld.com/heres_how.

mission to keep Task Scheduler running (if it isn't already), and to do the rest of the configuration itself. But suppose you want to change themes on a whim? Or what if you don't want to keep Task Scheduler running every day for this occasional task?

To change to a random theme at will, follow the previous tip's steps but use the `/r` switch in place of the `/s` switch and don't bother adding a theme file name to the Command line. To make the theme change each time you start Windows, move the shortcut to the StartUp folder. Note: This tip doesn't work with Microsoft Plus for Windows 95. Also, themes.exe doesn't come with Win 98 SE, so if you're upgrading to that OS, you'll need to make a copy of the old themes.exe file first. ►

SHIFTY BUSINESS



IF YOU TEND to use just your mouse or just your keyboard, you're missing out on some power moves you'd get by using the two in tandem. The following tricks involve using the mouse while holding down the <Shift> key. After you try one, you'll be glad you're not shift-less.

Extend selections. The <Shift> key is most useful for selecting a range of text in a word processor or for selecting files in a folder. If one desktop icon is already selected (or has a dotted border around its name, indicating that it has the window focus), <Shift>-click another icon to select both icons and all other icons in between. Holding <Shift> as you press any arrow key or the <Home>, <End>, <Page Up>, or <Page Down> key extends the selection of desktop icons in the direction indicated.

Delete forever. Pressing <Shift>-<Delete> deletes the selected file or folder without

the current folder window remains active.

Close all windows. If each of your folders is set to allow browsing with a separate window (using *View>Options*), and you open a series of nested folders, <Shift>-click the close box of the last opened folder to close it and all previous folders in the series. For the same effect, press <Shift> as you choose *File>Close* from the folder window's menu.

Force a move. When you drag an icon from one disk to another, Windows creates a copy by default. And when you drag an application icon anywhere out of its installed location, Windows creates a shortcut by default. To force Windows to move the object (rather than creating a copy or a shortcut), hold down <Shift> as you drag.

Go back. In any dialog box, you can move from option to option by pressing the <Tab> key. Similarly, if the desktop or taskbar is active, pressing <Tab> cycles the focus from desktop icons to the Start button to the taskbar. If you have IE 4.x or



FIGURE 3: FOR ICONS galore, click *Change Icon* in a shortcut's Properties dialog box.

small task. To give a distinctive look to a folder, you must make a shortcut to it. For example, use the right-mouse button to drag a folder to the desktop (or elsewhere) and, when the pop-up menu appears, select *Create Shortcut(s) Here*. Right-click the new shortcut and choose *Properties*. Click the *Shortcut* tab and then *Change Icon*. Next, type the path to the .ico file (or another file that contains icons, such as an .exe or .dll file); or click *Browse*, navigate to and select the file you want, and click *Open*. Make sure the icon you want is selected in the *Change Icon* dialog box, and click *OK* (see FIGURE 3). Click *OK* again to close the Properties sheet.

If you want to change the icon for an entire file type (for example, all files with a .txt extension), start Explorer and choose *View>Options* or *View>Folder Options* (depending on your version of Windows). Click the *File Types* tab, select a file type, click *Edit*, and then click *Change Icon*. Select an icon just as before, and then close all dialog boxes.

For an easy way to change icons globally (even hard-to-change desktop icons), see this month's *Windows Toolbox*, left.

WINDOWS TOOLBOX

Icon Changing Made Easy

CHANGING DESKTOP ICON images is one of the most asked-about tricks. Finally, we can report an easy solution, thanks to Tal Sella and Dor Naveh's new utility, *Icon Phile*. Though *Icon Phile* is still a beta product, I had no problem using its drag-and-drop interface to reassign icons. The current version (0.98b at this writing) works with Windows 9x and NT 4.0 and is available as a free download from members.xoom.com/scrows or from PC World Online's FileWorld.

storing it in the Recycle Bin. For the same result, <Shift>-drag an icon to the Recycle Bin. However, if you've set your Recycle Bin preferences *not* to store deleted objects, holding <Shift> while deleting will achieve the opposite result—your objects will be deposited in the Recycle Bin.

Open a tree view. <Shift>-double-click a selected folder icon to open that folder in a two-pane Explorer window. You must select the folder first; otherwise, using the <Shift> key could cause your double-clicking to apply to a whole range of icons.

Open in the background. <Shift>-double-click a selected application icon or shortcut to open that application minimized—but ready to go—on the desktop. If you have several windows open on your desktop, the app opens at the bottom of the stack;

Win 98, Quick Launch and other toolbars are included in the cycle. (Use the arrow keys to move the focus within these areas.) Pressing <Shift>-<Tab> reverses the order of this cycling, both in dialog boxes and on the desktop. Note: The <Shift>-<Tab> combination does not reverse cycling properly in Windows 98; this is a known bug.

Start all over again. To restart Windows without rebooting the entire PC, choose *Start>Shut Down* and select *Restart*. Hold down <Shift> as you click *Yes* or *OK*. Keep it depressed until you see 'Windows is now restarting' on your screen.

TELL ME WHAT ICON DO



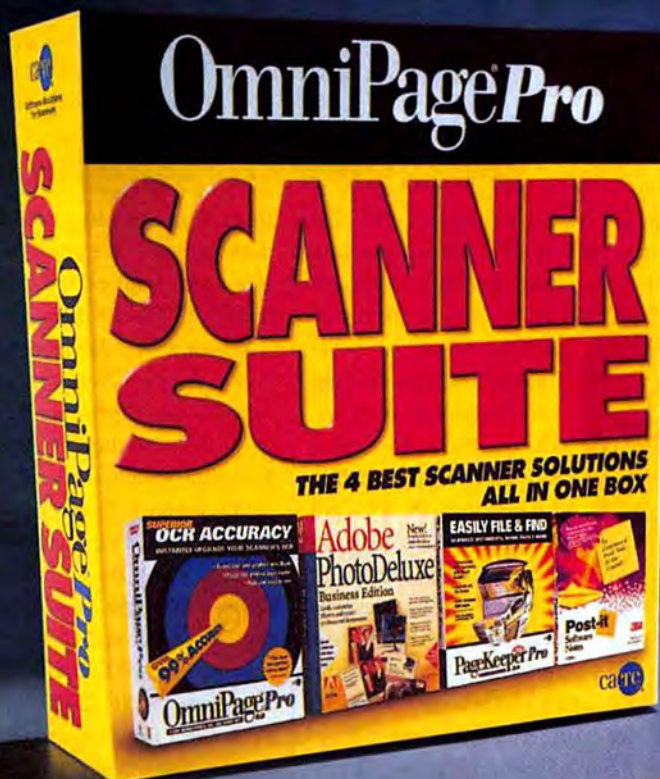
APRIL'S *Windows Toolbox* item, "Make Folder Icons More Distinctive With 3DFolders" is a nice idea. I downloaded the freeware collection, but nowhere could I find help on how to use it.

Kathy Burt, via the Internet
THE FOLDER ICONS featured in the April issue (and available on FileWorld) are intended for dressing up your folders. However, Windows doesn't let you assign a different icon for each folder. Even changing the icon for all folders is no



You'll find files mentioned in this article at www.fileworld.com/ magazine. Send your questions and tips to scott_dunn@pcworld.com. We pay \$50 for published items. Scott Dunn is a contributing editor for PC World and a principal author of *The PC Bible*, 2nd Edition (Peachpit Press, 1995).

FOUR #1's IN ONE.



**Introducing all-new OmniPage Pro Scanner Suite.
A must for every scanner owner!**

With new OmniPage Pro® Scanner Suite, you and your scanner can now produce truly professional results every time. It offers you four best-of-breed scanner software products from three industry leaders—all for one unbelievable price. It's an unbeatable value.

Upgrade your OCR accuracy now with OmniPage Pro 9.0. Over 99% accurate*, it quickly turns paper documents into editable text files. You'll never have to retype again.

Adobe® PhotoDeluxe® Business Edition allows you to easily scan and

modify your photos, and offers hundreds of templates to create professional documents.

PageKeeper® Pro 3.0 automatically files and finds your scanned documents, Word files, Web pages and more—so you don't have to. And Post-it® Software Notes from 3M lets you tag Post-it® Notes to your electronic documents.

New OmniPage Pro Scanner Suite has all the scanner tools you need, all in one box. To order, call now or visit your local reseller.



*On clean quality documents using standard fonts. **Suggested price US dollars—subject to change without notice. Offer valid in US and Canada only. Caere, the Caere logo, OmniPage Pro and PageKeeper are registered trademarks of Caere Corporation. All other names and trademarks are the property of their respective companies. ©1999. All rights reserved.

Circle 91 on card or go to www.pcworld.com/productinfo



**Caere OmniPage Pro 9.0:
The Most Accurate OCR**



**Adobe PhotoDeluxe
Business Edition:
Leading Image Editor**



**Caere PageKeeper Pro 3.0:
The Best Document Manager**



**Post-it® Software Notes:
The Leading Annotation Tool**

SPECIAL INTRODUCTORY PRICE—LIMITED TIME ONLY

\$149 800-736-5735**
EXTENSION 130

OMNIPAGE PRO SCANNER SUITE

- Accurately recognize paper documents
- Quickly customize your photos and create professional-looking documents
- Easily file and find scanned documents, Word files, Web pages and more
- Organize and communicate your ideas faster and easier



Software Solutions
for Scanners

www.caere.com

NT on Your Notebook: It Can Be Done

WHEN IT COMES to portable computing, Windows 98 and 95 eclipse NT. Both support the Advanced Power Management specification, PC Card hot-swapping, and automatic configuration; Windows 98 also supports newer systems' USB ports and devices, ACPI power management, and DVD-ROM drives.

With NT, popping in a PC Card modem or network adapter requires hands-on configuration and a reboot because NT lacks Windows 9x's Plug-and-Play setup. And since it lacks power management support, NT can't power down inactive PC Cards. Close the lid on your laptop, and just about anything could happen when you open it again: Your system may be frozen, unstable, or—who knows—up and running.

For these reasons, many laptop makers sell versions of NT 4.0 that include drivers and software customized for their systems. Often you can download the drivers from the company's Web site. If your system maker doesn't offer free NT drivers, or if the provided software doesn't work well, try a third-party alter-

native instead.

Softex Power Management Controller works with notebook PCs equipped with an APM 1.x BIOS. The \$40 utility detects CPU idle time and reduces CPU power consumption. It also correctly sets the system clock

when you return from suspend mode and supports multiple batteries on APM 1.2-compliant systems.

The company's \$80 Softex PC Card Controller enables Plug-and-Play-like PC Card installation and configuration for both 16-bit PC Card and 32-bit CardBus devices. When used with the Power Management Controller, the utility also powers down inactive cards, prolonging battery life.

SystemSoft's \$50 PowerProfiler/SE provides extended suspend/resume controls and battery-status information on APM 1.x systems. If your laptop came bundled with PowerProfiler 2.20 or earlier, you can upgrade to version 2.30 for \$20. PowerProfiler/SE lacks some features found in PowerProfiler, but the latter only comes preinstalled on a laptop. The company's \$80 CardWizard 5.0 enables autoconfiguration and hot-swapping with more than 550 PC Cards, and works with PowerProfiler and other power management utilities to power down inactive cards. Upgrades from earlier versions cost \$50.

CONFIGURE PC CARDS THE EASY WAY

GETTING A PC CARD device to work with NT 4.0 can be frustrating. Devices whose drivers require you to set an IRQ and base address don't work with NT's default set-



FIGURE 1: CONFIGURE PC CARDS easily in your dual-boot NT system by using Win 98's settings.

Good Touchpad Vibrations

DOES YOUR LAPTOP use a touchpad pointing device? If so, chances are Synaptics made it. (Not sure? Download a touchpad identification tool from www.synaptics.com/tprev.exe.) The company's latest Windows NT 4.0 driver adds more than a dozen nifty features, including horizontal and vertical scrolling, programmable tap zones and button assignments, and more. Find details and a link to the free driver update (as well as a free tool for generating cool audio effects) at www.synaptics.com/drivers/index.html.

tings. You can call support, buy third-party software (see previous tip), or plug in random settings. But if your PC dual-boots with Win 98, here's an easier way.

Reboot to Windows 98, right-click My Computer, select Properties, then the Device Manager tab. Choose the PC Card device in the tree, and click the Properties button. Select the Resources tab and jot down the card's settings. Now reboot to NT, open Control Panel's PC Card (PCMCIA) applet, and select the card from the list of devices. Click the Properties button, then the Driver tab, and finally the Configure button. Click OK to confirm that you want to change the PC Card device's settings, then select from the drop-down lists the settings you jotted down from Windows 98 (see FIGURE 1), and click Continue. Click OK twice to complete the operation, cross your fingers, and restart Windows NT.

Scott Spanbauer is a contributing editor for PC World. Send your questions and tips to nttips@spanbauer.com. We pay \$50 for published items.

Softex Power Management Controller, Softex PC Card Controller

Street prices: Power Management Controller, \$40; PC Card Controller, \$80; Softex: 512/452-8836; www.softexc.com/products.html

PRODUCT INFO NO. 601

PowerProfiler/SE, CardWizard 5.0

Street prices: PowerProfiler/SE, \$50; upgrade to PowerProfiler 2.30, \$20; CardWizard, \$80; upgrade, \$50; SystemSoft: 508/651-0088; www.systemsoft.com

PRODUCT INFO NO. 602

YOUR QUESTIONS ON: Windows Display Settings ♦ Upgrading to IE 5

Reinstall Windows Without Reformatting

FIRST, THE BAD NEWS: The longer you use Windows, the more it accumulates errors. Between the accumulation of user-installed program files—many of which add to Windows' System Directory—and applications that run in the background, conflicts get more numerous. Eventually it gets too unstable—crashes or freezes occur more and more often—and your only option is to wipe it out and start over from scratch. (I do this myself about once a year.)

The good news: You don't always have to reformat your hard drive in the process. Instead, you can usually wipe out and rebuild Windows while leaving your data—and to some extent your apps—intact.

A word of caution: Don't attempt this procedure if you're in a hurry—it will probably take all day. Here's what to do: **1. Gather what you need.** This includes your Windows CD-ROM, as well as the CD-ROMs and floppies that your various programs and device drivers came on. Also, if your version of Windows is an upgrade, you'll need to have the discs for your earlier version of Windows handy.

2. Back up your Windows folder. Remember, you're not wiping out your hard drive, so copying files to another folder on the drive is a quick, convenient, and workable way to back them up. If you don't have room on your hard drive to make a full copy of the C:\Windows folder, copy as many of the important files as you can. See **FIGURE 1** for a list of the most indispen-

able folders and files to back up.

3. Note important settings. Select *Start•Settings•Control Panel*. Launch

any of the following applets that seem relevant to you, and write down their settings: Display, Internet, Modems, Network, and Password. How can you tell if something is relevant? Common sense. For instance, if you're the only person using your computer and it's not on a network, don't bother with Network or Password.

If you use a modem to access the Internet, select *Start•Programs•Accessories•Dial-Up Networking*. Right-click your dial-up connection and select *Properties*. Write down all the settings you see (or print the screen).

4. Prepare a bootable disk with CD-ROM support. If you have Windows 98, this task is simple: Select *Start•Settings•Control Panel*. Double-click *Add/Remove Programs*. Click the *Startup Disk* tab, then the *Create Disk* button. Then follow the prompts.

If you have Windows 95, the job is harder. See *Answer Line*, March 1998 (www.pcworld.com/mar98/answerline_boot) for details.

Before you go on to the next step—the most unnerving—test the new boot disk. Leave it in the drive, shut down Win-



Quick View Plus Shortcut

IS THERE A FILE that you look at regularly but don't often edit? If you have Jasc's Quick View Plus (\$59, 800/622-2793, www.jasc.com), you can create a shortcut for viewing that file without bringing it up in its application. To create such a shortcut in your Start menu, right-click the taskbar and select *Properties*. Click the *Start Menu Programs* tab, then the *Add* button. For a command line, enter "c:\program files\quick view plus\program\qvp32.exe" "pathname\filename". Don't omit the quotation marks.

dows, and restart your PC. You should eventually get to an A> prompt. Insert your Windows CD-ROM, then enter the command *dir d:*, where *d:* is your CD-ROM drive letter, and press <Enter>. You should see a list of files and folders. Seeing this list means you can boot from the floppy and read a CD-ROM. You can now go on to step 5.

5. Wipe out your operating system. This is the scary part; it's not easy to turn back from here. At the A> prompt, type in these three commands, in order, pressing <Enter> after each one:

```
c:\windows\command\attrib -s -r -h c:\.*
del c:\.*
c:\windows\command\deltree c:\windows
```

The last command may require several minutes to process. Take a break. When you come back, your computer will be unusable. You'll need to make it usable again.

6. Reinstall Windows. When the A> prompt returns, enter the command *d:\install*, where *d:* is your CD-ROM drive letter; then press <Enter>. Follow the prompts. ▶



FIGURE 1: YOU MAY not have all these files and folders within C:\Windows; back up those you do. And be sure to copy the sub-folders within the folders.


7. Re-create your environment. Now you have to make the uncustomized, default version of Windows yours again. First, check to make sure the basics are working: Can the screen display your favorite resolution? Can you log on to the network? The Internet? If you have problems with any of these functions, reenter the settings you copied in step 3, as needed.

Now restore the most important files and folders you backed up in step 2. Specifically, restore everything listed in Figure 1 to its original location. If you backed up your entire Windows folder, do *not* restore it all—the point of this hassle is to get rid of the accumulated garbage. But keep the backup around for a couple of months in case you need to restore a given file.

8. Get your applications working. This is the longest and the hardest part of the job. Right-click *Start* and select *Explore*. Test each program by launching it. Although the programs are still on your hard drive, some of them will not launch without pieces that were in the Windows folder before you deleted it. If a program fails to launch, reinstall it—and be sure to put it in the same folder that it was in before.

9. Update everything. Every program you've reinstalled, including Windows, has lost any updates you downloaded from vendor sites. Use the programs' update features or visit Web sites to update the software again. Start with your antivirus program.

THE COST OF LOOKING GOOD

 **WINDOWS' DISPLAY** Settings screen offers me various choices for Colors and 'Desktop area'. What do these options mean? What do I gain or lose by choosing a higher or lower setting?

Murray West, Terre Haute, Indiana

THESE SETTINGS control how your screen looks; they're limited by the capabilities of your graphics card and monitor.

The Color Palette setting defines *color depth*—the number of colors the graphics card can display. The settings are a bit

confusing because Windows isn't consistent as to how it defines the settings. For instance, the option '256 Colors' could be described as 'Limited Color (8 bit)', while the setting 'True Color (24 bit)' could just as accurately be '16,777,216 colors', which is what 24-bit color really is.

In theory, greater color depth slows down your graphics card. But with today's cards, you're not likely to notice any difference. So my advice is to keep the color depth as high as your system permits.

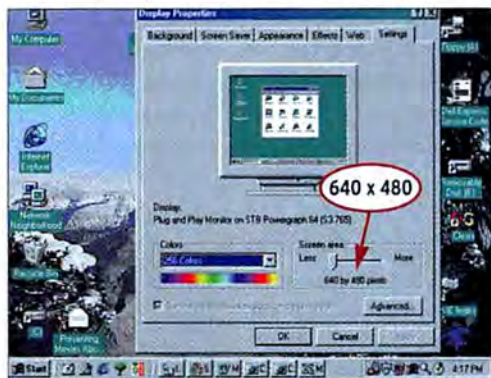
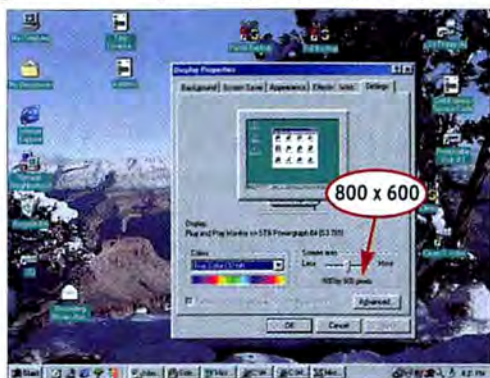


FIGURE 2: HIGHER RESOLUTION (left) allows more objects on your screen (and greater color depth makes photos look better), but text is harder to read. Screen at right has both lower resolution and less color depth.

The Screen Area setting controls your *resolution*—the number of pixels displayed on the screen. For instance, a setting of 640 by 480 means the screen has 640 pixels on each of 480 horizontal lines. A higher resolution, such as 800 by 600, yields more—and smaller—pixels.

Since each of the objects on your screen—icons, text, windows, and so on—has a set size in pixels, a higher resolution results in smaller objects, allowing you to fit more of them on the screen. But it also makes the objects harder to see and the text harder to read (see **FIGURE 2**).

Your best bet is to pick the resolution that you find easiest on your eyes. (You can always change the resolution or color depth back at your convenience.) Right-click anywhere on the Desktop, select *Properties*, and click the *Settings* tab. Enter the changes you want and click either *OK* or *Apply*. After Windows makes the changes (which sometimes requires a reboot), it will ask if you want to keep the new settings. If you don't click *OK* within 15 seconds, Windows will return to the original settings.

HOW TO UPGRADE TO IE 5



I WANT to upgrade to Internet Explorer 5. To prevent problems, should I uninstall IE 4 first?

Parkin Jung, San Francisco

THE EASIEST WAY to upgrade to IE 5 is to install it *over* IE 4.x. (Indeed, if you have Windows 98, you can't easily remove IE 4.x.) If you go directly from IE 4 to IE 5, your settings, Favorites, Address Book, Mailbox, and News folders will automatically carry over into the new browser.

In most cases, the new program simply uses the old data as is. The exception involves Outlook Express, where version 5 stores messages differently than OE 4.x does. If OE 4.x was installed when you upgraded, the first time you launch Outlook Express 5, the program will automatically import the OE 4.x mailbox. But when it does so, it will leave some garbage behind. You can get rid of this debris.

Outlook Express 4.x stores messages in two subfolders called Mail and News, both residing by default inside C:\Windows\Application Data\Microsoft\Outlook Express. But Outlook Express 5 stores messages directly in that OE folder—without the subfolders.

You'll free up quite a few megabytes if you go to C:\Windows\Application Data\Microsoft\Outlook Express and delete the Mail and News folders.

We welcome your questions and tips. Send them to answer@pcworld.com. We pay \$50 for published items. Contributing Editor Lincoln Spector writes the syndicated humor column *Gigglebytes*. ■

Troubleshoot hardware conflicts ♦ Repair damaged folders ♦ Find help online

You Don't Have to Live With Browser Crashes

FOR A WEB addict, few mishaps are more galling than seeing the browser freeze or receiving a "fatal error" message while clicking through a Web site. In many cases the culprit is elusive. A glitchy video driver, insufficient memory, a bug, or corrupt browser settings may be to blame. But so may myriad other problems.

The first step in troubleshooting a browser crash (or instability) is to make sure that you're running the latest version of your browser. In Navigator, click *Help • Software Updates* once you get online. If you use Internet Explorer, browse to www.microsoft.com/windows/ie. And it can't hurt to update the operating system, while you're at it. If you run Windows 95 4.00.950 or 4.00950a, install Service Pack 1 and the Kernel 32 update. (To learn whether you need to upgrade, go to support.microsoft.com/support/ServicePacks/default.asp.) If you run an early version of Windows 98, select *Start • Windows Update*.

Now verify that your system has the latest ROM BIOS, modem firmware, and video drivers by checking the Web sites of these components' vendors.

IDENTIFY THE CULPRIT

AFTER YOU'VE determined that your software and hardware are up-to-date, check out your system by right-clicking *My Computer* and selecting *Properties*. Click the *Device Manager* tab and make certain that

no red or yellow flags signal hardware conflicts.

Is it the graphics card? If graphics from Web pages have a smeared

look, if pictures don't appear at all, if links vanish prior to a crash, or if your system locks up as you scroll down a page, your video driver or graphics card may be at fault. At the *Performance* tab, click the *Graphics* button and move the *Hardware Acceleration* slider to the left to slow Windows' use of your graphics card's acceleration features (see **FIGURE 1**). This tactic may help if you encounter intermittent problems with your browser when it tries to display Web graphics. Slow acceleration to the minimum if you think your graphics hardware may be causing browser lock-ups. Slowing graphics acceleration may cause Web pages to appear jiggly as you scroll through them. But if this maneuver solves your problems, you need a new video driver or graphics card.

Another option is to temporarily configure Windows to use a plain-vanilla VGA driver. Double-click *Display* in the Control Panel, and in the *Settings* tab click *Change Display Type*. Under *Adapter Type* click *Change • Show All Devices*. Click *Standard Display Adapter (VGA)*. If this cures your browser problems, a bad driver is at fault.

Is it the hard disk? Make sure you have enough space for browser caching—at least 10 percent of disk space or 50MB



Check Your ISP's Speed

DO VISITORS TO your site complain that it's too slow? Find out if your ISP is to blame with NetMechanic's free Web Server Check (www.netmechanic.com/server_check.htm). Type in your URL, and NetMechanic will download your Web page every 15 minutes for 8 hours, then e-mail you a report on your ISP's performance. Many variables may affect how your ISP fares, including its distance from NetMechanic's own servers. But Server Check can give you a rough idea whether your ISP is the culprit.

should be free. Start by getting rid of temporary files—you'll find them in *c:\temp*, *c:\windows\temp*, or both. Run *ScanDisk* and *Disk Defragmenter* to clean up your disk. If you're using IE, consider deleting files from *c:\windows\temporary Internet Files* (that's IE's cache folder)—but be careful not to delete the cookie files.

NOTE ERROR MESSAGES

IF YOUR BROWSER crashes repeatedly, you've probably noticed patterns. Maybe your browser hangs when you attempt to download mail. Perhaps it crashes when you read newsgroup messages, or Windows spits out error messages when your browser is running side by side with a graphics program. Write down any error messages and codes, chronicle the symptoms, then head out on the Web. Even if the problem afflicts just one browser, search the tech support Web sites of both Microsoft (www.microsoft.com/support) and Netscape (help.netscape.com) for ▶



FIGURE 1: IF YOUR GRAPHICS CARD is crashing your browser, reduce Windows' graphics acceleration to prevent choke-ups.

\$149 PC!

IT'S REALLY TRUE!

Over 75,000 Shipped

This revolutionary new technology allows you to add a 2nd PC for only \$149 (excluding monitor, keyboard & mouse) to your existing Windows 95/98 PC (100MHz or faster). With our Buddy system you can connect a second monitor, keyboard and mouse up to 50 feet away to create a new, completely independent PC!

Best of all, you only need to upgrade your main PC to get the same benefits on your Buddy system (without buying two new sets of PCs and peripherals)!

Each PC can Independently and Simultaneously:

- ✓ Run any software that you have on the main PC
- ✓ Send and receive e-mail
- ✓ Browse the Web
- ✓ Use or share documents and data files
- ✓ Share one printer, modem, or other peripherals

And much more!

BUY DIRECT

1-888-406-9086
www.vegatechnologies.com

Setup Is as Easy as 1-2-3

- Step 1** Place the Buddy expansion card in the PC.
- Step 2** Run the 15-foot extension cable (50-foot cable optional) from the
- expansion card to the Buddy connector box.
- Step 3** Connect the 2nd user's monitor, keyboard and mouse to the Buddy connector box.



INTERNET TIPS

help in deciphering the more common error codes. Also, if you suspect your browser crashes are hardware-related (because, for example, you've noticed that both IE and Navigator exhibit similar symptoms right before they crash), search the Microsoft and Netscape sites, which offer many fixes for problems that may arise when you work with specific hardware. For instance, on Microsoft's site I found good advice for taming a wacky video card—including suggested tweaks to the system.ini file to make IE and Navigator behave with the restive card.

WHEN COMMUNICATOR CRASHES

IF YOU'VE RULED OUT problems with your system and concluded that Navigator shoulders all the blame for crashing, head to Netscape's troubleshooting page (help.netscape.com/kb/client/970203-1.html). You'll find a directory of crash symptoms with links to solutions. Some things to try: **Create a new user profile.** First, close the browser. Click **Start•Programs•Netscape Communicator•Utilities•User Profile Manager**. Create a new profile using a name that differs from your old one. Try it out for awhile, and if you have no problems, head to the User directory where your old

profile is stored (in c:\program files\netscape\users\yourname, usually) and make copies of the bookmark.htm and abook.nab files, the mail and news folders, and any .nab files into the new directory.

Replace a corrupt news folder. If Communicator crashes when you try to read newsgroup messages, your news folder may be corrupt. To handle this possibility, close Communicator, go to your User folder, rename your news folder, and reopen the program, which will then create another news folder.

Fix the mail folder. Similarly, if Communicator crashes when you check your mail, you may need a new mail folder. Close Communicator, go to your User directory,

rename the mail folder, and create a new one by right-clicking inside that folder and selecting **New•Folder**. Name it **mail**. Likewise, if the browser crashes when you use your bookmarks or addresses, try renaming your bookmark (bookmark.htm) or address file (abook.nab) and letting the program create new ones.

Rewrite history. Close Communicator, and rename the History file (netscape.hst) and Cache folder in case they're causing the problem. If nothing changes, delete the newly created history file and Cache folder, and reinstate the older ones.

Get outside help. Finally, find fixes for misbehaving browsers in the Netscape Unofficial FAQ page (www.ufaq.org), featuring compilations of tech support questions and answers (see **FIGURE 2**). You'll also find a troubleshooting chart, notes on different versions of the browser, and a download section with fixes and patches.

WHEN IE CRASHES

MOST IE SNAFUS are reported as Invalid Page Fault errors. You can troubleshoot specific errors on Microsoft's site (www.microsoft.com/support). Here are some quick possible solutions:

If IE bites the dust while you're trying

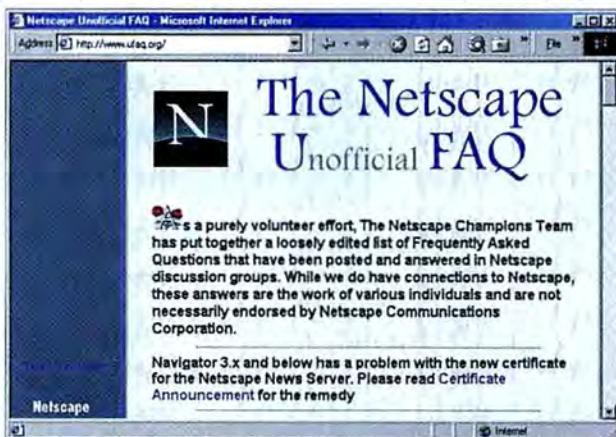


FIGURE 2: IF YOU CAN'T FIND answers to your urgent questions about Netscape, consult UFAQ, a third-party support site.

to display Java, ActiveX, or other active content, try disabling these features one by one, then checking to see if the page displays properly. From the Tools menu select **Internet Options**. Click the **Security** tab, then the **Internet** icon. Click **Custom Level**. Click beside **Disable** in these cat- ▶

THE BEST DEAL
ON A NEW SYSTEM
MAY BE UPGRADING
THE ONE
YOU ALREADY OWN.



KINGSTON® TURBOCHIP® PRODUCTS

are designed as plug-and-play upgrades that extend the life of your desktop or mini-tower by increasing system performance by as much as 280%. Call your Kingston sales representative at 800-259-8969 to find out why the best deal on a faster system is upgrading the system you already own.



AS LOW AS
\$249

TURBOCHIP 366

Upgrades AMD® and Pentium® based systems running 166MHz and up with the latest 3D multimedia capabilities and 366MHz of processing power.



AS LOW AS
\$199

TURBOCHIP 233

Upgrades most Pentium based systems running 75MHz and up with genuine Intel 233MHz MMX Pentium processing power.



AS LOW AS
\$108

TURBOCHIP 133

Upgrades most 486 based systems to 133MHz of 5x86 processing power with built-in coprocessor and 16Kb internal cache. TurboChip 133 is rated at Pentium 75-plus performance.



17600 Newhope Street, Fountain Valley, CA 92708 USA (714) 435-2600 Fax (714) 438-1879
© 1999 Kingston Technology Company. All rights reserved. All registered trademarks and trademarks are the property of their respective owners.

Circle 133 on card or go to www.pcworld.com/productinfo

Buy what you want



- No standing in line
- No waiting on hold
- Secure order on the web

- Select from 19 product categories
- Check reviews, article awards, news reports
- Read advice from the pros from publications like PC World, PC Games, InfoWorld, MacWorld, Publish, and ComputerWorld
- Compare your favorite well known brands
- Check for the latest price and availability
- Order from well known reliable resellers in a secure environment
- Great prices

When you want

www.WebShopper.com

INTERNET TIPS

egories: Download signed ActiveX controls, Run ActiveX controls and plugin, Active Scripting, and Scripting of Java applets. Under Java, select *Disable Java*.

HELP OUTLOOK EXPRESS REMEMBER YOUR FONTS



I CAN'T GET my Outlook Express to remember the typeface and font size I want to use. It always reverts to whatever the default settings are.

Arthur Dillon, Los Alamos, New Mexico
TO GET OUTLOOK EXPRESS to use your font as the default, you must set the program to send your e-mail in HTML format. Select *Tools•Options* and click the *Send* tab. Under 'Mail Sending Format' click beside *HTML* and click *OK*. Now select

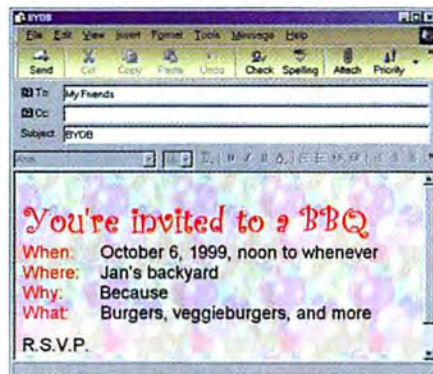


FIGURE 3: FORMATTED E-MAIL in Outlook Express is possible only when you enable HTML.

Tools•Compose and click next to *Mail*. Click *Select* and pick your favorite "stationery" or page layout. Note: Though most up-to-date e-mail programs support HTML, not everyone uses an up-to-date program, nor will all systems display the same fonts. For business purposes, it's common practice to use plain-text e-mail. If you'd rather not limit yourself to this, specify in the address book that you want the program to send e-mail to designated recipients as plain text. To do this, under the *Personal* tab for an individual's address book entry, select *Send e-mail using plain text only*.

We welcome your questions and tips, and we pay \$50 for published items. Contributing Editor Judy Heim is coauthor of *The Quilter's Computer Companion* (No Starch Press, 1997). Send e-mail comments to judy_heim@pcworld.com. ■

**“The best advice for anyone in business is to keep it simple.
And the best way to do that is to find the people, products
and services who already have that as their goal.”**





Anyone can promise you "custom" technology, but how many manufacturers can
at the forefront of each system we design. Together we discuss what you want to
We can also assist you with Client Care services and financing options to protect

Gateway™ Solo® Portables

Mobility is made simple with a
wide range to choose from.



GP-Series Professional Desktops

So simple, you can open the box
and get right to work.



ALR® Series Servers

Scalable servers that make
company communication simple.



CALL 1-800-846-8571, CLICK www.gateway.com

© 1999 Gateway, Inc. All rights reserved. Gateway, gateway.net, Solo, the Gateway stylized logo, Gateway Country, EZ Pad, InferManager and YourWare are trademarks or registered trademarks of Gateway, Inc. The Intel Inside Logo, Intel and Pentium are registered trademarks, and Celeron and Pentium II Xeon are trademarks of Intel Corporation. All other brands and product names are trademarks or registered trademarks of their respective companies. Many products are engineered to Gateway specifications, which vary from retail versions. 1. Maximum data transfer rate dependent upon variables, including particular modems with which you are communicating, telephone lines, communications software and communications protocols. 2. The Solo 2500 achieved a BatteryMark™ version 2.0 test details may be found on our Web site <http://www.gateway.com/batterylife>. Battery life will vary depending on actual use factors, such as computer configuration and application use. BatteryMark is a trademark of Ziff-Davis Inc. in the U.S. and other countries. 3. Leasing provided by independent leasing companies to qualified commercial customers. Lease payments based on a 36-month term. Lease terms subject to change without notice or obligation. 4. Call 1-800-GATEWAY or write to Gateway Terms & Conditions, P.O. Box 1951, North Sioux City, SD 57049-1951 for a free copy of our limited warranties and on-site service agreements. On-site customers: If Gateway determines on-site service is necessary, it will be provided for product in the continental United States, Alaska, Hawaii, Puerto Rico and Canada (excluding mice, keyboards, portable docking stations, external peripherals and monitors). You may be asked to take your PC to a Gateway location for warranty service. See agreements for specific terms and limitations. 5. Gateway Intel processor-based systems are qualified to carry the "NSTL Hardware Tested Year 2000 Compliance" logo because they have successfully completed the NSTL YMARK2000 test. These systems have also passed the Microsoft Millennium Year 2000 test suite. Gateway cannot be responsible for third party software that improperly sets, resets, or calculates dates. These issues are not related to the hardware and operating system, and cannot be corrected by Gateway. Complete details on Gateway's Year 2000 support can be found at www.gateway.com/year2000. 6. Technology refresh program participants, provided certain requirements are met, including credit approval, may choose to refresh their Base Unit, as defined in Lease Agreement, during the period(s) designated in the Lease Agreement. Equipment will be refreshed with the latest available model in its Product Class.

actually deliver on the promise? At Gateway, we put your business
accomplish, and what you want technology to do for your business.
your business and budget. All you have to do is call, click or come in.



Solo® 2500SE Value Notebook

12.1" TFT Color Display
Intel® Celeron™ Processor 333MHz
32MB SDRAM (expandable to 288MB)
4GB Ultra ATA Hard Drive (expandable to 10GB)
Integrated Floppy and CD-ROM Drives
56K PC Card Modem¹
Up to 5 Hours of Battery Life²
Microsoft® Windows® 95 or Windows 98

\$1599 or \$57/mo.
36 mos. business lease³

GP6-400c

Intel Celeron Processor 400MHz with 128K Cache
64MB SDRAM (expandable to 256MB)
1.3GB Ultra ATA Hard Drive
15" V500 15" Color Monitor (13.9" viewable)
6MB AGP Graphics
17X min/40X max CD-ROM Drive
10/100 Ethernet Network Card
Business Audio with Speakers
MS Windows 95 or Windows 98

MS Office 2000 Small Business Software
\$949 or \$36/mo.
36 mos. business lease³

ALR®-Series 7200 Workgroup Server

Intel Pentium II Processor 400MHz with 512K Cache
Dual Pentium II & Pentium III Processor Capable)
4MB PC 100 ECC SDRAM (expandable to 1GB)
4GB Ultra 2 SCSI 7200 RPM Hard Drive
(expandable to 72GB)
Integrated Intel 10/100 Twisted Pair Ethernet
13X min/32X max CD-ROM Drive
InforManager™ Server Management Software
3-Year Parts, Labor & On-site Limited Warranty⁴
Year 2000 Compliant⁵

\$1640 or \$58/mo.
36 mos. business lease³

Solo 5150SE Road Warrior

14.1" TFT Color Display
Intel Celeron Processor 333MHz
32MB SDRAM (expandable to 288MB)
4GB Ultra ATA Hard Drive (expandable to 10GB)
Integrated CD-ROM Drive
Thin & Light 6.5 lb. Design
MS® Windows 95 or Windows 98

\$1899 or \$67/mo.
36 mos. business lease³

GP7-450

Intel® Pentium® III Processor 450MHz with 512K Cache
96MB SDRAM (expandable to 384MB)
13GB Ultra ATA Hard Drive
EV700 17" Color Monitor (15.9" viewable)
16MB AGP Graphics
17X min/40X max CD-ROM Drive
10/100 Ethernet Network Card
Imega® Internal ZIP™ Drive
Business Audio with Speakers
MS Windows 95 or Windows 98

MS Office 2000 Small Business Software
\$1449 or \$53/mo.
36 mos. business lease³

ALR-Series 7300 High-Performance Workgroup Server

Intel® Pentium® III Xeon™ Processor 500MHz with 512K Cache (Dual Pentium III Xeon Processor Capable)
64MB PC 100 ECC SDRAM (expandable to 1GB)
9GB Ultra 2 SCSI 7200 RPM Hard Drive
(expandable to 72GB)
Integrated Intel 10/100 Twisted Pair Ethernet
13X min/32X max CD-ROM Drive
InforManager Server Management Software
3-Year Parts, Labor & On-site Limited Warranty⁴
Year 2000 Compliant⁵

\$2799 or \$99/mo.
36 mos. business lease³

Solo 9150LS Desktop Replacement

15" TFT Color Display
Intel® Pentium® II Processor 366MHz
64MB SDRAM (expandable to 384MB)
10GB Ultra ATA Hard Drive (expandable to 14GB)
Integrated DVD-ROM & SuperDisk™ Drives
Integrated V.90 Modem¹
MS Windows 95 or Windows 98

MS Office 2000 Small Business Software
\$3299 or \$116/mo.
36 mos. business lease³

GP7-550

Intel Pentium III Processor 550MHz with 512K Cache
128MB SDRAM (expandable to 384MB)
13.5GB (7200 RPM) Ultra ATA Hard Drive
EV910 19" Color Monitor (18" viewable)
32MB SDRAM AGP Graphics
17X min/40X max CD-ROM Drive
10/100 Ethernet Network Card
Imega® Internal ZIP™ Drive
Business Audio with Speakers
MS Windows NT® Workstation 4.0

MS Office 2000 Small Business Software
\$2249 or \$80/mo.
36 mos. business lease³

ALR-Series 8200 Departmental Server

Intel Pentium II Processor 400MHz with 512K Cache
(Dual Pentium II & Pentium III Processor Capable)
128MB PC 100 ECC SDRAM (expandable to 1GB)
9GB Ultra 2 SCSI 7200 RPM Hard Drive
(expandable to 72GB)
Integrated Intel 10/100 Twisted Pair Ethernet
13X min/32X max CD-ROM Drive
InforManager Server Management Software
3-Year Parts, Labor & On-site Limited Warranty⁴
Year 2000 Compliant⁵

\$3499 or \$123/mo.
36 mos. business lease³

complete your solution by choosing from thousands of business hardware accessories and software at gateway.com

com, or COME IN to Gateway Country®

termined at Gateway's sole discretion, and will extend the lease for a term of 18 to 24 months as predetermined in the Lease Agreement and related Lease Schedule(s). Other terms and conditions apply. Leasing provided by independent leasing companies to qualified commercial customers. Lease
subject to change without notice or obligation. Call for details. 7. Upgrade options are available for new server system purchases only. Upgrade option must be invoked concurrently with the server system purchase. Gateway ALR Server 4 Hour Response Service. Under this Service, Gateway will dispatch an
horized technician to your place of business to diagnose and repair issues covered under the limited warranty applicable to your Gateway ALR Server Product. On-site repairs under this Service apply to components of the Product necessary to keep it up and running. On-site diagnostics and repairs are not available for
e, keyboards, monitors, or non-Gateway branded hardware. To initiate on-site diagnostics and repair, you must contact Gateway as described in Section 3.1 and Gateway will attempt to diagnose and resolve your issue remotely. If Gateway determines your issue is covered under the limited warranty applicable to your
duct and on-site repair service is necessary to restore your Product to an up-and-running condition, then within four (4) hours Gateway will dispatch an on-site technician to complete the diagnosis of your issue and install replacement parts as necessary to restore your Product to an up-and-running condition. Gateway
work diligently to resolve your issue, but it cannot guarantee that your issue will be resolved in any particular time. Cosmetic and similar repairs that do not materially affect the operation of your Product will be resolved under Gateway's standard on-site service policies. You may purchase coverage under this Service
terms of up to three (3) years, running from the date of shipment of the Product. Because this Service is not available in some locations, Gateway may not be able to provide the Service if you move your server Product from the location to which it was originally shipped by Gateway. This service may not be available
up to 30-days after your Product is delivered to you, depending on your system configuration and parts stocking levels in your service area. During this start-up period, Gateway will use its best efforts to restore your Product to an up-and-running condition as soon as possible. * 5 x 9 on-site service is defined as Monday
rough Friday, excluding holidays, 8 a.m. to 5 p.m. local time. ** 7 x 24 on-site service is defined as 7 days a week, including holidays, 24 hours a day.

Services for Growing Businesses

Customization doesn't end once your system is configured - your Gateway Business Account Representative can advise you on finance, support and configuration services to meet your business needs. • Leasing options include the innovative Technology Refresh business lease that delivers new PCs every two years⁵ • Client Care standard services and enhanced service plans • Custom Integration Services offering the ability to integrate unique hardware and software components that are not part of Gateway's standard product offering - all assembled, installed and tested at Gateway's manufacturing facility.

Client Care Services

TECHNICAL SUPPORT:

Every Gateway server, desktop and portable includes a suite of support services delivered by Gateway technical support teams dedicated to business clients, including: • 24x7 e-mail and telephone technical support - standard telephone support service includes hardware troubleshooting and diagnostics, assistance with configuration of MS[®] Windows[®] operating system, drivers and pre-installed application software • Online Support Center at www.gateway.com/support for interactive troubleshooting tools, tech tips and driver updates • HelpSpot[™] diagnostic, maintenance and educational software on GP Series desktops • Faxback information service for sales and technical documents.

WARRANTY UPGRADES:

DESKTOPS: Extend your Gateway GP desktop standard one-year on-site parts replacement warranty to a three-year on-site service..... **\$99**

NOTEBOOKS: Minimize downtime on the road or in your office with an on-site service upgrade for your notebook.

Solo[®] 2500 and 5150 one-year on-site service upgrade ... **\$79**

Solo 2500 and 5150 three-year on-site service upgrade ... **\$329**

Solo 3150 and 9150 three-year on-site service upgrade ... **\$189**

SERVERS: Upgrade to 4-hour on-site response service - our highly skilled technical support team and field engineers will respond to your call for help, identify the server problem and provide continuous support until the problem is solved.⁷

ALR[®] 7000 Series server, one-year, 4-hour response service, 24-hour x 7-day coverage ... **\$465****

ALR 7000 Series servers, one-year, 4-hour response service, 9-hour x 5-day coverage ... **\$279***

ALR 8000 Series server, one-year, 4-hour response service, 24-hour x 7-day coverage ... **\$599****

ALR 8000 Series servers, one-year, 4-hour response service, 9-hour x 5-day coverage ... **\$359***

NETWORK SUPPORT SERVICES - PREMIUM IT SUPPORT:

SYSTEM MANAGEMENT SERVICE: Designed for businesses with no dedicated in-house IT support staff. All-inclusive, hardware, NOS software and network infrastructure support service. Provides dedicated toll-free, unlimited access to Gateway's advanced technical support team. Network and desktop operating system support, remote diagnostics, limited third-party support coordination and an annual network audit and consultation.

Annual agreement... \$1,799

NETWORK OPERATING SYSTEM SERVICE: Ideal for businesses with their own IT resources but requiring remote support for their network operating system. Unlimited access to Gateway's advanced technical support team. Multiple site support. Dedicated toll-free phone line for rapid access 24 hours a day, 7 days a week.

Annual agreement... \$799

Customization Services

Gateway's efficient Custom Integration Services offers businesses a wide range of custom-built solutions for volume purchases, including software and hard drive image loading, asset tagging and labeling, hardware integration and more. To learn more, call a business account sales representative today.



Ad Code: 000323

CALL

1-800-846-8571

CLICK

www.gateway.com

OR COME IN

to a Gateway Country Business SolutionsSM center

Simple proof that simplicity works.

PC World's Top 20 Power & Budget Desktop PCs,
Top 10 Notebook & Home PCs - Jan-July 1999

PC World Online Award for Top Performers - Jan. 1999
PC Magazine Award for Best of 1998 - Jan. 1999

ReviewBoard.com's Editor's Choice Award - Jan. 1999
Federal Computer Week's Best Buy - Feb. 1999

Easy Two-Key Ways to Extend Selected Text

BOTH WORD, in every version from 6 through 2000, and WordPerfect, versions 6.1 through 8, offer a number of ways to select blocks of text for formatting, and most people know how to do this using the mouse and keyboard. But an alternative method enables you to extend a selection without having to reach for the mouse. At any time while editing a document in either program, simply press <F8>. Next, to extend the selection, use the keys or key combinations shown in FIGURE 1. If you then want to select additional text, repeat any of the keystrokes as often as necessary.

Further, every time you press <F8>, Word (but not WordPerfect) will increase the size of the selection: twice will double it, thrice will triple it, and so on. In Word, when you're finished extending the selection, press <Esc> to turn off the function. In WordPerfect, just click anywhere in the document to turn the function off.

PERFORM IN-LINE CALCULATIONS

SOMETIMES IT'S HANDY to be able to calculate numbers quickly directly in the text of a document, without using a table or equation editor. In Word versions 6.0 through 2000, this rather straightforward function is well-hidden and poorly documented. Here are the steps:

1. Type in the numbers to be calculated, arranged like a formula, followed by an equal sign. Use the plus and minus keyboard characters to indicate addition and subtraction, an asterisk to show multiplication, and a forward slash for division. You can surround parts of your equation with parentheses to break the calculation


into parts. For example: $(225.30 + 115.25) * .07$ or $(100+125+227+115)/4 =$. (Word will ignore spaces in your formula.)

2. Next, select the formula—without its equal sign—and press <Ctrl>-C to copy it to the clipboard. Move the insertion point past the equal sign, and then select **Table>Formula**.
3. Press <Ctrl>-V to paste your formula into the Formula dialog box, and then click OK. Word will insert the results of the calculation as a field in your text at the insertion point. Consult Word's online help if you want to learn how to use bookmarks or table cell references in lieu of pasting in the formula's current values.

CROP AND SCALE GRAPHICS

INSERTING A GRAPHICS file into a word processor may be a no-brainer, but the tasks of scaling and cropping those graphics continue to puzzle many users. Fortunately, the process is straightforward once you know a few simple tricks:

Word 6 through 2000:

- To scale an imported graphic, click it, then drag the sizing handles to alter its size. **Hint:** To preserve the graphic's proportions, drag only the corner handles.
- To crop an imported graphic in Word 6 or 7, click it, then hold down <Shift> while you drag any of the handles.
- To crop an imported graphic in Word 97 or 2000, click it, then click the  Crop icon on the drawing toolbar. Using the cropping mouse pointer that results, drag a handle to crop the image.



To extend to...	Press <F8> and
End of word	<Space>
End of sentence	<Period>
End of line	<End>
End of paragraph	<Enter>
Bottom of screen	<Page Down>
End of document	<Ctrl>-<End>
Any character	That character

FIGURE 1: EXTEND text blocks by pressing <F8> and the keys shown.

One-Click Format Checker

USERS OF WORD versions 7 and later have a great way to see just how text or a graphics object is formatted, but almost nobody is aware of this tool (which is much like WordPerfect's Reveal Codes except that it doesn't allow editing of the settings). To view formatting details, press <Shift>-<F1>. The mouse pointer changes to include a question mark. Click any text or graphics object to see details on its formatting in a pop-up window. When you're through using this tool, press <Esc> to disable it.

- For more precise control over scaling and cropping, click the picture, and then select **Format>Picture**. The resulting Format Picture dialog box enables you to specify exact settings.

Hint: If you mess up the picture during cropping or scaling, click **Reset**, then click **OK** to restore its original size and format.

WordPerfect 6.1 through 8:

- To scale an imported graphic, click on it to select it, then drag any of the sizing handles to alter the size of the graphic.



Hint: To preserve the graphic's proportions, drag only the corner handles.

- To crop an imported graphic, right-click the graphic, and then choose **Image Tools** from the pop-up menu. Click the Image Toolbar's **Zoom** icon (the little magnifying glass icon shown in the illustration above), and then click the magnifying glass in the resulting palette. When you've done this, guidelines will appear on the graphic. Click at the upper-left corner of the area you want to keep, then drag the guidelines to the lower right corner of the area and release to complete the cropping.

We welcome your questions and tips, and we pay \$50 for published items. George Campbell (george_campbell@pcworld.com) is a PC World contributing editor. You can find him at www.osomin.com. ■

Worried Over Y2K? Now Here's a Y1.9K Problem

WITH ALL THE talk about the year 2000 problem, you may not be aware that Excel also suffers from a year 1900 (Y1.9K) problem. People who use Excel to store historical information often need to work with dates earlier than January 1, 1900. The only way to create a date such as July 4, 1776, in Excel is to enter it into a cell and have the program interpret it as text. Unfortunately, you can't manipulate dates stored as text—if you want to alter their formatting, for example, or if you need to calculate the day of the week they fell on.

To address this problem, I created an add-in (for Excel 97 or later versions) called Extended Date Functions. With this add-in installed, you'll have access to eight new worksheet functions that let you work with dates in any year from 0100 through 9999. You can download a free copy of it from PC World Online's FileWorld, or from my Web site. The new functions are: **XDATE(y,m,d,fmt)**: Returns the specified date (as text) in the format specified by the *fmt* format string (optional).

XDATEADD(date1,day,fmt): Returns the date (as text) that is *day* number of days after *date1* in the format specified by the *fmt* format string (optional).

XDATEDAY(date1): Returns the unique day number for a date.

XDATEDIF(date1,date2): Returns the number of days between two dates.

XDATEDOW(date1): Returns an integer corresponding to the day of the week.

XDATEMONTH(date1): Returns the month number for a date.

XDATEYEAR(date1): Returns the four-digit year for a date.

XDATEYEARIF(date1,date2): Returns the number of full years between two dates; useful for calculating ages.

Both XDATE and XDATEADD functions return a text string. You can't use Excel's date formats with this string, but

you can provide a format string as an argument for the function. For example, the formula below adds five days to December 1, 1895 and displays the result as 'Dec-06-1895' (these functions use standard Excel format strings):

=XDATEADD("12/01/1895",5,"mmm-dd-yyyy")

Be careful if you plan to insert dates that occurred before 1752. Differences between the historical American, British, Gregori-



rental fees.xls		
	A	B
1	Input	
2	Base Rental Fee:	\$1,000
3	Base Rental Period:	5
4	Fee Per Additional Day:	\$100
5	Total Days Rented:	8
6		
7	Calculations	
8	Extra Days:	3
9	Extra Day Fees:	\$300
10	TOTAL RENTAL FEE:	\$1,300

FIGURE 1: THE THREE FORMULAS used to calculate total rental fees for an item can be reduced to a single formula.

an, and Julian calendars can result in inaccurate computations. For details, check out www.cst.cmich.edu/users/GrahamS/Pub/Doomsday/DoomsdayIntro.html.

CALCULATING RENTAL FEES

I USE EXCEL to keep track of rental items for my job. An item rents for, say, \$1000 for five days; and then, from the sixth day on, the fee is \$100 per day. I can't figure out a formula to count the five days with its fixed fee and then add increments of \$100 for each day thereafter.

Gary B. Risinger, Victoria, Texas
YOU CAN OFTEN solve a problem like this by dividing it into steps. FIGURE 1 shows a worksheet with two sections, labeled

Picking Up Where You Left Off

WOULDN'T IT BE NICE to be able to open up your workbooks exactly where you left off the last time you closed Excel? Before you quit, select **Files>Save Workspace** and specify a file name. To reopen the workspace file at your next session, use **File>Open** and choose the workspace file (it'll have an .xlw extension). Note: A workspace file contains only configuration information, not the actual workbooks and worksheets. Therefore, you can't simply copy the workspace file—you'll need the workbook files, too.

Input (rows 2 through 5) and Calculations (rows 8 through 10). The Input section contains values only, while the Calculations section contains formulas. In all cases, the same solution works in Lotus 1-2-3 if you substitute @ for the equal sign.

First, figure extra rental days. Cell B8's formula is **=IF(B5>B3,B5-B3,0)**. It says: If the total number of rental days exceeds the number of days in the base rental period, subtract the days in the base period from the total rental days; otherwise, return 0 (no extra days).

The formula in cell B9 is **=B8*B4**. It simply multiplies the number of additional days calculated in B8 by the additional-day fee in B4. The "bottom line" formula in cell B10, **=B2+B9**, adds the base rental fee to the extra-day fee.

The worksheet is using three formulas, which you can reduce to one by replacing cell references with formula text. For example, the final formula (in B10) contains a reference to cell B9. Copy the formula's text (excluding the initial equal sign) from cell B9 to cell B10. The formula in B10 will be **=B2+B8*B4**. Now the formula refers to cell B8 (which also holds a formula), so you can replace that reference with a copy of cell B8's formula text: **=B2+(IF(B5>B3,B5-B3,0)*B4)**.



You'll find files mentioned in this article at www.fileworld.com/magazine. Send questions and tips to www.j-walk.com. We pay \$50 for published items. Contributing Editor John Walkenbach is the author of *Excel 2000 Bible* (IDG Books, 1999).

Process analysis that works the way you think

**allCLEAR™ helps cut
Siemens' process
time by 50 percent!**

Siemens' Oncology Care Group, one of the top makers of cancer treatment systems, needed to re-think their manufacturing processes. New customer demands and manufacturing requirements were constantly challenging its capacities.

The Oncology Care Operations Support Team, led by Bob Daniell, chose allCLEAR as the process analysis tool to help identify process opportunities throughout the supply chain. They also wanted to implement an on-going system of "best practices" for process optimization and continuous improvement. allCLEAR helped them to understand and subsequently change the entire manufacturing process.

The results? allCLEAR helped operations cut cycle time by 50 percent over the last three years while simultaneously helping meet strict GMP standards. Today, Siemens Oncology Care Group uses allCLEAR for continuous process improvement throughout the company in helping to drive process change.

1-800-543-5837

optimize systems



analyze processes

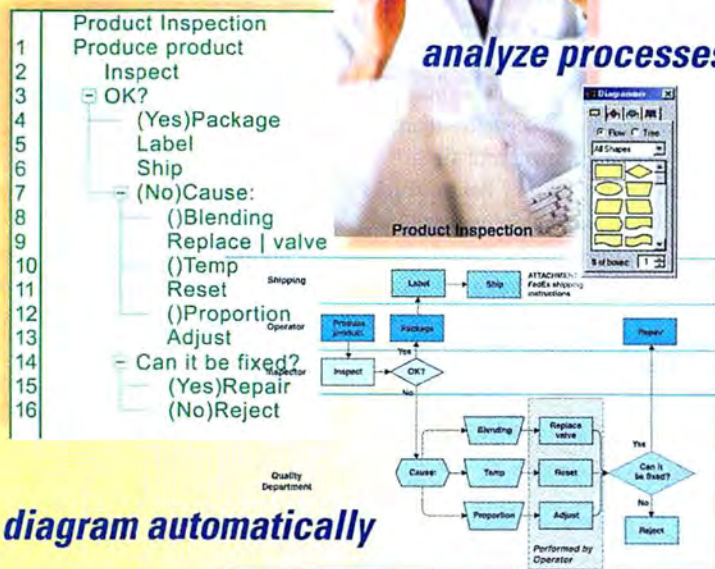


diagram automatically

“allCLEAR provides a unique visual capability which helps us solve complex issues quickly and efficiently. By using allCLEAR's superb process mapping technology, we were able to understand how things work and how processes interrelate.”

— Robert C. Daniell

Siemens Corporate Procurement & Logistics (CPL) Consulting

allCLEAR™

allCLEAR encourages exploring processes interactively, making it easy to discover details that would otherwise be lost. It's software that works like you think. Type or import text from and watch allCLEAR instantly create a flowchart, label and align the boxes and wrap text to fit the boxes — automatically.

allCLEAR is ideal for starting — and finishing — your process and system evaluation faster and more accurately. With allCLEAR, you can discover the logic behind the process and make sure you do not miss any elements, leave any dead-ends or overlook key metrics. allCLEAR — **work the way you think.**

www.spss.com/software/allclear

Improve video output ♦ Choose the right flat panel ♦ Fast answer guides

Optimize Your Multimedia to Avoid Video Hassles

A CD-ROM-BASED VIDEO should run as smoothly on your PC monitor as a VHS tape does on your TV screen. Jerky video playback can ruin a presentation or debilitate a fast-paced game. Does video playback on your system seem less than fluid? Here's how to improve your view.

If you have a hot new Pentium III PC and a cutting-edge graphics card loaded with RAM, most videos should run flawlessly. But older Pentiums and even some Pentium II systems equipped with less

click the **File System** button. Next, bring forward the **CD-ROM** tab in the File System Properties box, and change the

'Supplemental cache size' setting in that box to 'Large' (see **FIGURE 1**).

Play from the hard drive. If a video file isn't playing smoothly from a CD-ROM, try copying it to your hard drive, which normally goes faster than your CD-ROM drive. If you're running an entire multimedia application or game from a CD-ROM and your system has a multigigabyte hard drive, consider copying the entire disc to the hard drive temporarily. **Defrag your hard drive.** Run Windows' Disk Defragmenter (**Start**•**Programs**•**Accessories**•**System Tools**). Multimedia files will play much faster when they've been stored in a continuous block of disk space.

Update your DirectX drivers. The term *DirectX* refers collectively to a group of several distinct application programming interfaces that streamline the flow of multimedia video and sound data between Windows and your PC's hardware. Since the DirectX package is an integral part of the Windows operating system, installing the latest version (DirectX 6.1) can substantially improve multimedia performance. Unless you've purchased your PC in the past six months, you're probably using DirectX 5.0 or earlier. Determining the precise identity of your installed version is quite easy. If you have DirectX 5.0 or later, the utility program `dxtool.exe`—which you can find in your PC's `\Program Files\directx\setup` folder—will tell you so (see **FIGURE 2**). If you



FIGURE 1: YOU CAN MAXIMIZE YOUR VIDEO performance by increasing your CD-ROM drive's RAM cache Properties.

RAM and weaker graphics hardware may have trouble playing full-screen videos. And if your CPU speed is below 166 MHz, you'll need faster hardware.

If you can't afford a new system now, at least add a new graphics card with a minimum of 8MB of on-card RAM. You can pick one of these up for as little as \$100 (see *Top 10 Graphics Boards*, page 237).

Here are some other ways to make the most of your existing hardware:

Check your cache settings. Your CD-ROM drive stores data in RAM cache, so make sure the cache size is maximized. Right-click the **My Computer** icon, select **Properties**, click the **Performance** tab, and then

Cut Down on Clicks

IF ENDLESS TYPING has you worried about the health of your wrists, remember that continual mouse-clicking can cause just as much damage. In Windows 98 you can eliminate double-clicking by opening **Explorer**, selecting **View**•**Folder Options**, selecting the **Custom** button, and clicking **Setting**. Then change the setting in the 'Click items as follows' box from 'Double-click to open an item' to 'Single-click'. In Windows 95 install and customize the latest mouse driver from your mouse's manufacturer.

have something older, your best bet is to install DirectX 6.1 over the current version.

Windows 98 users can get the upgrade by clicking the **Windows Update Wizard** on the **Start** menu. The wizard examines your system and offers an automatic DirectX upgrade if needed. If your browser doesn't support this wizard or if you use Windows 95, download DirectX 6.1 from PC World Online's FileWorld.

Another common way to install DirectX is from a new multimedia or game CD-ROM that contains the DirectX setup program. But be wary of this approach. Not all installation routines check to confirm that they are loading a newer version.

A PANEL DECISION

I WORK AT a very small desk that has barely enough space for my 15-inch monitor. I'm considering buying an 18-inch flat-panel display, but a friend says I should wait because the technology ▶



FIGURE 2: WHICH VERSION OF DirectX are you using? By running `dxtool.exe` you can find out.

1. Start image editing software
2. Choose "file acquire"
3. Pre-scan page
4. Set scan area
5. Set resolution
6. Set scan mode
7. Scan page
8. Close TWAIN
9. Save file
10. Close image editing application
11. Start e-mail package
12. Start new message
13. Choose "attach file"
14. Locate saved file on hard disk

How to scan and e-mail
a photo from their scanner.

How to do it
from ours.

One small step for scanners. 13 fewer steps for you.

Let's face it, most scanners are not as simple
as they are supposed to be.

Drag and drop, plug and play,
billions of colors, and all the other
terms and specs don't make a bit of
difference when all you want to do is
e-mail a photo, scan a page of text into
your word-processor or any of the other
tasks you do countless times a day.

Visioneer OneTouch offers a simpler, more elegant
solution. It does most of the work for you, thanks to its
tight integration with the PaperPort software.

Drop in your original. Push a button. It's that easy.
Hold down a button, change a few settings, and your
scanner is practically a whole new machine.



Sure, we have all the specs
and features you expect in a
quality scanner, but we think
you'll be much more impressed
with those five friendly buttons
up front.

Visioneer OneTouch.
All scanners should be this simple.



- Available in USB and Printer Port models • Printer Port models feature pass-through design • Lift-off lid
- Includes PaperPort software • Windows 95/98/NT 4.0 compatible



Visit our website at pcw.visioneer.com



Visioneer OneTouch 5300 Scanner

© 1999 Visioneer, Inc.

Circle 255 on card or go to www.pcworld.com/productinfo

isn't ready and may not work properly on my Pentium system. Is this true? Should I wait?

Robert Kreiger, San Diego

THE ANSWER really depends on how badly you want a larger screen. If you're doing ordinary office work—writing letters, running spreadsheets, crunching a little data—you can definitely find a flat-panel display to meet your needs. But there are a couple of strong reasons to wait before you buy.

The first of these is price. Thanks to high demand and low production capacity, an 18-inch flat-panel display today will set you back over \$3000. For that princely sum, you could buy a great 19-inch monitor, a big new desk to put it on, and a couple of days on a tropical beach to avoid going near either one. But that situation should change. As you read this, suppliers are building more factories in Asia to handle the rising demand; when they start manufacturing in volume, you can bet prices will fall substantially. But that state of affairs is still six months to a year away.

The second big reason to wait is, as you suggest, the unfinished state of the technology. Flat-panel displays are inherently digital, but they can be modified to accept the analog signal traditional CRT monitors use. Flat-panel displays that accept an analog signal can plug directly into your existing graphics card. Fully digital displays, on the other hand, require a new graphics card capable of transmitting a digital signal. Both types have drawbacks.

Timing difficulties with the analog-to-digital conversion cause some analog displays to distort images. You may be able to correct this aberration by tweaking the display's on-board settings. But before you buy, make sure you can return the unit if it doesn't work well with your system.

The alternative is to buy a display that accepts a digital signal. Of course, you'll need a new graphics card that outputs a

digital signal, and current card selection is limited. As a result, high-end gamers and graphics professionals may not find a card that delivers the performance they need. In addition, no standard connector type yet exists, though the three most common technologies—DFP, DVI, and PND—should converge within a year. And finally, not every graphics card works well with every display. So if you do decide to buy a graphics card in the near term, make sure you choose one that the display's manufacturer recommends. For more information, see August's "LCD Monitors: Light, Slight, and Stylish" (www.pcworld.com/aug99/lcd_monitors).

FIND FAST ANSWERS

NEED ANSWERS TO hardware questions fast? Despite the wealth of information online, you should keep a few good reference books on hand. But one look at the computer section of your local bookstore can make your head swim: You'll see aisle after aisle of books on PC hardware and Windows 98, many costing \$40 or more. Here's our list of the best.

Windows 98 Unleashed by Paul McFedries (Sams, 1998, \$35, www.mcp.com). Every power user should have both a good hardware text and a good Windows text. But if you have room for only one book alongside your collection of *PC World* back issues, pick this well-written, well-organized volume (see **FIGURE 3**). *Windows*

98 Unleashed covers basic and advanced Windows topics, and it includes brief but useful sections on hard disks, modems, graphics cards, and other hardware basics. It's all there, under one cover.

Bulletproofing Windows 98 by Glenn Weadock and Gerald Routledge (McGraw-Hill, 1998, \$45, www.pbg.mcgraw-hill.com). Set up as a troubleshooting guide, this book packs a generous load of lucid explanations, solutions, and useful data. Highly recommended for power users who like to tweak hardware and software



FIGURE 3: BUYING ONLY one multipurpose guide? This should be it.

settings to obtain optimum performance.

Windows 98 Resource Kit by Microsoft Corporation (Microsoft Press, 1998, \$70, www.mspress.microsoft.com). Larger than a metropolitan phone book, this is the official party line on Windows 98. It's stuffed with optimization and troubleshooting details right from the horse's mouth. And best of all, you probably own it already: The Windows 98 CD includes the entire text in HTML format. To access it, run setup.exe in the \tools\reskit folder.

Upgrading and Repairing PCs by Scott Mueller (Que, 1998, \$55, www.mpc.com). Comprehensive and clearly written, this is one of the most useful hardware references available. Novices and experienced users alike will find tons of practical information, comprehensible descriptions of hardware components, and reliable maintenance and troubleshooting tips.

Tom's Hardware Guide by Thomas Pabst (Que, 1998, \$30, www.mpc.com). This survey of the latest PC hardware tells you what you need to know about your components. You get cogent descriptions of hardware, explanations of how the various pieces work (and don't work), and advice on how to maintain and repair them.



Find files from this article at www.fileworld.com/magazine.

We welcome tips and questions from readers and pay \$50 for published items. Kirk Steers is a PC World contributing editor. You can send e-mail to him at kirk_steers@pcworld.com.





DON Furbber
Enterprises
Ste 320

We make small businesses feel big.



**DON FURBBER
ENTERPRISES**

—
WORLD
HEADQUARTERS

Whether you operate out of a dusty basement or the janitor's broom closet, Egghead.com's computer product prices and customer service will make you feel like a corporate monolith.

We know that saving money is always a priority. So we provide the lowest prices, tiered-pricing on volume orders and three different shopping venues.

But price means nothing without service. That's why we also offer purchase order processing, leasing programs, extended warranties and account representatives. And if you're searching for the best in brand name computer supplies, Egghead.com carries Sony, IBM, Compaq, Hewlett Packard and many more. We're waiting to help you in a very big way.

egghead
com

For a quote on your next order:
Phone: 800-264-0009
E-mail: quotes@egghead.com
Fax: 360-816-7320

Install a DVD-ROM Drive

AFTER YEARS OF predictions to the contrary, the DVD-ROM drive still hasn't replaced the CD-ROM drive. Nevertheless, the DVD-ROM drive is an increasingly common peripheral in new PCs.

DVD-ROMs deliver considerably higher-quality full-motion video than CD-ROMs do, propelling games to a new level of realism. They also allow content-rich entertainment and educational software to fit on fewer discs than they would on CD-ROMs. The Complete National Geographic, for example, comes either as a set of 30 CD-ROMs or 4 DVD-ROMs. And the popular game *Riven* comes on five CD-ROMs or a single DVD-ROM.

Add-in third-generation DVD-ROM kits, such as the Creative Labs PC-DVD Encore 6X Dxr3 shown here, give you the latest in DVD-ROM performance and let you read standard CD-ROMs. Those that include a PCI MPEG-2 decoder board (like the Encore kit) also allow you to watch DVD movies on your PC's monitor or on a television. Here's how to install a third-generation DVD-ROM kit that contains a drive using an IDE interface (the most common type of interface).

Stan Miastkowski is a contributing editor for PC World.

THE TOP DOWN

Benefits: lets you play DVD movies and run current and upcoming DVD-ROM and CD-ROM software

Cost: \$175 to \$250

Time required: 60 to 90 minutes

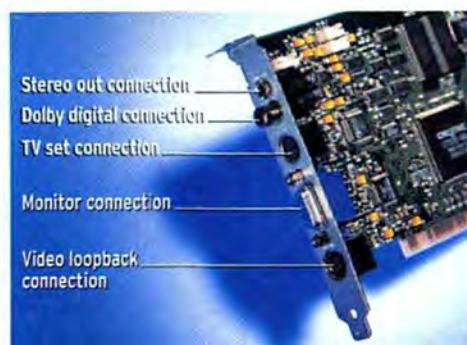
Tools required: Phillips screwdriver, needle-nose pliers, antistatic wrist strap (recommended)

Expertise level: intermediate

Vendors: Creative Labs (www.soundblaster.com), Diamond Multimedia (www.diamondmm.com), Hi-Val (www.hival.com), Philips (www.philips.com), Sony (www.ita.sel.sony.com), Toshiba (www.toshiba.com)



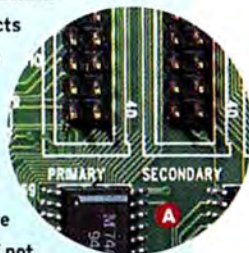
1 Prepare your system for the upgrade. Installing the DVD-ROM drive, the MPEG decoder card, and all necessary software will change your PC's configuration substantially. So, to be safe, make sure that your PC is trouble-free and void of incompatibilities before you start. Select *Start•Settings•Control Panel*, double-click the *System* icon (or right-click *My Computer* and select *Properties*), and click *Device Manager*. If you see an exclamation point next to any of the device entries, select *Start•Help*, and locate and run Help's hardware troubleshooter. Also, make a full backup of your PC's hard drive.



2 Install the MPEG decoder card.

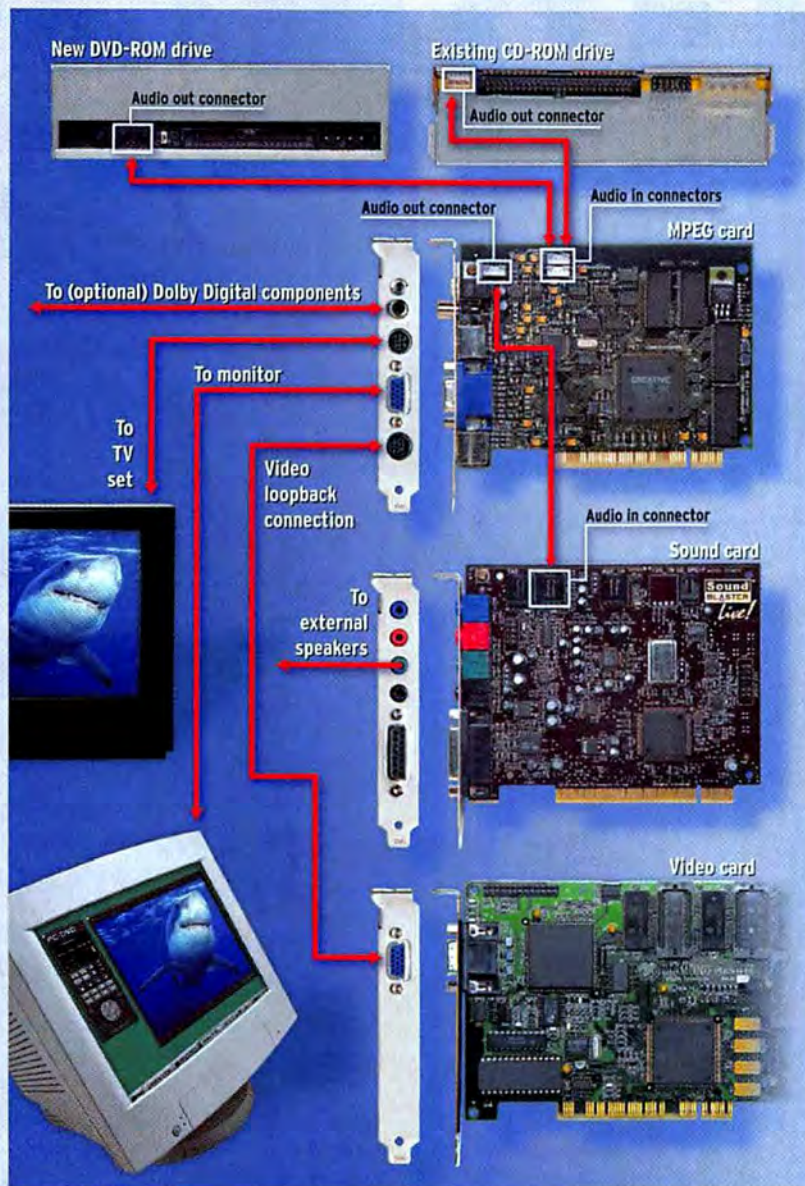
Turn off your PC and unplug it. Ground yourself—preferably with an antistatic wrist strap clipped to a grounded, metal object. Remove the case cover and find a free PCI slot. Remove the slot's metal cover from the inside rear of the PC. Carefully slide the decoder card into the slot, making sure that it's seated firmly. Secure it with a screw.

3 Install the DVD-ROM drive. These days, a PC's motherboard has two IDE channels, a primary one and a secondary one, each with its own connector (A). A cable attaches the hard drive to the primary channel, and another cable likely connects the CD-ROM drive to the secondary channel. If each of these cables has a spare connector between the motherboard and the device, then each channel should support a second device. If possible, hook up your DVD-ROM drive to the same cable to which the CD-ROM drive is attached. If a second drive—such as a tape or Zip drive—already occupies that spot, connect the DVD-ROM drive to the same cable that the hard drive is plugged into. Hopefully, one of your IDE cables has a free connector. If not, use the cable that came with your DVD-ROM drive upgrade kit.



Make sure the jumpers on the back of the DVD-ROM drive are set to "slave" (B). If brackets are needed to mount the drive in your computer (say, if you're installing a 3.5-inch drive in a 5.25-inch bay), attach them now. Slide the DVD-ROM drive into your PC's mounting bay (C), and connect the IDE cable and the power cable to the rear of the DVD-ROM drive (D). Make sure the colored edge (usually red) of the IDE cable is attached to pin 1 on the DVD-ROM drive's connector (it's marked; look closely).





4 Hook up the audio and video cables.

Here's where you might start to feel like an electrician. You'll plug in lots of cables, and details vary by manufacturer. The hookups we show here apply specifically to the Creative Labs PC-DVD Encore 6X kit with the Dxr3 decoder. Be sure to read the manual that comes with your kit carefully, and work slowly and methodically.

a) Connect the audio cable from the rear of the DVD-ROM drive to the Audio 1 in connector of the MPEG card.

b) If you have an audio cable from the rear of your existing CD-ROM drive that is connected to the sound card, detach it from the sound card and attach it to the Audio 2 in connector of the MPEG card.

c) Connect an audio cable from the Audio out connector of the MPEG card to the sound card's Audio in connector.

d) Remove the monitor cable from your PC's graphics port and plug it in to the lower (external monitor) connector on the MPEG card.

e) Connect your DVD-ROM drive kit's video loopback cable from the MPEG card to the monitor connector on your PC's graphics port.

f) If you'll be watching DVD movies on a television, plug one of the video cables that came with the upgrade kit (either RCA or S-video connectors, depending on your TV's capabilities) from the MPEG card video output to the television's video in connector.

g) If you have a stereo receiver or PC speaker system that can decode Dolby Digital surround sound, use a cable (usually not included with the DVD-ROM kit) to connect the MPEG card and stereo.

5 Install the drivers and DVD-ROM drive software. Plug your PC back in and turn it on. Windows 95 or 98 should detect the new drive and board and ask for the drivers. Insert the driver disk (a floppy or sometimes a CD-ROM) into the PC and follow the on-screen directions.

Next, install the DVD-ROM drive software that came with the upgrade kit. Details vary by vendor, so just follow the directions for your kit. You may need to restart your PC after installation.

Finally, test whether your new drive will read both standard CD-ROMs and DVD-ROMs. If you have a problem—your computer won't recognize the drive or read a disc, for example, or you don't get any sound at all—

turn off your PC and recheck all your connections. (The number of cables involved makes it easy to plug a couple of them into the wrong places.)

If that doesn't solve the problem, call the upgrade kit maker's technical support line. When you're sure everything's working correctly, shut down your computer and put the cover back on the case.

Add New Hardware Wizard



PROTECT

Your Entire
Office with
One UPS

Internet Office™ UPS

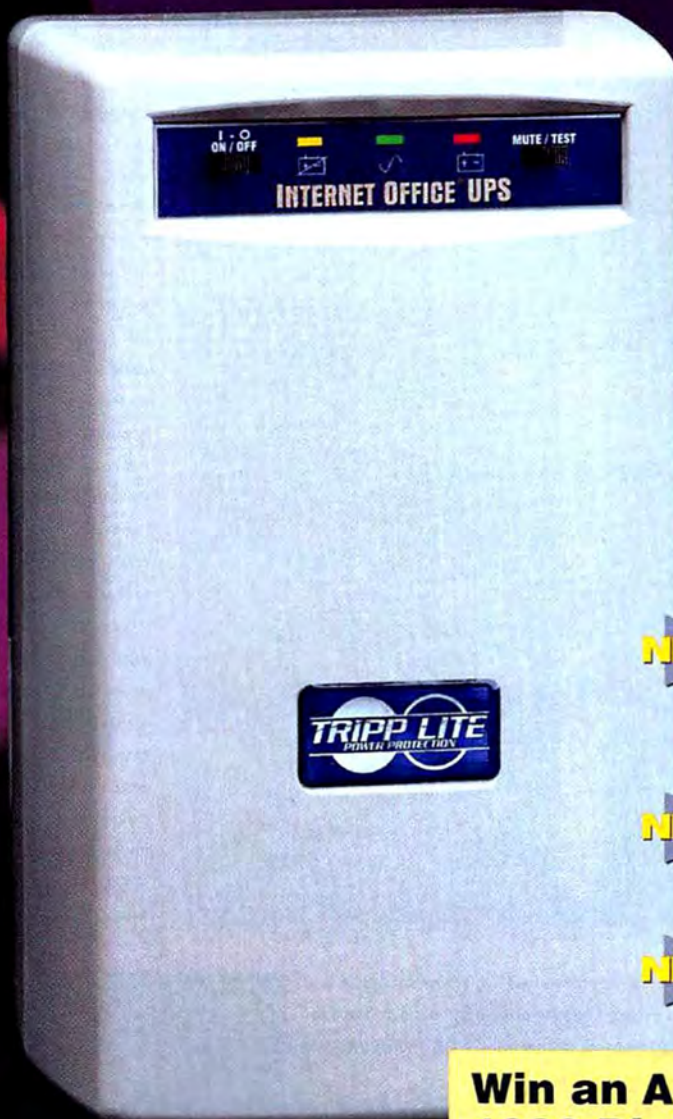
► COMPUTER

► MONITOR

► MODEM/FAX

► PRINTER

► SCANNER



Advanced surge, spike, brownout and blackout protection, including:

- Dedicated UPS battery backup and surge-only outlets protect your entire computer setup—even printers!
- Widely-spaced AC outlets accommodate bulky transformers
- Available models include 500 VA and 700 VA stand-alone units, 280 VA slim-line design and 500 VA under-monitor configuration

NEW! Serial port and **FREE** PowerAlert® Software provide graceful unattended shutdown

NEW! 2-line modem/fax or dataline protection stops backdoor surges

NEW! Convenient battery replacement door

TRIPP LITE
POWER PROTECTION

Win an Agfa® ePhoto 1280 Digital Camera!

PC and Mac compatible - A \$399.95 Value!

Purchase any Tripp Lite UPS System between 7/15/99 and 9/30/99 to qualify. Fax a copy of your invoice along with your name, address, phone and e-mail address to be automatically entered.

Fax: (773) 869-1351
Dept. PCWD

Entries must be received by 10/5/99 to participate. One entry per UPS purchase. Drawing will be held 10/7/99.



1111 W. 35th Street, Chicago IL 60609
FaxBack: (773) 869-1877 www.tripplite.com

Circle 236 on card or go to www.pcworld.com/productinfo

The day when
you can go
to one source
for all of
your computer
needs isn't
too far in
the future...

 **firstsource.com**

The first and only source your business needs.

see, **th**at wasn't very

Notebooks

In Touch with Tomorrow
TOSHIBA

**Satellite
4060CDT**

mtg# PAS406U-T2CV8

P2-333MHz, 64mb, 4gb,
24x, 56k, 13.3tft

\$2419²³



COMPAQ

**Armada
1500c**

mtg# 386338-002

C-300mhz, 32mb, 4gb,
24x, 56k, 12.1tft

\$1613⁴⁸

**hp HEWLETT
PACKARD**

**OmniBook
XE2**

mtg# P1723WT+ABA

C-300MHz, 32mb, 4gb,
24x, 56k, 12.1tft

\$1478⁸⁶



Desktops



COMPAQ

**DeskPro
EP**

mtg# 356100-007

P2-350mhz, 64mb,
4.3gb, Win95

\$974¹⁴



IBM
Business
Partner

**PC300
GL**

mtg# 627771U

P2-400mhz, 64mb,
8.4gb, 32x, 56k

\$1215⁷⁷

In Touch with Tomorrow
TOSHIBA

Equium

mtg# P01046U0V4J0

P2-350MHz, 32mb,
4gb, 32x, NIC, Win95

\$900⁹⁸



Printers



**hp HEWLETT
PACKARD**

**LaserJet
2100TN**

mtg# C4172A+ABA

16ppm(black), 5ppm
(color), True 1200x1200dpi

\$929⁶⁵

EPSON

**Stylus
Color740**

mtg# C257001

Inkjet, 6ppm, True
1400x1400dpi
Mac & PC

\$233⁶⁰



Tektronix

Phaser

mtg# Z740/P

16ppm(black),
5ppm(color),
True1200x1200dpi

\$2686¹³



Networking

**SuperStackII
500**

mtg# 3C16611

24 port, autosensing
dual speed hub

\$912⁹⁸

3Com



**ProCurve
Switch4000M**

mtg# J4121A+ABA

Low-cost, scalable, desktop switch
w/optional gigabit ethernet connections

\$2006⁶⁵



**hp HEWLETT
PACKARD**

**Networking
Kit**

mtg# DFE-910

5 port dual speed hub and two 10/100mb
ethernet/fast
ethernet PCI NICs

\$111⁵⁹



D-Link
Building Networks For People

Power Protection

APC
AMERICAN POWER CONVERSION

Back-UPS 300

mtg# BK300

300VA,
180 Watts

\$84⁵⁴



BELKIN

Power Authority

mtg# F5C140

6ft. cord, 7 outlets Strip

\$27⁰⁵



TRIPP LITE

**Internet
Office700**

mtg# InternetOffice700

6 outlets, 2 Fax
Modem Protection

\$162³²



Terms and Conditions

You buy securely when you shop at firstsource.com. To ensure your protection, firstsource.com ships only to your credit card's verified billing address. Shipping and handling charges apply—please contact your firstsource.com Account Executive for additional details. NO returns of any type will be accepted without an RMA (Return Merchandise Authorization) number. Due to manufacturers' return policies, only DOA (inoperable) Apple, Compaq, Hewlett-Packard and IBM products may be returned to firstsource.com for repair or replacement—ONLY at firstsource.com's discretion. NO CREDIT WILL BE ISSUED. All freight and insurance charges are non-refundable. For all prices, specials and products, firstsource.com reserves the right to make adjustments due to changing market conditions, discontinued products, price changes, errors in advertising or other circumstances unforeseen at this time. All trademarks and registered trademarks are the sole property of their respective owners.

far at all.

www.firstsource.com
800.218.9866

InFocus®

LP400

mfg# LP-0400-V

700 lumens
800x600, 6.8lb.

\$2837⁰¹



InFocus®

LP425z

mfg# LP-0425-ZV

900 lumens
800x600, 7.4lb.

\$3929⁶⁸



InFocus®

LP435z

mfg# LP-0435-ZV

1000 lumens
1024x768, 7.4lb.

\$5075⁸⁴



Presentation

Microsoft®

Office 2000 Pro

mfg# 269-02185

Complete upgrade
for Office97

\$299³⁸



Microsoft®

WindowsNT Server 4.0

mfg# 227-01234

Upgrade, plus 5
client licenses

\$276⁴⁹



SYMANTEC®

Norton AntiVirus 5.0

mfg# 07-00-02307

Virus Protection

\$34⁹²



Software



radius

M-17 17"

mfg# RADIUS M-1
Trinitron® technology
at its best

\$268⁸⁰



ARGON®

T770 17"

mfg# T770

3 year warranty,
48 hour advance
replacement service

\$199⁹⁵



ViewSonic®

ViewPanel 145" LCD

mfg# VPA145

1024x768 XGA
Resolution

\$922³⁹

Monitors

hp HEWLETT® PACKARD

ScanJet 5200CXI

mfg# C7193A/ABA

600dpi USB

\$277⁹⁹



3Com®

PalmIIIx

mfg#80301U

Personal Organizer

\$322²³

PhotoPC 750z EPSON

mfg# B080011F

6x zoom, 1600pixels x 1200pixels

\$617⁷⁰



Extras

Simple TECHNOLOGY

Memory

100% compatible
memory for today's
latest computers and more

See firstsource.com's
Memory Configurator



Simple TECHNOLOGY

Flash

A complete line
of flash/smart media cards
including adapters and readers

See firstsource.com's
Flash Configurator



Simple TECHNOLOGY

Hard Drives

Don't buy a new
portable - upgrade your
hard drive for a fraction of the cost

See firstsource.com's
Hard Drive Configurator



Memory
Storage

For everything else [click here](http://www.firstsource.com) first.

firstsource.com

PC Mall

Visit pcmall.com

For the ultimate online shopping experience!

Register at pcmall.com for our weekly e-mail specials and receive a **FREE** gift!



PC Mall is your
"Best Place to Buy
Multimedia Products"

Find exactly what you need quickly and easily. You'll save time, money and frustration when you shop at PC Mall. It's the best way to shop for computer products!

Browser-Friendly!

Fast page load times and intuitive interface. It's easy and fun to use!

Value!

Web-only specials with great new deals daily. Prices updated by the second!

Unparalleled Product Selection!

Choose from over 50,000 products, from 20 warehouses nationwide!

Reliable!

Secure ordering and online status checking let you know your order is processed and on the way.

Informative!

Thousands of product reviews from leading industry magazine publishers like Ziff-Davis and IDG give you the information you need to make the best purchasing decision.

Timely!

Sign up for free e-mail alerts that let you know about hot offers as they happen.

Concise!

Compare product prices and features in an easy-to-use grid format on more than 50,000 products online.

E-Commerce Leader!

Ranked in the Top 100 Hottest Internet Companies by Business2.0!

Safe!

PC Mall utilizes state-of-the-art SSL encryption technology to protect your confidential information. Shop with confidence: PC Mall is an AOL and CNET certified merchant.



Home page
The PC Mall home page is where to find the day's special offers, featured products, contests and more!



Detailed Product Information
We provide you with complete descriptions and all specifications to help you make the best purchasing decisions!



Product Pro
Use Product Pro to quickly find the item that exactly matches your needs and budget!



Our enormous buying power with the top companies in the industry allows us to provide you with the best products at the lowest prices!

Visit us online today and bookmark:

pcmall.com

AOL Keyword: PC MALL

FREE Notebook Case

with any notebook purchase from PC Mall!

- Expandable inside pocket for documents
- Rear compartment expands to 3" for your laptop
- Zip down organize with pen, disks and eyewear holders
- Adjustable clip-on strap
- 15" x 13 1/2" x 3"
- Lifetime warranty

Ask for item #48243.
\$4.99 shipping and handling fee applies.
While supplies last.



P73 17" Color Monitor SCEPTRE
17" screen
(15.9" Viewable Image)
27mm dot pitch
1280 x 1024 @ 65Hz
\$189.99 #4750
#99724 Princeton Ultra 72, 17" Monitor 15.8" V1, 27mm, 1280 X 1024 *208

3dfx Voodoo3™ 3000 AGP Video Card
Ultra fast - 166 megapixels per second
128-bit 2D, 3D and video processor.
\$169.99 #4494

HP DeskJet 612C Printer
Sppm black, 2.5ppm color
\$99.99* #48415
New only
*Price reflects a \$30 mfr. mail-in rebate.
Price before rebate is \$129.99.
Exp. 1/1/2000.

Astra 2100U UMAX
One touch scanning into your popular applications such as e-mail
600 x 1200dpi 36-bit
\$129.99* #47378
47611 Astra 2000P 36-bit scanner, 600 x 1200dpi
*Price reflects \$20 mfr. mail-in rebate when purchased with any CPU.

Seagate Hard Drive Specials!
4.3GB Hard Drive \$89.99 #48543
6.4GB Hard Drive \$109.99 #48608
10.2GB Hard Drive \$155.99 #44693
All 3 Hard Drives are EIDE Ultra DMA Internal Drives.
Call for details. While supplies last.

HP 8210 CD-Writer Plus Internal IDE
4X4X24 Speed
\$349.99 #45757

Zip 250MB Port Drive
External Parallel Port
Backward compatible with 100MB Zip Disks
\$149.99* #4133
Price Drop!
Price reflects \$20 mfr. mail-in rebate. Limited time offer.

CD-R Media
as low as 49¢ Per CD! #41484
99085 CD-Recordable 74 minute/650MB 10-pack While supplies last
34789 CD-Recordable 74 minute/650MB 50-pack While supplies last

We'll Beat Any Price

From Any Authorized Catalog Reseller!

PC Mall is your
"Best Place to Buy
Multimedia Products"



Satellite 2060XCDT

- 366MHz AMD-K6-2 processor w/3DNow! technology
- 32MB exp. to 160MB RAM
- 4.3GB HD 24X CD-ROM
- 12.1" Dual Scan display
- 56Kbps modem
- Windows 98

\$1,399

#48673

Tecra Series

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#43475	8000	366 PII MMX	64	8.1GB	24X	13.3" TFT	56K	W95	\$3,498
#48231	8000	400 PII MMX	64	10GB	24X	14.1" TFT	56K	W95	\$3,799
#43474	8000	366 PII MMX	128	8.1GB	DVD	14.1" TFT	—	W95	\$4,089
#48270	8000	400 PII MMX	128	14GB	DVD	14.1" TFT	56K	W95	\$4,219

Portege Series

#48221	3110CT	300 PII MMX	64	4GB	—	10.4" TFT	56K	W95	\$2,299
--------	--------	-------------	----	-----	---	-----------	-----	-----	---------

Prosignia SMB



- 380 - 400MHz AMD-K6-2 processor w/3DNow! Technology
- 32MB or 64MB RAM exp. to 160MB
- 4.0 or 6.4GB HD 24X or DVD CD
- 12.1" or 14.1" TFT display
- 56Kbps modem
- MS Office 2000 SBE V2

\$1,699

#48205

Prosignia SMB Notebooks

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#48205	150	380 AMD K6-2	32	4.0GB	24X	12.1" TFT	56K	Win 98	\$1,699
#48206	150	400 AMD K6-2	64	4.0GB	24X	14.1" TFT	56K	Win 98	\$2,009
#48210	150	400 AMD K6-2	64	6.4GB	DVD	14.1" TFT	56K	Win 98	\$2,309

Presario 1245



- 333MHz AMD-K6-2 enhanced processor
- 32MB RAM 3.2GB HD 12.1" HPA
- NIMH Battery 56Kbps V90 modem
- 7.3lbs 24X CD-ROM Windows 98

\$799*

#48785

Presario Notebooks

Order#	Model	Processor	RAM	HD	CD/DVD	Display	Modem	O/S	Price
#48787	1275	366 AMD-K6-2	64	4.3GB	24X	13.0" HPA	56K	W98	\$1,099*
#48789	1685	380 AMD-K6-2	64	4.3GB	4X-DVD	12.1" TFT	56K	W98	\$1,499*
#48793	1925	400 Celeron	64	6.4GB	4X-DVD	13.3" TFT	56K	W98	\$2,099*

*Prices reflect \$400 ISP rebate, call for details

ThinkPad 390E

- 366MHz Intel® Celeron® processor w/MMX technology
- 32MB RAM 24X CD
- 4.8GB hard drive
- 56Kbps V90 modem
- 12.1" Active Matrix display
- Windows 98

\$1,899

#47403

Thinkpad 570

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#45759	570	300 PII MMX	64	4.0GB	—	12.1" TFT	56K	Win 98	\$2,699

Thinkpad 600E

#42428	600E	366 PII MMX	64	6.4GB	DVD	13.3" TFT	56K	Win 98	\$3,699
--------	------	-------------	----	-------	-----	-----------	-----	--------	---------

IBM Desktops

- 400MHz Pentium III® or 450 to 500MHz Pentium III® processor w/MMX technology
- 32 to 64MB RAM
- 4.2GB to 8.4GB Hard Drive
- 40X CD-ROM (model dependent)



Monitor sold separately.

\$759

IBM Desktops

Order#	Model	Processor	RAM	HD	CD	OS	Form	Price
#44967	62874BU	400 Celeron	32MB	4.2GB	—	W98	MT	\$759
#44365	627583U	450 PIII	64MB	4.2GB	40X	W98	DT	\$1,259
#44398	627594U	500 PIII	64MB	8.4GB	40X	W98	DT	\$1,569

DT=Desktop MT=Mini Tower ML=Micro Tower



ActionBook 340T

- AMD-K6-2/400MHz processor w/3DNow! technology
- 32MB RAM 4.3GB hard drive
- 24X CD-ROM
- 12.1" Active Matrix display
- V90 modem

\$1,599

Only #48471

UMAX Notebooks

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#48471	340T	K6-2/400	32	4.3GB	24X	12.1" TFT	56K	Win 98	\$1,599
#48474	540T	K6-2/400	32	4.3GB	24X	13.3" TFT	56K	Win 98	\$1,699

* Comes with FREE carrying case & 3 year warranty

New!



COMPAQ

Prosignia SMB

- 400MHz Celeron® Processor 64MB RAM
- 9.1GB Ultra ATA hard drive 10/100 TXPCI NIC Card
- 32X CD-ROM 56K modem
- Includes: MS Office 2000 SBE, Norton AntiVirus 4.0

\$999

#48148

MS Office 2000 SBE V2 Included!

Compag Hotline Call (888)932-2493 or www.pcmall.com/compag

Prosignia SMB Desktops

Order#	Model	Processor	RAM	HD	CD	Modem	Form	O/S	Price
#48173	320	466 Celeron	64MB	9.1GB	32X	56K	MT	W98	\$1,249
#48165	320	466 Celeron	64MB	13.5GB	32X	56K	MT	W98	\$1,259

Presario 5304 Kit



- 366MHz MII w/MMX technology
- 64MB RAM Windows 98
- 4.3GB hard drive 32X CD
- 56Kbps modem 15" monitor

\$299*

Only #45775

Includes 15" monitor and LJ300 printer

Presario Desktop Kits

Order#	Model	Processor	RAM	HD	CD	Modem	Form	System	Price
#48779	5340	400 AMD-K6-2	96MB	4.3GB	32X	56K	MT	W98	\$549
#48782	5360	450 AMD-K6-2	64MB	10GB	32X	56K	MT	W98	\$649
#48784*	5716	450 PIII MMX	96MB	15GB	6X DVD	1.5DSL/MT		W98	\$1,249*

* Includes Iomega Zip Drive and 10Mbps Ethernet port.

All kits include a 15" monitor, LJ300 printer and \$400 ISP rebate. Call for rebate info.

HP Pavilion 4535



- 400MHz Celeron processor
- 64MB of RAM exp. to 384MB
- 6GB hard drive 32X CD-ROM
- 56K V90 modem Windows 98

\$199*

#48811

Monitor sold separately.

HP Pavilion Desktops

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#48805	4540	433 Celeron	64	8GB	32X	V90	MT	Win 98	\$299
#48806	8570C450	PIII MMX	96	19GB	32X	V90	MT	Win 98	\$1,099*
#48808	8590C	600 PIII MMX	128	20GB	6X DVD	V90	MT	Win 98	\$1,599*

*Includes CD-RW and 10/100 NIC. *Prices reflect \$400 ISP rebate, call for details.



MACH 2 56K V.90 PCI Modem

\$14.99

#45837

Requires Pentium 100MHz or higher. Win 95/98. *After \$20 mfr. mail-in rebate.

56K V.90 PC Card Modem

- 32-bit Lucent Technologies chipset
- 1 year warranty
- While supplies last.

\$64.99

#42894



New Norton Utilities 2000

- NEW Norton Diagnostics analyzes your hardware
- Norton System Check runs a battery of tests with just one click
- Speed Disk optimizes hard drive performance.

\$44.99*

#48568

*After \$20 mfr. mail-in upgrade rebate.

#48571 NEW Norton Systemworks 2000 3.0 \$3.99

#48963 NEW pcAnywhere 9.0 \$8.99

*After \$70 mfr. mail-in upgrade rebate. **After \$75 mfr. upgrade/crossgrade rebate.

Palm V™ Organizer

- 2MB, Enhanced LCD screen
- State of the art design
- Infrared beaming

\$426.99

PC #47946

\$426.99

Mac #44046

- #44001 Palm IIIx 4MB PC \$338*
- #29885 Palm III 2MB PC \$249*



Includes FREE Carrying Case!

No Credit Card Surcharges



We accept Visa, MasterCard, American Express and Discover!

Open Accounts. PC Mall offers Net 15-day terms to government agencies, schools and businesses with instant approval to qualified customers. Your Personal Account Manager can assist you with your application. Please allow up to 3 days for credit approval.

Leases. Lease anything from one PC to one hundred at truly affordable rates!

Volume Licensing. Supply your entire office with the latest software versions for less! Call for details.

Prices and specifications subject to change without notice. We do our best to be accurate but occasionally mistakes occur. We are not responsible for any typographical, photographic or technical errors. NOTE: Products and packaging depicted may differ from stock available at time of shipment; we reserve the right to substitute equivalent items.

We'll Beat Any Price!

PC Mall may require proof of dealers pricing. Product must be in stock at the competition. PC Mall will only match price at the time of purchase, not after the sale. Adversely item must be identical to the one offered by PC Mall and must be a new item in a factory-sealed box. PC Mall reserves the right to limit quantity ordered. This offer does not apply to special, bonus or free offers, grand openings, special purchases or special buys, manufacturer's rebates, clearances, or dealer's one-of-a-kind or other limited quantity offers. This offer does not apply to advertising errors made by any authorized dealer. Not open to dealers. Void where prohibited. Offer not valid in conjunction with other rebate offers. On multiple item quotes: "We'll Beat Any Price" applies to the price of the entire order, not individual line items. Other applies to pretaxed prices only.

Use Priority Code #ZPCW991

Visit pcmall.com or Call 1-888-932-2490

Circle 66 on card or go to www.pcworld.com/productinfo

Cash Register Express Software for Windows...\$495

Computerize any type of retail store using Cash Register Express for Windows. Computerization pays for itself, saving you thousands of dollars, giving you peace of mind, and making the best use of your time. Cash Register Express



has more than 250 of the most desired point of sale features to help you leapfrog past your competition by controlling costs, reducing errors and increasing efficiency.

More Software for Your Retail Store

- ♦ Video Express
- ♦ Salon Express
- ♦ Auto Express
- ♦ RestaurantPro Express
- ♦ Barcode Express
- ♦ Label Works
- ♦ Inventory Track Express

- ♦ Credit Card Software
- ♦ All Single or Multiuser

All PC America Software requires Microsoft Windows. The software was written in Visual Basic using Microsoft Access Files. The source code is available.

CASH REGISTER EXPRESS

More Profit!

More Sales!

More Customers!

Save Time, Reduce Theft,
Speed Checkout, Increase Accuracy,
Reduce Costs, Make Better Business
Decisions by computerizing
your Retail Store.



Dealers Wanted!

Join our dealer program.
It's FREE. It's the fastest way
to make money...AND
we make it EASY.

MORE INFO?

- ♦ Call Toll Free
1-800-722-6374
- ♦ www.pcamerica.com
- ♦ Fax on Demand
1-914-267-3551



**SYSTEMS
START AT
\$495.**



Cash Drawers \$189*
MMF, Logic Controls,
Indiana, APG



Programmable Keypads \$495*
Logic Controls, Cherry, Genovation
Credit Card Readers \$189*
Unitech, Mag-Tek

*All prices depend on make and model.



Barcode Scanners \$495*
Metrologic, Symbol, NJCR, Percon, PSC



Receipt Printers \$299*
Star, Ithaca, Citizen, Epson



Barcode Printers \$799*
Cognitive Solutions Barcode Bl



Pole Displays \$289*
Logic Controls

1-800-PC-AMERICA

Call Toll Free 1-800-722-6374
PH: 914-267-3500
FX: 914-267-3550

PC America
60 N. Harrison Ave.
Congers, NY 10920



Circle 195 on reader service card



Portable Data Collectors \$695*
American Microsystems AMS300

PC WORLD

MARKETPLACE

SHOP
HERE

SHOP FROM THESE
PRODUCT CATEGORIES:

- Internet/ISPs
- Productivity
- Education/Entertainment
- Systems/Peripherals
- Memory/Upgrades
- Services/Supplies
- Recruitment

New Shopping
Showcase at

www.worldshopper.com

Computer Products Plus lots more!

FOR ADVERTISING INFORMATION

CALL TOLL FREE:

888/254-0711

Vice President of Sales
Neal Mandel 212/655-5157

Midwest

Randi Kalb 212/655-5170

Northwest

Maritza Alvarez 212/655-5172

Southeast

Shirley Nixon 212/655-5114

Sales Manager/Northeast

Debra Robbins 212/655-5111

INTERNET/ISPs

9 Net Avenue	888/963-8283
AIT	910/485-2383
Burlee Networks	877/4BURLEE
Enet Value	888/998-7600
Hostway	800/308-6845
Inetu	888/66-INETU
Innerhost	888/751-5273
Interland	800/323-2685
Net Limited Host Pro	888/638-5831
Net Nation	888/277-0000
Online Marketing	800/741-6813
SiteHolding.Net	877/684-6784
Speedyweb (Trident Ent.)	888/416-HOST
Timehost Network	800/758-1530
Web Hosting Headquarters	877/933-6638
Worldwide Internet Publishing	800/230-9450

PRODUCTIVITY

Earth'sCheapest.com	877/478-6340
AERON	800/883-9697
Crichlow Data	800/678-4535
ICS	818/885-7500
Micro 2000	800/864-8008
On Hold Plus	800/296-3084
Vindex	541/758-0521
Worthington Data Solutions	800/345-4220

EDUCATION/ENTERTAINMENT

American Institute	800/767-AICS
Forefront Direct	800/475-5831
Journey Education Marketing	800/874-9001

PCDI	800/223-4542
Sands of the Caribbean	800/555-2902
Software Showcase	800/699-1836
Transcender	615/726-8779
Via Graffix	800/233-3223

SYSTEMS/PERIPHERALS

Corporate Systems	408/330-5559
Granite Digital	510/471-6442

MEMORY/UPGRADES

Data Memory Systems	800/662-7466
Memory Depot	800/755-0586
The Memory Liquidators	800/718-7755
Crucial Technologies	888/363-3067
Total Recall Data Recovery	877/4MY-DATA

SERVICES/SUPPLIES

Americal Micro Product	800/644-4404
Bear Rock Technologies	800/232-7625
Computer Comfort	281/488-2288
Computer Furniture	904/565-1163
Dell Computers	888/452-3115
Drivesavers	800/440-1904
EnviroSafe	800/719-9499
E.T.I.	800/757-5453
Lazarus Data Recovery	800/341-DATA
Microstore	800/962-8885
Softman	888/999-2611
Software Surplus	888/213-5777
Supply Depot	800/311-3810
Sysnet Consulting	215/369-8009
Urban Computers	888/421-4947

Give your customers the finger!

Sound like a Fortune 500 company without spending a fortune...prices starting at only \$29.95!

HoldWare is a simple, easy-to-use software program that turns your PC into the ultimate telephone on-hold audio player! With HoldWare you can create, play and even script great sounding on-hold audio with a few simple mouse clicks...you can even record custom on-hold messages in your own voice! And everything you need is right in the box!

- Keep your customers entertained and informed
- Sound professional
- Available in Home Office, Small Office & PBX Office Editions

HoldWare. Whoever thought such a simple gesture could do so much to improve your image!

HoldWare™
THE #1 IMAGE TOOL FOR TODAY'S SUCCESSFUL BUSINESS

TELECONNECT
99 Editors' choice



Supports
.MP3 audio
Download music from the internet

Get more info and buy on-line at www.holdware.com or call **800-296-3084**

think technology

think reliability

think speed

think service

think ahead

think website hosting

Think all website hosts are the same? Think again. **9NetAvenue** offers 24-hour toll-free customer support, incredible reliability, high-speed connectivity, and more — all at affordable prices.

Think about everything you'll ever need from a website host. Think value. Think 9NetAvenue.

9NetAvenue offers the power you need to expand, and the plans you need to get started:

Hosting starting @ \$14.95/mo www.9netave.net/hosting

- Unix or NT
- FTP and Frontpage 98 access
- Account Control Panel Access
- MS Access & MS SQL database and Cold Fusion
- Multiple OC12 w/diverse backbone connections
- Daily tape backup
- 24x7 site monitoring
- Toll-free multi-lingual 800 tech support
- Knowledgeable support personnel
- **10 Plans** to choose from

NEW

E-commerce starting @ \$29/mo www.9netave.net/ecom

- Real-time credit card processing online
- SSL encryption for added protection
- Inex, Storefront, PayPortal programs
- Browser Based Store Creation
- Cybercash & PaymentNet
- Easy to use store creation wizards
- Merchant accounts available online
- **Multiple Plans** to choose from

NEW

Dedicated servers starting @ \$99/mo [your hardware or ours www.9netave.net/dserver](http://www.9netave.net/dserver)

- Class A facility w/diesel generator backup
- 99.99% Network uptime guarantee
- Complete control through PCAnywhere/Telnet
- CISCO Switched Network
- 24x7 NOC
- Customize your server
- UNIX/NT options available
- Utilize the server to resell or for custom needs
- **8 Plans** to choose from

NEW

think fast.
act now. WWW.9NETAVE.NET | 1-888-9NETAVE



9NETAVENUE 1-888-963-8283 | 1-888-260-7890 (CANADA) | WWW.9NETAVE.NET | INFO@9NETAVE.NET

ask us about our unique 90 day **free trial.**

www.WeAre**NT**Hosting.com

CLEAR AND SIMPLE

- MS SQL Server, Access, FoxPro
- Redundant DS3 Connection
- FrontPage 98 Support
- Active Server Pages
- ColdFusion 4.0
- SSL Secure Server
- Shopping Cart
- ECommerce
- CyberCash
- RealAudio/Video

Reseller Program Available

* Does not include set up fee and InterNIC domain registration fees.

Plans starting from

\$14.95 / month*



Toll Free: (877) 684-6784
(877) NTHOSTING

CIRCLE 444 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SO DEDICATED,
WE SHOULD BE
COMMITTED.

DEDICATED
VIRTUAL
SHARED AND
BUSINESS
HOSTING



INETU
WWW.INETU.NET

Toll Free: 888-66-INETU
Outside US: 610-266-7441

CIRCLE 420 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

STATE-OF-THE-ART WEB HOSTING

Activate **\$19.95** Now!

HostPro introduces a new era in web hosting: Speedy, reliable service jam-packed with innovations for just \$19.95 per month.

STANDARD FEATURES (all packages)

- Your own domain name (www.yourdomain.com)
- Free domain name registration
- Both Unix and NT hosting
- 30 day money-back guarantee
- Full Microsoft® FrontPage 98® support
- Default e-mailing capability
- Web control panel for site administration
- Unlimited autoresponders
- Unlimited FTP (24 hours per day)
- Full custom CGI execution capability
- Java®, Javascript, Perl, C, C++, SSI, Python
- Access to our vast CGI script library
- Excite® search engine
- Controllable anonymous FTP
- Daily detailed hit analysis
- Access to raw log files
- Daily complete tape backup
- Full-time uninterruptible battery backup
- Shockwave, Quicktime, Flash, Vivo & Emblaze
- Assistance w/script installation



HostPro offers a variety of packages to give your site maximum impact for minimal expense. Contact HostPro about our more advanced features, commerce solutions and flexible add-ons.

NET VALUE **\$19.95**

NET NT **\$29.95**

NET PLUS **\$39.95**

NET PRO **\$49.95**

- 15% Discount given on 12 month contracts
- Resellers ▶ Ask about our NET PLANET Virtual ISP program



Certified FrontPage™
Web Presence Provider



Free set-up on site transfers
Hassle free switch with our assistance

Deciding on a web host is a pretty big deal. You owe it to yourself to contact HostPro at:

1.888.638.5831

www.hostpro.net • sales@hostpro.net

HostPro

A division of NETlimited LLC

CIRCLE 438 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



SpeedyWEB
450 MB WEBSITES

SECURE & RELIABLE

- 99.9% Guaranteed Uptime
- Dual T3 Network Connection
- E-Commerce Solutions
- 24-Hour Support

FREE!

- Secure Server Access
- Domain Name Registration
- Site Statistics
- Pre-installed Cgi Scripts

ONLY \$19.95

e-mail: sales@speedyweb.com • phone: 1-888-116-HOST (4678)

www.speedyweb.com
A Division of Trident Enterprises Inc.

CIRCLE 504 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

FREE
WEB HOSTING
FOR 30 DAYS!

www.yourname.com

UNLIMITED POP Email
UNLIMITED Traffic
UNLIMITED Space

\$9.95 a month!

RESELLERS \$6.95 PER DOMAIN
whhq.net
Toll Free 1-877-933-6638

401 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Web Hosting
www.yourname.com

\$9.95

E-COMMERCE!
50 megs of space!
Front Page - Secure Page
Shopping Cart - E-mail
CGI - Statistics - Counter

Resellers \$7.95 per domain
www.timehost.net
1-800-758-1530
or 1-800-825-4638

437 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

eNET Value, Inc. Toll free **888-998-7600**
www.enetvalue.com

FrontPage® 2000	ALL 3 SUPPORTED IN EACH PAK Starting At \$5.95
Access® 2000	
StoreFront® 2000	
'98 & '99 software versions also supported	

Office® 2000 Web sites starting at \$8.95 Start Collaborating Now!	Easy-E Check out the easy way To sell on the web
---	---

Microsoft® Web Hosting Specialists

CIRCLE 482 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

iNNErHOST

Experts.
Dedicated to Windows NT Web Hosting!

Windows NT has an extended degree of expandability and adaptability in regards to important website components.

Active Server Pages - ASP Components - MS Access
MS SQL - MS FrontPage - Visual InterDev - Secure Server
Live Stats - 24/7 Server Monitoring - On Site Technicians

100% Satisfaction
99.9% Uptime

1.888.751.5274 www.innerhost.com

CIRCLE 419 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Entrepreneurs Wanted!

Start your own Internet Business today!



Get
FIRST MONTH FREE!
(promo code: pcwd-3312)

yourname.com

Fully loaded web site for \$20 /month*

- 50 MB disk space,
- 2 GB traffic / month
- 10 mailboxes
- Frontpage™ 98 server extensions
- web based control panel
- web site statistics, etc.

30 day money back guarantee!

Make money on the net NOW! - Resellers wanted!



NetNation
Communications Inc.

www.netnation.com
1-888-277-0000
Int.: +1(604) 688-8946
Email: sales@netnation.com

*US\$70 domain name registration fee is required by InterNIC.
Set up fee: \$50 Prices and features subject to change without notice.
All trademarks are the property of the respective owners.

CIRCLE 499 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

MORE TEETH

From Your
WEB HOST

FEATURES:

- Free Domain Name Registration
- 90 MB of Storage
- 3000 MB of Transfer
- 20 Email Accounts
- Email Autoresponders/Forwarding
- MS FrontPage 98 Support
- Active Server Pages
- Detailed Site Statistics
- CGI-BIN
- SSL Secure Server
- Database Hosting
- MS Access & SQL
- Complete E-Commerce Solutions
- CyberCash/Shopping Cart
- Streaming Audio/Video
- Cold Fusion
- MS Index Server and Netshow
- Multiple Fiber Optic T-3's
- 99.9% Uptime Guarantee
- Same Day Setup
- 24x7 Tech Support
- Daily Tape Backup
- 30 Day Money Back Guarantee

*Dedicated Servers Available

More than a mouthful from **\$19.95**
per month!

**World Leader in
Microsoft NT
Hosting**

Call:

1-800-230-9450

(561) 994-3600 • <http://www.wipc.net>

**Ask about our profitable reseller programs!*

 **Worldwide™**
INTERNET
The Web Hosting Authority



Microsoft
FrontPage98

Microsoft **Certified**
Solution Provider



Best
Reseller
Prices.

HE'S GOT A WEBSITE. DO YOU?

E-Commerce Enabled Resellers, We Refer Design Work 30 Day Money Back Guarantee
The Best Support and Pricing in the Industry.

Yeeehaaaaaw! It's what you'll say when you sign up with or switch to Interland® web hosting. Prices from as little as \$19.95 a month. Dual DS-3 connections for extra speed. A whopping eighty megabytes of disc space. Guaranteed 99.9% uptime. 24x7 toll-free support for the wee hours. And pricing with absolutely no hidden charges. You'll be happy, we guarantee it.

Check out our website and discover why more and more people worldwide are trusting their websites to Interland. Whether you're a computer veteran or just getting started, you'll receive the best service, support and technology the industry has to offer. At a price that's right for you. Not to mention a great reseller program. Give us a call today, and let Interland bring you the world.

Pricing From \$19.95 per Month

**Call Today 1-800-323-2685
(404) 586-9999**

@ Speed. Reliability. Support.™
interland®
Web Hosting
www.interland.net

CIRCLE 472 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

ADVANCED *Internet* TECHNOLOGIES, INC.®



Your Hosting Solution	FrontPage	Server 1	Server 2	Server 2+	Server 3	Dedicated Server 4	Production Server 5
Disk Space (can be customized)	50MB	50MB	200MB	240MB	400MB	4.3 GB (flexible)	9 GB (flexible)
Data Transfer	4000MB	4000MB	8000MB	8000MB	16GB	Subnet	Subnet
Max # of domains you can host	N/A	N/A	25	25	75	250	1000
Base Monthly Server Cost	\$14.95	\$19.95	\$59.95	\$89.95	\$149.95	\$499.95	\$1999.95
Max. per domain cost @ \$2.00/domain/mo	N/A	N/A	\$50.00	\$50.00	\$150.00	\$500.00	\$2,000.00
Max. possible cost to you/ month	\$14.95	\$19.95	\$109.95	\$139.95	\$199.95	\$859.95	\$3,999.95
Your monthly gross profit @ \$19.95 domain	N/A	N/A	\$498.75	\$498.75	\$1,496.25	\$4,987.50	\$19,950.00
Your monthly net profit	N/A	N/A	\$388.80	\$358.80	\$1,196.30	\$4,127.55	\$15,950.05
Setup and 1st Month	\$53.95	\$58.95	\$108.95	\$138.95	\$244.95	\$1,249.95	\$4,999.95

WEB HOSTING

"Enabling Business Opportunities for Entrepreneurs"™

Try AIT's Latest Offering
NEW! NT PowerSite \$34.95/month



AIT Turnkey Ecommerce Solution ECOMMERCE 1-2-3!

webstore shopping cart merchant account transaction gateway channel marketing

Packages Starting at
\$14.95

Resellers Pay
\$2.00
A Month Per Domain

Standard Features:

- FREE Domain Name Registration*
www.yourcompany.com
- Dedicated IP Address
- 4000 sq. ft Data Center
- OC 12 Fiber Optic Multiplexer
- Up to 622 megabits per second
- Redundant T3 Backbones
- Redundant Cisco 7000 Series Router
- On-Site UPS Clean Power
- Generator Back-up System
- 30 day money back guarantee
- Your own ftp directory
- Your own cgi-bin
- Unlimited POP email accounts
- Unlimited email forwarding/aliases
- Unlimited Email autoresponders
- Password Protected Directories
- Easy to use Control Panel
- Online Billing
- Ticketed Support System
- QuickStats web statistics and log files
- Daily Tape Backups
- FREE Marketing Newsletters
- FREE SSL Secure server access
- FREE CGI/JAVA libraries
- FREE AIT Mail Listing
- FREE Ushop Webstore
- FREE PGP™ Secure email available
- FREE Guestbook
- Telnet access available
(server 2,3,4,5 only)
- mSQL Database capable
- Live Audio/Video capabilities
- Chat Rooms
- 24 hour 7 day Tech Support

*InterNIC fees apply

http://www.aitcom.net
sales@aitcom.net

Call Today 1-800-878-4084

**Pre-sales questions
1-910-485-2383**

CIRCLE 514 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

What Should You Expect from a Hosting Provider?

You Should Expect
The World.

200 MB 6 GIG
\$13.95

- Multiple T3 & OC3
- Your Own FTP Site
- Secure Server Access
- POP 3 Accounts
- Your Own CGI Directory
- Web Control Panel Access
- Data & Power Back-Up
- 24 x 7 On-Site Monitoring

One stop e-commerce solutions

Includes Miva Merchant Shopping Cart and SSL Access, Credit Card Processing and Hosting!

UNIX / NT
WEB HOSTING
ASP Components
MS Access
MS SQL

PLUS:

Reseller Program
Dedicated Servers
Volano Chat

RealAudio/Video
Miva Script



HOSTWAY

Expect The World.

MS FrontPage
Extensions

1.800.308.6845 www.hostway.com

CIRCLE 490 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Made with Metal!



Data
Collectors—
Made to Last!

Call for a free information kit!

Videx, Inc., 1105 N.E. Circle Blvd., Corvallis, OR 97330
541-758-0521 • Fax 541-752-5285 • www.videx.com

GCO1075

CIRCLE 480 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



Burlee
NETWORKS

"What's all the Buzz about?"

**Unlimited and Metered
Plans from \$12.95/mo**

Burlee Networks is the First
major Web host to become
a registered FrontPage 2000
Web Presence Provider

Toll Free

1-877-4-BURLEE

www.burlee.com

World's # 1 Rated Web Host!



We're Family Friendly
(No adult sites allowed)

- Full Support for FrontPage 2000 & 98
- SSL - E-Commerce • Full Database Support
- More POP3 E-mail Accounts • Unlimited FTP
- Unlimited E-Mail Forwarding • Unlimited Autoresponders
- Full WebTrends • Raw Data Logs • SSL • SSI • CGI-Bin
- 99.998% Historical Uptime
- Gigabit Network - 1,000 Mb/s • Multiple Backbone Connections
- Battery and Generator backup • Fully Redundant Systems
- World Leading Windows NT Web Host
- # 1 Customer Support Rating in the Industry

CIRCLE 429 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

OLM — SPEED • POWER • PERFORMANCE

\$18.95/month

FREE EXTRAS

WWWboard installed • Graphics Counter
Guestbook installed • Shopcart
Free for all links page installed

• Advanced Web Control Panel

- True Virtual Domain
- Free Secure Server Access
- 10 POP Email Boxes
- Unlimited Aliases
- Unlimited Autoresponders
- Subscribable Mail Lists
- Resellers Welcome
- 150 megs of Space
- Graphical User Stats
- FrontPage Support
- RealAudio/video
- Full cgi-bin
- HTML Script
- Dual D53 Internet Connection

Visit **www.olm.net** for more info

Contact us at 877-2-OLM-NET or sales@olm.net

CIRCLE 495 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

EarthsCheapest.com
SURPLUS SOFTWARE
CALL 877-478-6340

WillBeatAnyPrice.com

Windows 95	\$48	MS Office PRO	\$99
MSDOS 3.4/5/6	\$19	MS Works ANY	\$39
DOS 6.22 3.5"	\$29	Word/Excel/etc.	\$99
DOS 7 & Win CD	\$29	Visual BasicC++	\$99
WIN 3.11	\$99	Java/Any Prog	\$49
WinforWkGips	\$39	VisualStudio	\$299
Win95 on 3.5"	\$59	Perl/Linux/etc.	\$39
MS PLUS!	\$19	AutoCad	\$599
Win98 Upgrade	\$69	Norton AntiVir	\$19
Win 98 full oem	\$89	QuickBooksPro	\$199
Win98 retail	\$99	Lotus SmartSuite	\$29
Win NT w/ 4.0	\$99	Corel Suite Any	\$59
NT Licence only	\$69	Wordperfect Any	\$59
NT 4.0 Server	\$299	All versions available	
NT Backoffice	\$599	Licenses ONLY CALL	
Small Business	\$499	Old rare Titles CALL	
Proxy/Site Serv	\$199	Books CHEAP CALL	
Exchange Serv	\$199	Send Orders to: AOTSI	
Gov't PO's accepted		PO Box 90146	
Fax us 717-651-9811		Harrisburg, PA 17110	
BUYING SURPLUS		FREE SHIPPING!!!!!!	

448 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



877-4MY-DATA

THE DATA RECOVERY COMPANY™
www.totalrecall.com
2462 Waynoka Rd. • Colorado Springs, CO 80915

496 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

MARKETPLACE Shop Here! Internet • ISPs • Productivity • Memory

NetScape: Student Section

ADDRESS FOR SUCCESS

Location: <http://www.aics.edu>

Welcome to the NEW AICS Virtual Campus



- Earn B.S. and M.S. in Computer Science
- INTRODUCING: B.S. program in Information Systems**
- Distance Education
- Object oriented B.S. program
- Approved by more than 275 companies
- Follows ACM/IEEE guidelines
- Thousands of students throughout U.S.

AMERICAN INSTITUTE COMPUTER SCIENCES

STATE LICENSED AND APPROVED
ACCREDITED: World Association of Universities and Colleges

FREE CATALOGUE:
1-800-767-AICS
or www.aics.edu

Document: Done

Find it fast. Buy it now.



PC WORLD Marketplace

IT Professionals

Pursue an exiting career with a dynamic **NATIONAL** consulting firm

We are looking for experts in:

- 80 Technology
- Web Development
- System Admin.
- Database Admin.



SysNET
Consulting Services Corp.

Tel: 215.369.8009 Fax: 215.369.1009
Email: pcworld@sysnetconsulting.com

PA NJ CT IL

434 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

CLONING?

END PC SETUP NIGHTMARES!



FLASHclone

The ultimate workstation cloning and OS deployment tool for MIS/IT professionals

Fast - Multicast multiple machines simultaneously with the bandwidth demands of just one.

Client Profiler - Configure user specific settings after cloning, all from one workstation.

Keepsafe - Preserve user files before cloning, then auto-restore.

Vboot - No need to visit each client system with a floppy boot disk.

Boot Disk Creator - Automates making client boot floppies.

Ghost File Converter - Converts existing Ghost master images.

Image MASter - Hard Drive Duplication and Diagnostic systems

- ✓ Stand-alone, portable systems.
- ✓ Data transfer speeds exceed 400MB/min!
- ✓ Mix different size and model drives in the same load.
- ✓ Extensive diagnostic features.
- ✓ 1-16 Drive systems for IDE, EIDE, Ultra-DMA, and SCSI hard drives.



Check out the **NEW SOLO!**



Intelligent Computer Solutions
818.885.7500

Win a Free Image MASter at
www.ics-lq.com

CIRCLE 452 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



1999
1900



1999
2000

Which century will your PCs recognize on January 1, 2000?

Only CENTURION™ Y2K rollover card updates and corrects Year 2000 BIOS problems and the RTC by providing an onboard double-buffered Realtime Clock for 100% accurate dates past 2000. Installs in less than one minute for complete Y2K hardware protection.

Works with Pentium®, 486 and 386 computers — Protects your existing hardware investment. Update an entire office for less than the cost of buying a single new computer.

Fully tested, proven safe and reliable —The Y2K issue is both a software and hardware problem. CENTURION eliminates BIOS and RTC issues making your PC 100% hardware compliant.

FREE Y2K Testing Software—Download FREE software from our web site and find out if your PCs are Y2K hardware compliant at www.micro2000.com/centurion.htm

Call today for prices & volume discounts within the U.S. at 1-800-864-8008. International: 818-547-0125.
www.micro2000.com • netsales@micro2000.com







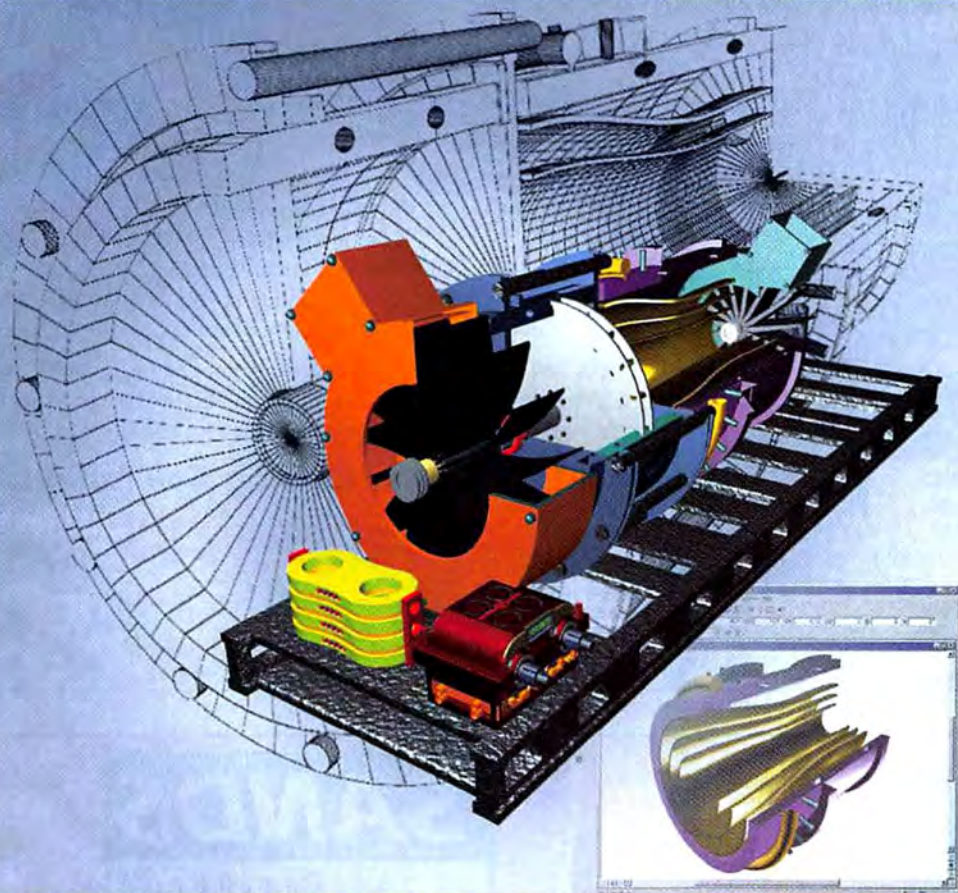

NSN-7025-01-448-5106



KEEP YOUR PCs UP & RUNNING™

CIRCLE 457 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Gear Up for the 21st Century



DesignCAD Pro 2000

DesignCAD Pro 2000 is a fully integrated 2D/3D professional CAD system. You will have the ability to quickly and efficiently produce detailed 2D drawings and impressive 3D models at a fraction of the price. For only \$299, you get full Internet support, animation, anti-aliasing, true 3D texture mapping, Visual Basic support and compatibility with DWG, JPEG and VRML file formats.

Get the entire DesignCAD Office 2000 Suite for only \$595:

DesignCAD Pro 2000	Developer's Toolkit
Professional 2D/3D Symbols	Scan Pro
DesignCAD Pro 2000 Multimedia Training	Estimator Pro

Order DesignCAD Pro 2000 Today!

**Call 800/233-3223 or
Go To ViaGrafix.com**

ViaGrafix

One American Way, Pryor, OK

918/825-7555 • Fax: 918/825-6744
email: sales@viagrafix.com

NASDAQ:VIAV



Features

Easiest and Most Powerful 3D Package Available for the Price. With FREE technical support and a user friendly interface, you'll be spending less time learning and more time designing.

File Compatibility. True DWG (AutoCAD), DXF, IGES, JPEG, HPGL and BMP support.

Internet Ready. Place powerful VRML images on Web pages with ease. Direct email support lets you instantly transmit your images around the world.

2D Mode. Create simple or complex floor plans, schematics or any working plan.

Powerful 3D Modeling. Solid boolean operations such as subtract, intersection, interference checking, volume, surface area and center-of-gravity computations.

Textures and Animation. Map any texture onto 3D objects with ease. Anti-aliasing and lighting provide the most realistic presentation available. DesignCAD 2000 also features animation with AVI support.

Unlimited and Free Tech Support. Technical support is available for all registered users of DesignCAD. We guarantee a quick and helpful reply.



**FREE
TECH SUPPORT**

H-1909-9

Would You Believe This Person Is Training To Advance Their Career?

- Gain Valuable Skills, Knowledge and Technical Recognition
- Open the Door to Great Career Opportunities
- Raise Your Income
- Study at Your Own Pace
- Interactive Hands-on Exercises
- Receive One-on-One Training Consulting

Self-Study Courses Available:

- | | | |
|--------------|--------------------|--------------|
| • MCSE | • MCSE+Internet | • MCP |
| • CNE | • Novell CIP | • CNA |
| • Cisco | • UNIX | • Networking |
| • Web Master | • A+ Certification | • PC Repair |
| • MCSO | • Visual Basic | • Visual C++ |
| • Java | • C++ | • Oracle |
| • Office 97 | • Lotus | • And More! |



Discover the fastest, easiest and most convenient way to train for a high-tech career.

Our self-study computer-based training (CBT) courses allow you to study at your own pace, in a comfortable and relaxed setting of your choice.

Each course contains in-depth theory, informative graphics, hundreds of test questions and hands-on exercises for training that surpasses traditional classroom or video instruction.

For a Free Course Catalog Call Today!

1-800-475-5831

FOREFRONT
DIRECT
A CBT Group Company

PC

25400 US Hwy. 19 N., #285 • Clearwater, FL 33763
1-800-653-4933 (727) 724-8884 Fax: (727) 726-6922

CIRCLE 477 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO



The SANDS
of the Caribbean

THE SANDS OF THE CARIBBEAN ONLINE CASINO & SPORTSBOOK

<http://www.thesands.com>

Awarded "Online Casino of the Year" or "#1 Online Casino Recommendation" by:

- * Where To Bet
- * Place Your Bet
- * Where To Gamble
- * Gamble Brains
- * Gambling Registry
- * Gamblers Den
- * Gambling Times
- * Gamble house
- * MG Sports
- * Bettors World

And about 10 others! Need we say more? Hey, it's your money.

Voted #1 by real online gamblers in a poll conducted by Gambling Dot Com

It's time to start expecting more from an online casino and The Sands of the Caribbean really delivers!

We really are "The Best Bet on the Net!"

<http://www.thesands.com>

Deposit \$150 or more
FREE!
& get \$25 BONUS FREE!

Void where prohibited. Please check with local authorities regarding gambling in your state, territory, or country. Sands of the Caribbean is not affiliated in any way with Sands of Atlantic City or Sands of Las Vegas. Sands of the Caribbean is a registered Trademark of World Wide Tele-Sports (WWTS).

CIRCLE 414 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

MEMORY

BUY / SELL / TRADE

GET \$\$\$ FOR YOUR PARTS • WE BUY EXCESS INVENTORY

Over 40 Years Experience

Get 1 & Educational P.O.'s & Credit Cards

SDRAM SIMMS CPU CHIPS NOTEBOOK MEMORY HARD DRIVES DIMMS

LOWEST PRICES - LIFETIME WARRANTY

Secure ON-LINE ordering up to **10% OFF**
Website Promo's/Discounts/Free Gifts

MasterCard VISA

800-718-7755

www.MEMORYLIQUIDATORS.com

72 PIN SIMMS (FPM, EDO)

	60NS		60NS
1 x 32 4 mg	11	8 x 32 32 mg EDO	59
2 x 32 8 mg	19	16 x 32 64 mg EDO	109
4 x 32 16 mg	32	1 x 36 4 mg	14
8 x 32 32 mg	59	2 x 36 8 mg	29
16 x 32 64 mg	134	4 x 36 16 mg	47
1 x 32 4 mg EDO	10	8 x 36 32 mg	88
2 x 32 8 mg EDO	19	16 x 36 64 mg	145
4 x 32 16 mg EDO	34	32 x 36	269

CPU CHIPS

INTEL	Price	Intel	Price
Pentium II Xeon 450/500 (1M)	\$1049/2695	Pentium 166/166MMX	54/59
Pentium II Xeon 400MHz (1M)	1895	Pentium 150/133/120	54/49/39
Pentium II Xeon 400MHz (512K)	695	Pentium 100/90/75	39/29/29
Pentium III 550/500/450	779/499/309	486 DX2-66/DX4-100	19/29
Pentium III 450/400 MHz	299/209	Celeron 466/433	169/159
Pentium III 350/333 MHz	195/149	Celeron 400/366/333	139/99/89
Pentium III 300/266 MHz	179/129	Celeron 300A	89
Pro 200 512K/256K	399/109	AMD	
Pro 180/150	119/69	K5-3-400, K5-3-450	189/269
Pentium 233MMX	55	K5-2-450/400/350	139/99/179
Pentium 200 MMX	59	K5-2-333 (95MHz)	69
		K5-2-300 (100MHz)	69

DIMMS (168 pin)

SIZE	PC-66	PC-66 ECC
32Meg	39	44
64Meg	69	79
128Meg	119	129
256Meg	469	519
	PC-100	PC-100 ECC
32Meg	39	44
64Meg	64	69
128Meg	99	129
256Meg	309	339

22825 Lockness Ave.
Torrance, CA 90501
310-326-5656
Fax: 310-326-7790
E-mail: sales@memoryliquidators.com
Prices subject to change without notice.

★ Call for Rambus Dimm ★

CIRCLE 520 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

MEMORY

The Best Memory Prices & Guarantee

800-662-7466

Secure online ordering: **datamem.com**
Lifetime Memory Replacement Guarantee
DMS will meet or beat anyone's price!

UMAX EPSON FOCUS

ioemga VIKING COMPONENTS

MEMORY UPGRADES
Computers • Printers
Notebooks • Digital Cameras

- CPU Upgrades
- Hard Drives & CD-ROM Drives
- Modems for Mac & PCs
- Monitors-Std. color to Pro Mods.
- UMAX Color Scanners
- EPSON Stylus Color Printers
- Networking Connection Prods.

Pentium® Computer System Specials

USB USB Scanners/Printers & Accessories

DMS DATA MEMORY SYSTEMS

DMS ACCEPTS GOVERNMENT, EDUCATIONAL & CORPORATE P.O.s WITH PRIOR APPROVAL

FAX P.O.s 24 HOURS TO DMS @ 603.898.6585
Open M-F 9a.m. 'til 9p.m.

CIRCLE 519 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Questionable.

Guaranteed.

It all comes down to questions. Questions that challenge your expertise about Microsoft products. Question yourself - are you ready? Be absolutely sure. With Spike and the gang's certification guarantee, you will be. Because once you've completed the program, you'll pass with flying colors or get your money back.* And don't worry because as Microsoft Certification changes, Transcender will have you covered...without question.

Transcender. America's #1 Exam Preparation Software.

To order, call Howard @ (615) 726-8779 or fax (615) 726-8884; 242 Louise Ave.; Nashville, TN 37203.
www.transcender.com

© 1999 Transcender Corp. All Rights Reserved. Microsoft is a registered trademark of Microsoft Corporation. Multi-user licenses are available. *Call or see our Web site for details.

- Most Realistic MCSE & MCS D Simulations Available
- Detailed Answers & Explanations
- NEW! Computer Adaptive Testing Features
- NEW! Simulation Questions
- Money Back If You Don't Pass Guarantee*
- From \$129 - \$179

Transcender®
Corporation

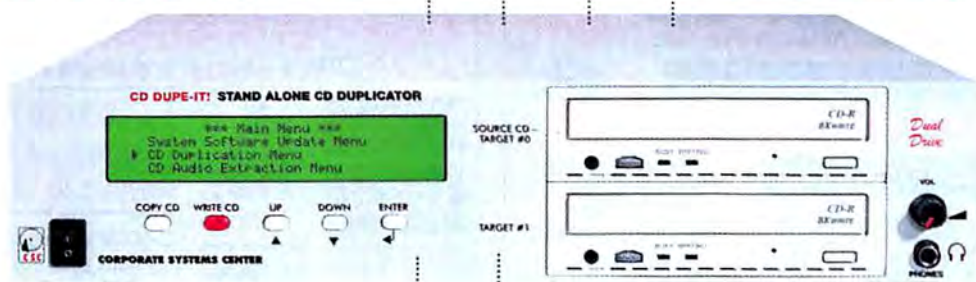
CIRCLE 513 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

**BOTH SINGLE AND DUAL
DRIVE MODELS AVAILABLE.**

**INTERNAL A/V HARD DRIVE
STORES DISC IMAGES FOR MULTIPLE
COPIES, AND CUSTOM AUDIO DISCS.**

**EXTERNAL SCSI-II PORT WORKS
LIKE A STANDARD CD WRITER
FOR CREATING CUSTOM DISCS.**

**MAKE CUSTOM DISCS WITH
JUST THE MUSIC YOU LIKE.**



**TOTALLY SELF CONTAINED,
NO ADDITIONAL HARDWARE
IS REQUIRED**

**ADVANCED FORMAT DETECTION
PRODUCES PERFECT DUPLICATES
ON STANDARD CD-R MEDIA.**

COPY ANY CD NOW. NO PC REQUIRED.

DUPE-IT!

Instantly copy music and CD-ROM compact discs. Make backup copies of your favorite music and software on rugged, permanent CDs. Produce compact discs quickly and economically. No mastering or multimedia experience is required.

Insert your original CD and press "start." The multimedia processor quickly copies any disc to the internal A/V hard drive. Insert blank CDs and make as many copies as you like. You'll produce perfect duplicates. The system is totally self contained — no additional hardware is required.

FROM \$595!
100 BLANK CDs \$169!
408 330-5539

Just plug in the power cord and press "start"—it's that easy.

You can even make your own custom music CD without a PC! Insert your original CD's, select the tracks you want, and Dupe-It will copy them to the internal hard drive. Built in amplified stereo speakers allow you to preview the music before recording a CD. Then insert a blank CD, and you'll have a custom music CD with just the songs you want.

With the included CD mastering software, Dupe-It will work overtime as your personal CD design system. Just attach a SCSI cable to your PC or Mac, and you're ready to design and create your own original CD's. Similar systems used in duplication houses cost over \$5,000. Now you can easily copy CDs yourself for a fraction of the price.

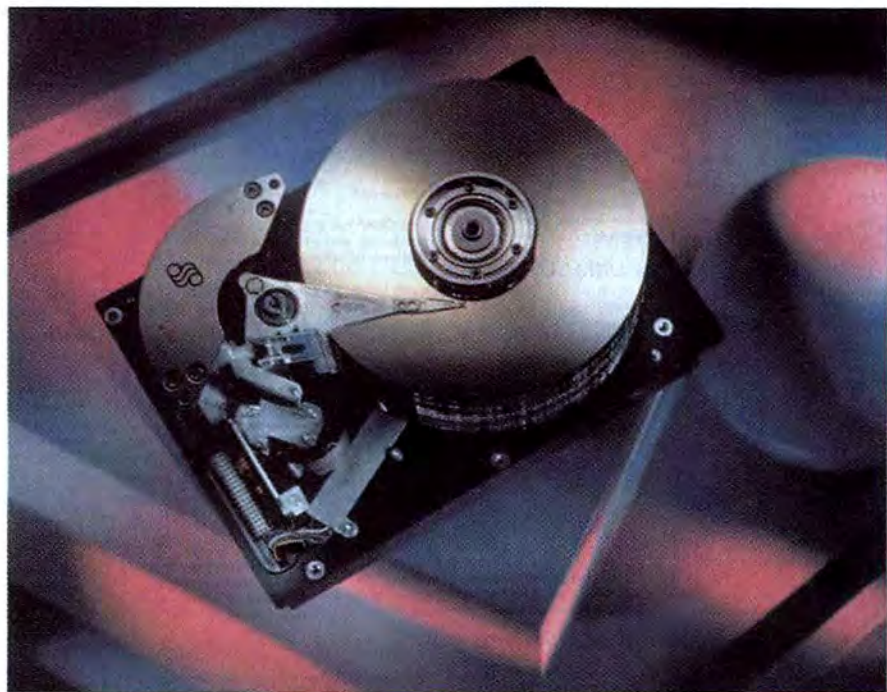


CORPORATE SYSTEMS CENTER
3310 WOODWARD AVE., SANTA CLARA, CA 95054
WWW.DUPEIT.COM

Musicians—ask about our pro-audio CD recorders. Software publishers—ask about our high-volume multi-drive duplication systems. Dupe-It is sold and intended for backup and in-house design purposes only. Copyright laws must be observed.

Dual 8x20 model is pictured above.

MONSTER 47GB SCSI DRIVE



\$895!
FREE SCSI ENCLOSURE
408 330-5559

Open Windows instantly. Process huge graphic and database files with ease. Make your file server scream with speed.

The 47GB Seagate Elite is the drive you need for serious performance. It features 14 disks and 28 heads for blazing performance. 3.5" drives can't touch. The Ultra Wide interface makes installation a snap. A 4MB cache buffer accelerates data transfers.

A special volume purchase brings you brand new drives at low, low PC prices. Shop around. Compare price. No one else can match this deal!

Buy just one drive and build the ultimate workstation. Or add several to take advantage of NT RAID performance. Let us custom-build your multi-drive disk array at no extra charge. Redundant rack-mount trays stack to build arrays bigger than 1,000GB per rack!

Get the speed you need and the reliability you deserve. Get rock solid Seagate quality backed by a warranty of up to six years! Call now! Try your 47GB monster drive risk-free.



CORPORATE SYSTEMS CENTER
3310 WOODWARD AVE., SANTA CLARA, CA 95054
WWW.SCSIDRIVES.COM

Seagate ST446452W drives are PC, Mac, SGI, and Sun compatible. 5 1/4" Elite drives are sold only in OEM enclosures and disk array trays. CSC carries low-cost, top-quality PCI controllers and SCSI accessories. If you haven't already upgraded to SCSI, call us for help. No-risk guarantee refunds your entire purchase price (less shipping) if you're not completely satisfied within 15 days. Call for your free catalog of hard drives, duplication equipment, and accessories.

Custom **ULTRA 2 SCSI** Cables - Terminators - Cases

If you want Ultra SCSI Performance use our Teflon Cables & Active Terminators.

Our knowledgeable SCSI Technicians will solve all your SCSI problems...guaranteed!

SCSIVue™ Active Terminator



Four models available with optional Remote LED Pak. These are the finest terminators available, they fix SCSI problems and improve reliability.

- Benefits:**
- Improves SCSI Bus Performance
 - Less Error, More Reliable Data Transfer
 - Diagnoses Problems • Analyzes Signal Quality
- Features:**
- Active Regulation • Fast 50 & Fast Wide: 68
 - Status Indicators • Gold Contacts

Active 2-1 SCSI Switch / Repeater

- Benefits:**
- Up to 14 Devices to 1 Computer
 - Share Devices Between 2 Computers
- Features:**
- 2-1 Active Digital Switch/Repeater
 - Regenerates SCSI Signal for Long Runs

Gold Diagnostic Adapters

- Styles:** Gender Changers
- Both 50 pin and 68 pin (all combinations)



- Styles:** 68 Pin Drive to 50 Bus
- 68 Pin Drive to 50 Pin IDC (runs wide drive as narrow)



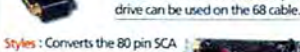
- Styles:** For Adaptec Ultra Wide Cards
- Adapters with partial termination built in for 68 to 50 converters (converts Host Adapter)



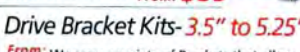
- Styles:** Custom Adapters and Connectors that match most needs. If we don't have it we can make it.



- Styles:** Converts the 68 pin connector on a 68 pin cable to a 50 IDC female connector so that a 50 pin drive can be used on the 68 cable.

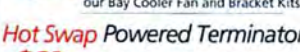


- Styles:** Converts the 80 pin SCA type drives to be used with either 50 or 68 pin SCSI Buses. Three models available.



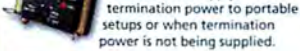
Drive Bracket Kits-3.5" to 5.25"

- From:** We carry a variety of Brackets that allow you to mount a 3.5" drive into a 5.25" bay. They include all screw and hardware necessary. Face panels are also available. Also see our Bay Cooler Fan and Bracket Kits.



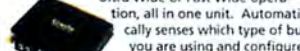
Hot Swap Powered Terminator

- \$69** Now you can safely remove any SCSI device from a SCSI chain by simply clicking a switch. The Hot Swap Powered Terminator also has an optional Power Supply so that it can supply termination power to portable setups or when termination power is not being supplied.



Ultra 2 (LVD) Wide Terminator

- This is the ultimate terminator on the market. It offers both Ultra 2 (LVD) operation and standard Ultra Wide or Fast Wide operation, all in one unit. Automatically senses which type of bus you are using and configures itself to that bus.



Ultra 2 (LVD) SCA Drive Converter

- Converts an 80 pin SCA LVD (Ultra 2) drive into a standard 68 pin LVD. Has a Power Connector and SCSI ID.



SCSIVue™ Gold Diagnostic Cables

- Benefits:**
- No Loss Of Important Data
 - Faster Performance
 - Test Cable Integrity

- Features:**
- Diagnostic Indicators • Large Ferrite Filters
 - Triple Shielding (Unique Design)
 - Double Gold 20u" Plated Connectors
 - Extra Heavy 26 Gauge Wire • 100 Styles in Stock

Teflon® 90 Ohm External Cables

- Benefits:**
- Ultra SCSI 40 MB/s operation
 - Fixes Ultra SCSI Cable Problems

- Features:**
- Perfect 90 Ohm Impedance Match
 - Triple Pronged Connector With Gold contacts

Gold .8mm Ultra SCSI Cables

- From:** \$109
- Benefits:**
- Faster Performance
 - Test Cable Integrity
 - No Loss Of Important Data

- Features:**
- New .8mm Ultra SCSI Connector
 - Triple Shielding (Unique Design)
 - Double Gold 20u" Plated Connectors
 - Diagnostic Indicators • Large Ferrite Filters

14 & 29 Bay Ultra SCSI Towers



- From:** \$999

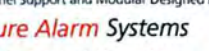
14 & 29 Bay - The Ultimate Large SCSI Storage Solutions

- Shown with optional Bay Coolers and Dual Redundant Power Supply. Multiple SCSI Channel Support and Modular Designed Expansion.



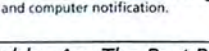
Temperature Alarm Systems

- Temperature is the number one cause for drive failure. Keeping the drives monitored can now easily be done. Systems include outputs for emergency additional fans and computer notification.



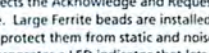
Cool Dual Fan SCSI Cases

- Fast SCSI Drives get HOT...but don't worry we have the perfect solution. Our new Dual Fan SCSI Cases keep any drive cool. Temperature is a drives worse enemy.



Granite Cables Are The Best Because They're Engineered Right.

- Granite Cables were designed by SCSI Engineers to be the **Best Cables On The Market**. Everything about them means better performance and higher reliability. Our design incorporates an exclusive shield that protects the Acknowledge and Request lines from noise. Large Ferrite beads are installed on all cables to protect them from static and noise. Every cable incorporates a LED indicator that lets you know it is operating properly. We also use more **GOLD** on every cable. Add to this our impedance matching techniques and you have most of what makes us THE BEST!



FREE Technical Support!!!

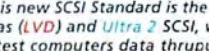
- Available to everyone, customer or not. We will fix your SCSI problems...call us. **FREE... Color Catalog** also available Call 510-471-6442 or SEE www.scsiapro.com

What is Ultra 2 (LVD) ? • How fast is Ultra 2 (LVD) ?

- This is the fastest SCSI available! Twice as fast as Ultra 1 SCSI and without any of its limitations. If you want true horsepower this is the ULTRA SCSI system to buy. Completely backwards compatible with Ultra 1 SCSI, Fast SCSI, and SCSI 1 & 2! The key to this new SCSI Standard is the use of Low Voltage Differential Technology. Also known as (LVD) and Ultra 2 SCSI, we can now achieve speeds that far exceed even the fastest computers data throughput capabilities.

Ultra 2 (LVD) - SCSI Repeater / Converter

- Now you can take all your SCSI devices and run them any distance you want, (up to 75 feet) while sharing the Ultra 2 SCSI bus. This revolutionary Repeater / Converter will give you, not only long cable distance, but also complete compatibility with the new Ultra 2



Gold External Ultra SCSI Cases

- Ultra SCSI Custom Teflon Cable Available • Custom Enclosures in 1 Day for RAID & Arrays



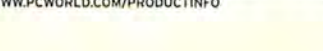
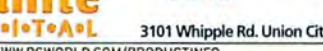
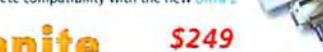
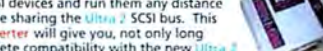
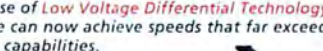
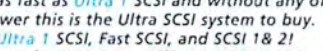
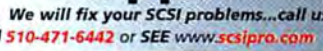
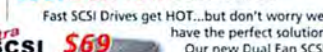
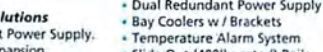
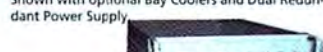
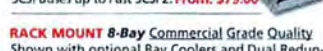
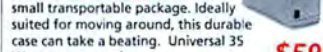
Custom Teflon® Internal Cables

- Benefits:**
- Less Errors, Ultimate Performance
 - Silver Wire Improves Signal Quality
- Features:**
- Perfect 90 Ohm Impedance • Custom in 1 Day
 - Triple Pronged Connector • Gold contacts Silver Wire



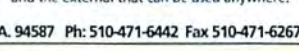
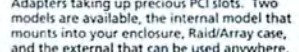
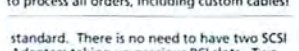
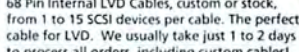
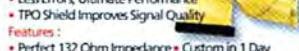
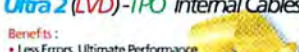
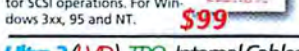
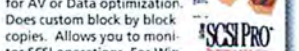
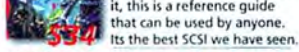
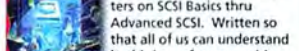
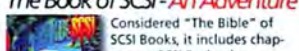
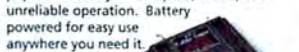
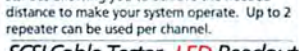
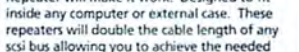
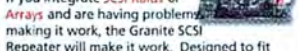
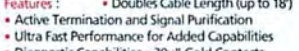
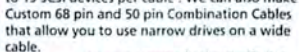
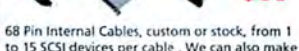
Gold External Ultra SCSI Cases

- Ultra SCSI Custom Teflon Cable Available • Custom Enclosures in 1 Day for RAID & Arrays



Custom Teflon® Internal Cables

- Benefits:**
- Less Errors, Ultimate Performance
 - Silver Wire Improves Signal Quality
- Features:**
- Perfect 90 Ohm Impedance • Custom in 1 Day
 - Triple Pronged Connector • Gold contacts Silver Wire



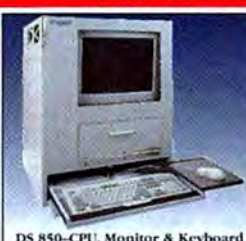
Online Catalog at... www.scsiapro.com

The SCSI Solution Company D•I•G•I•T•A•L

3101 Whipple Rd. Union City, CA. 94587 Ph: 510-471-6442 Fax 510-471-6267

CIRCLE 454 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

STOP Production Dust From Getting Into Your Computer Equipment



The DUSTSHIELD Positive Pressure Enclosures prevent dust & other harmful airborne particles from getting into & damaging computer equipment. A unique two-stage filter system creates an ultra clean positive pressure environment.

The DUSTSHIELD is Industrial Tough & Factory Floor Ready. Hinged doors provide easy access to the enclosed equipment's drives & connections.

DUSTSHIELD's are easy, effective and affordable. Available for CPU's, Monitors, Servers, Printers, Full Workstations and Custom enclosures.

Envirosafe Technologies

1-800-719-9499

Fax 904-646-3575 • Website: www.dustshield.com

CIRCLE 489 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Factory Direct

**Computer Furniture
Network Furniture
Classroom Furniture**

www.computercomforts.com

COMPUTER COMFORTS, INC.

281-488-2288

FAX: 281-488-4272

CIRCLE 440 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

**DON'T VISIT OUR ONLINE STORE
UNLESS YOU WANT TO SAVE BIG**

ON OVER 500,000 PRODUCTS INCLUDING

Laptops • Monitors • Desktops
Servers • Peripherals

**URBAN COMPUTER
CORPORATION**

www.urban-computer.net

888-421-4947

BUY DIRECT! **BUY TODAY!**

CIRCLE 509 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

**Get The Best Stuff Online For
FREE!**

Visit Free Forum at <http://www.freeforum.com> for the best FREE stuff on the Web. Choose from the best FREE samples, trials and unique offer available in seventeen categories of interest such as Sports & Hobbies, Personal Finance, Travel, Health & Fitness, and more! These offers are only available for a limited time, so be sure to visit today.

**The
Free Forum**
Network
www.freeforum.com

**hp HEWLETT
PACKARD**
Expanding Possibilities

**CD-Writer Sweepstakes
Official Rules**

NO PURCHASE NECESSARY TO ENTER OR WIN.

SWEESTAKES BEGINS AT 12:01 AM PACIFIC DAYLIGHT TIME (PDT) ON 8/1/99. SWEESTAKES ENDS AT MIDNIGHT PACIFIC STANDARD TIME (PST) ON 1/31/00. SPONSOR: HEWLETT-PACKARD, INFORMATION STORAGE AMERICAS, 815 14TH STREET SW, LOVELAND, CO 80537.

There are two ways to enter the sweepstakes. Method #1: Online: Access the Hewlett-Packard web site by typing www.hp.cdwriter.com/go/pcw, follow all instructions and complete the online entry form. Incomplete entries will not be eligible. Method #2: By Mail: Hand-print your name, address, telephone number and e-mail address (if you have one) on a plain piece of paper. Insert your mail-in entry in a #10 business envelope and mail via First Class Mail to: Hewlett-Packard CD-Writer Sweepstakes, P.O. Box 9203, Medford, NY 11763-9203. Limit: one entry per person or e-mail address. In the case of multiple entries only the first entry will be accepted. In the event of a dispute over the identity of an online entrant, entry will be deemed submitted by the holder of the e-mail account. Use of automated devices not valid for entry. All entries become the property of the Sponsor and will not be returned. All entries must be received by or between 8/1/99 and 1/31/00.

Random drawings to award all prizes will be conducted on or about 2/18/99 under the supervision of an independent judging organization whose decisions are final and binding in all matters related to the sweepstakes.

Prizes: Eight (8) Hewlett-Packard CD-Writer Plus M820e's (approximate value: \$599 each). Total value of all prizes guaranteed to be awarded: \$4,792. Prizes are not transferable or redeemable for cash. Sponsor reserves the right to substitute a prize of equal or greater value in the event a prize is unavailable. Winners are responsible for all taxes on prizes. Limit: one prize per household. By participating in this sweepstakes all participants agree that all prizes are awarded upon the condition that the Sponsor and their respective agencies or employees will have no liability whatsoever for any injuries, losses or damages of any kind resulting from the acceptance, possession or use of any prize. The Sponsor does not make, nor in any manner will be responsible for, any warranty, representation or guarantee relating to each prize provided; however, each prize will be subject to Hewlett-Packard's standard warranty.

Winners will be notified by mail. Winners may, at the sole discretion of the judges, be required to sign and return an Affidavit of Eligibility/Liability/Publicity Release within 14 days of date printed on notification or he/she will be disqualified. Any prize or prize notification returned as undeliverable will result in disqualification, and the corresponding prize will be awarded to an alternate winner in a random drawing. Acceptance of prize constitutes permission (except where prohibited by law) to use winners' names, prizes won, voices, hometowns and likenesses for purposes of advertising, trade, online posting, promotion and publicity without additional compensation.

Open to legal residents of the 50 United States and the District of Columbia age 18 and older. Odds of winning a prize depend on the total number of entries received. Estimated sweepstakes distribution: 3,050,000 plus mail-in entries. Employees of the Sponsor, their parent companies, affiliates, subsidiaries, dealers, government employees, advertising, promotion and production agencies, and the immediate families, including but not limited to those living in the same household, of each are not eligible to enter or win. All federal, state and local laws and regulations apply. Void where prohibited by law. Sweepstakes is governed by U.S. Law.

No photocopied or mechanically reproduced entries accepted. Sponsor is not responsible for error, omission, interruption, deletion, defect, delay in operations or transmission, theft or destruction or unauthorized access to or alterations of entry materials, or for technical, network, telephone equipment, electronic, computer, hardware or software malfunctions of any kind, or inaccurate transmission of, or failure to receive entry information by Sponsor on account of technical problems or traffic congestion on the Internet or at any web site or any combination thereof. Sponsor is also not responsible for any injury or damage to entrant's or any other person's computer related to or resulting from playing or downloading any materials in the sweepstakes, or for mail-in entries that are lost, late, misdirected, damaged, incomplete, illegible or postage-due. CAUTION: ANY ATTEMPT BY AN ENTRANT TO DELIBERATELY DAMAGE ANY WEB SITE OR UNDERMINE THE LEGITIMATE OPERATIONS OF THE SWEESTAKES IS A VIOLATION OF CRIMINAL AND CIVIL LAWS AND SHOULD SUCH AN ATTEMPT BE MADE, THE SPONSOR RESERVES THE RIGHT TO SEEK DAMAGES FROM ANY SUCH ENTRANT TO THE FULLEST EXTENT PERMITTED BY LAW. IN THE EVENT THIS SWEESTAKES IS COMPROMISED OR BECOMES TECHNICALLY CORRUPTED IN ANY WAY, ELECTRONICALLY OR OTHERWISE, SPONSOR RESERVES THE RIGHT TO WITHDRAW THE ONLINE TRANSMISSION OF THIS SWEESTAKES AND TO SELECT WINNERS FOR THE PRIZES BY RANDOM DRAWING FROM AMONG ALL ENTRIES RECEIVED, INCLUDING ALL THOSE MAILED-IN.

For a list of winners (available by 4/18/00) send a self-addressed, stamped envelope by 1/31/00 to: Hewlett-Packard CD-Writer Sweepstakes Winners, P.O. Box 9204, Medford, NY 11763-9204.

CIRCLE 506 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Memory is Crucial

The memory experts.



Compaq	128MB	64MB	32MB
Deskpro 2000 model 5166/1200	-	58.89	46.54
Deskpro 2000 5233/MMX	\$111.14	58.89	46.54
Deskpro 4000 5166/MMX	\$111.14	58.89	46.54
Deskpro 4000 5200/MMX	\$111.14	58.89	46.54
Deskpro 6000 Pentium II model 300	\$123.49	74.09	53.19
Deskpro EN Minitor			
Model 9100CDS (450MHz)	\$113.99	59.84	50.34
Deskpro EP Model 6400 (450MHz)	\$113.99	59.84	43.69
Presario 4660	\$111.14	58.89	46.54
Presario 4808	\$111.14	58.89	46.54
Presario 5140	\$113.99	59.84	43.69
Armada 7710MT Laptop	-	138.69	74.09
Armada 1130T Series Laptop	-	138.69	74.09
Presario 1610 Laptop	-	62.69	40.84
Presario 1620 Laptop	-	62.69	40.84
Presario 1622 Laptop	-	62.69	40.84

Micron Electronics	128MB	64MB	32MB
ClientPro 766XI	\$111.14	58.89	46.54
ClientPro CP 450	\$113.99	59.84	43.69
ClientPro MRE P200	\$240.34	58.89	72.19
ClientPro P200	-	138.68	74.08
ClientPro VXE	\$111.14	58.89	46.54
Home MPC P200 w/ M54Hi BIOS	-	138.68	74.08
Magnum Pro Plus P200	\$294.48	132.98	74.08
Millennia 450	\$113.99	69.34	43.69
Millennia MAX 450	\$113.99	59.84	54.14
Millennia MME P233	\$111.14	58.89	46.54
Millennia TransPort P133	-	-	93.08
Millennia TransPort XKE P233(A)	-	138.69	74.09
TransPort Trek Series Notebooks	-	138.69	74.09
TransPort Trek2 Series	\$332.49	62.69	40.84

Gateway	128MB	64MB	32MB
G6-266	\$113.99	58.89	43.69
G6-300	\$113.99	58.89	46.54
G6-300XL	\$111.14	58.89	46.54
G6-350	\$113.99	59.84	43.69
G6-400	\$113.99	59.84	43.69
G6-450	\$132.99	59.84	43.69
GP6-266	\$111.14	58.89	46.54
GP6-300	\$111.14	58.89	46.54
GP6-350	\$113.99	59.84	54.14
GP6-400	\$113.99	59.84	54.14
GP6-450	\$132.99	59.84	43.69
P5-90	-	132.98	74.08
P5-133 XL with SIMMS	-	138.68	74.08
P5-200 XL with DIMMS	-	58.89	69.34
Solo 2300 Series	\$569.99	161.49	85.49
Solo 2500XL	\$332.49	62.69	40.84
Solo 5100SE	-	62.69	40.84
Solo 5150XL	\$332.49	62.69	40.84
Solo 9100XL	-	62.69	40.84

IBM	128MB	64MB	32MB
Aptiva (2134) Model 351	-	138.68	74.08
Aptiva (2140) Model L5H	\$111.14	58.89	46.54
Aptiva (2153) Model E2U	\$113.99	59.84	54.14
Aptiva (2168) Model A40	-	132.98	74.08
PC 300GL Series Model 6282	-	58.89	72.19
PC 300PL (6862-27U)	\$113.99	69.34	54.14

IBM (continued)	128MB	64MB	32MB
PC 365 Series Systems (6589xxU)	\$269.79	151.99	83.59
ThinkPad 1410 (i Series)	\$332.49	62.69	40.84
ThinkPad 1411 (i Series)	\$332.49	62.69	40.84
ThinkPad 365XD	-	-	74.09
ThinkPad 390 Series	\$332.49	62.69	40.84
ThinkPad 560	-	138.69	74.09
ThinkPad 770	\$332.49	62.69	40.84

HP	128MB	64MB	32MB
Pavilion 6350	\$111.14	58.89	46.54
Pavilion 8240	\$111.14	58.89	46.54
Pavilion 8390	\$113.99	59.84	43.69
Vectra VE Series 7	\$111.14	58.89	46.54
Vectra VE Series 8	\$113.99	59.84	43.69
Vectra VL Series 7	\$123.49	74.09	46.54
Vectra VL Series 8	\$113.99	59.84	54.14
Kayak XA PC Workstation 440BX Chipset	\$128.24	69.34	43.69
Kayak XA PC Workstation 440LX Chipset	\$123.49	59.84	46.54
Kayak XU PC Workstation 440LX Chipset	\$123.49	74.09	53.19
Kayak XW PC Workstation 440BX Chipset	\$128.24	66.49	50.34
Ominibook XE Series	\$332.49	62.69	40.84
Ominibook 2000	-	164.34	94.99
Ominibook 5500CT	-	164.34	94.99
Ominibook 800CT	-	170.99	85.49

Apple	128MB	64MB	32MB
iMac	\$332.49	62.69	40.84
Performa 5200	-	-	66.49
Performa 6115CD	-	132.98	74.08
Performa 6200 Series	-	-	66.49
Performa 6300 Series (except 6360)	-	-	66.49
Performa 6400 (5400 models)	-	170.99	85.49
Power Mac 5500 Series	-	170.99	94.04
Power Mac 6500 Series	-	170.99	94.04
Power Mac 8500 Series	-	-	85.49
Power Mac G3 (Yosemite)	\$113.99	69.34	54.14
Power Mac G3 Desktop Series (M6141LL/A, M6202LL/A) Gossimer	\$142.49	69.34	46.54
PowerBook G3 Wall Street 250	-	94.99	-
PowerBook G3 Wall Street 266	-	94.99	-

View our full line of memory upgrades and pricing at:

www.crucial.com/pcwd

Prices shown here reflect a 5% discount for placing your order online.

Prices were current as of 6.28.99, however they can (and do) change daily. Individual prices may vary according to your specific system and memory type.

10% additional savings available
on select memory to qualified buyers.
Call today for more information!

Immediate discounts for all online orders
www.crucial.com/pcwd
or call toll free: 1-888-363-3068

©1999 Micron Semiconductor Products, Inc. All rights reserved. Crucial Technology is a trademark of Micron Technology Inc., and Micron is a registered trademark of Micron Technology, Inc. All other brands and names used herein are the property of their respective owners. Crucial Technology, a Division of Micron. Phone 208-263-3000. Fax 208-263-3001. E-mail crucial@micron.com

crucial
TECHNOLOGY
A Division of Micron®

Your Factory-Direct Memory Source

MICROSOFT

Professional Edition
Full Version!

Office 2000

Contains:

Word 2000
Excel 2000
Access 2000
PowerPoint 2000
Outlook 2000
Publisher 2000
SB Tools 2000

Check out
our prices!
Only \$**249.00**
FREE Bonus
with
Purchase!!



Adobe

PageMaker 6.5 Plus.....\$244
PhotoShop 5.5.....299
Illustrator 8.0.....249
Acrobat 4.0.....169



Corel Draw 9 \$219

Corel Office 2000 **New!**

Adobe InDesign \$399!
Save **\$300**
Only \$149

pcAnywhere 9.0.. Full Version
Ask us for free catalog!! Host and Remote. **\$139**

Many other titles available!

Open 24 hours!
(888) 213-5777



Software Surplus

CIRCLE 415 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Accept Credit Cards Now!



FREE Application Setup Fee
\$195.00 Value!

- New Businesses
- Home Businesses
- Internet Businesses
- Real-time Processing

Electronic Transfer, Inc.

1-800-757-5453

ETI is a registered ISO/MSP of Commerce Exchange Bank, Beachwood, Ohio. American Express and Discover Merchants Approved Separately.



CIRCLE 436 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

FREE expert advice & learning by E-mail

www.tipworld.com

Software Downloads Networks
Internet Investing Graphics
Computer Care News Developer



CHEAP SOFTWARE

TOLL FREE 888-999-2611

SAME DAY SHIPPING
100% SATISFACTION
MONEY BACK GUARANTEE
Phone: (310) 305-3644
FAX: (310) 305-3645
www.esoftcorp.com

We'll Beat Any Price

MICROSOFT

NEW! Office 2000 Std. Full Ver. CD-Manual \$259
Office 2000 Pro Full Ver. CD-Manual \$299
Office 2000 Small Bus. Ed. CD-Manual OEM \$249
Office Pro 97 Full Ver. CD-Manual \$239
Office Pro 95 or Office Pro Ver. 4.3 CD only \$149
Office Pro 97.2 Small Bus. Ed. w/CD 98 OEM \$149
Word 97, MS Encarta 99, Works 99, Money 99, Greetings Workshop 99, StreetFinder 99 OEM Bundle \$99
Publisher 2000 CD-Manual-Retail Box \$95
Works 4.5 & Money 98 CD \$32
Project 98 Full Ver. CD-Manual \$269
FrontPage 2000 CD-Manual \$119
Visual C++ Pro 6.0 Full Ver. CD-Manual \$199
Visual Basic Pro 6.0 Full Ver. CD-Manual \$199
Visual Fox Pro 6.0 Full Ver. CD-Manual \$249
Visual Studio Pro 6.0 Full Ver. CD-Manual \$499
Visual Studio Enterprise 6.0 Full Ver. CD-Manual \$699
Windows 98.2 CD-Manual-Lic. Full OEM Ver. \$98
Windows 98 single user license & manual no CD \$59
Windows 95 OSR 2.5 w/CD-Manual-License OEM \$79
Windows 95 2 X single user OEM license & manual \$49
Windows 3.11 MS-DOS 6.22 3.5 disk lic. & man. \$79

MS NT & BACKOFFICE 4.5 In Stock

NT Workstation 4.0 CD-Manual-License-COA-OEM \$139
NT Server 4.0 CD w/5 Client License \$449
NT Server 4.0 CD w/10 Client License \$579
NT Server Enterprise 4.0 CD w/25 Client \$1399
Terminal Server 4.0 CD & Man w/10 Client Lic. \$989
NT Server 4.0 20 Client License w/COA No CD \$299
BackOffice 4.5 Small Bus. Ser. Full Ver. 25 Client \$2595
w/NT 4.0/SQL/Exchange 5.5/Proxy/Modem/InfoMail/Fax Server
BackOffice Server 4.5 Full Version-20 Client \$3095
w/NT 4.0/SQL/Exchange 5.5/Proxy/Modem/InfoMail Server
BackOffice Server 4.5 20 Client License w/COA \$1949
SQL Server 7.0 w/10 client Full Version \$1395



PACIFIC STANDARD TIME MONDAY - SATURDAY 7AM-6PM

ADOBE

Acrobat 4.0 Full A.E. Version \$139
Photoshop 5.0 Full A.E. Version \$339
Photoshop 5.0 Full Commercial Version \$499
PageMaker 6.5 Plus Full A.E. Version \$319
PageMaker 6.5 Plus Full Commercial Version \$399
Illustrator 8.0 Full A.E. Version \$199
Illustrator 8.0 Full Commercial Version \$249
Premier 5.1 Full A.E. Version \$399

COREL & LOTUS

Wordperfect 8.0 & Lotus Millennium OEM \$99
Wordperfect Office 2000 Std. w/CD-Man. Reg. OEM \$89
Wordperfect Office 8.0 Std. w/CD-Man. Reg. OEM \$79
Wordperfect Office Pro 8.0 w/CD & Manual OEM \$119
CorelDraw 9.0 Graphic Studio Retail Box \$299
Lotus SmartSuite 97 CD-Manual Full OEM Version \$42
Lotus Millennium CD-Manual Full OEM Version \$75

SYMANTEC

Norton Anti-Virus 5.0 w/CD-Manual, Full Ver. \$19
Norton Anti-Virus 5.0 (10 User Pack) Retail Box \$159
Norton System Works Anti-virus, URL, Crash Grid w/CD \$29
Norton System Works 2.0 Retail, less \$20 Rebate \$69
PC Anywhere 32 9.0 Host & Remote w/CD-Lic. \$109
PC Anywhere 32 9.0 (10 User Pack) Retail Box \$699
ACT 4.0 w/CD-Manual, Full Version \$95
ACT 4.0 (10 User Pack) Retail Box \$549
pcTelecommute 1.0 To work from home w/CD-Lic. \$49
TalkWorks Pro 2.0 Voice/FAX Message System w/CD-Lic. \$49
WinFax Pro 9.0 w/CD only, electronic man., Full Version \$89
WinFax Pro 9.0 (10 User Pack) Retail Box \$599

DEALER INQUIRIES WELCOME

No Credit Card Surcharge

SoftMan Products Co

12654 W. Washington Bl. #103, Los Angeles, CA 90066

Prices subject to change without notice. All trademarks are property of their respective owners. Call for pricing on products not listed.

CIRCLE 512 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

Traditional

Contemporary

The Natural Choice In Computer Furniture.

DELIVERED DIRECT TO YOU!

Classic Maple

Find just the style you want from one of five distinctive collections offered by Computer Furniture Direct. Enjoy the natural beauty of real wood in over thirty computer-savvy designs priced from \$559. We deliver and set up in your home or office. Call for your free catalog.

1-904-565-1163
www.cf-direct.com

Please refer to ad code: PCW999

CIRCLE 423 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SEND THEM BACK TO SCHOOL JUST A LITTLE SMARTER.



Welcome to Dell Refurbished, where you can buy today's technology for less. Our quality refurbished Dell computers, including desktops, notebooks, workstations and servers, are all rebuilt to original Dell specifications and feature same-as-new limited warranties² and support.

CALL NOW. SUPPLIES ARE LIMITED. 1-888-219-3668

Mon-Fri 7am-9pm CDT • Sat & Sun 10am-6pm CDT • Keycode 00075



All systems refurbished. Available configurations may vary. ²For a copy of limited warranties, write to Dell Refurbished, 1 Dell Way - Box 65, Round Rock, TX 78682, Attn: Warranties. All sales FOB Austin. Supplies limited to stock on hand. No rain checks. Prices and specifications subject to change without notice and valid in the U.S.A. only. ⁴For hard drives, GB means 1 billion bytes; total accessible capacity varies depending on operating environment. ⁵17X Min. ⁶14X Min. ⁷10X Min. ⁸2X Min. ⁹Download speeds limited to 53Kbps. Upload speeds are less (in the 30Kbps range) and vary by modem manufacturer. Speeds also vary depending on line conditions. Analog phone line and compatible server equipment required. ¹⁰1X Min. HP and DeskJet are registered trademarks of Hewlett Packard Corporation. The Intel Inside logo and Pentium are registered trademarks of Intel Corporation. Dell disclaims proprietary interest in the marks and names of others. Other trademarks and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. ©1999 Dell Computer Corporation. All rights reserved. Printed in the U.S.A. Reproduction in any manner whatsoever without the written permission of Dell Computer Corporation is strictly forbidden. Dell cannot be responsible for errors in typography or photography.



Refurbished Dell® Dimension® XPS T450 Desktop

Pentium® III Processor at 450MHz
128MB Memory • 13.6GB⁴ Hard Drive • 40X⁵
Max⁶ Variable CD-ROM • 64 Voice Sound •
16MB AGP Video • 56Kbps Capable¹¹ V.90
Modem • 17" (16.0"viewable) Monitor

\$1249

Refurbished Dell Dimension XPS T500 Desktop

Pentium III Processor at 500MHz
128MB Memory • 13.6GB⁴ Hard Drive • 4.8X⁵
Max¹⁰ Variable DVD-ROM • 320 Voice Sound •
16MB AGP Video • 56Kbps Capable¹¹ V.90 M
• 100MB Zip Drive • 17" (16.0"viewable) Mon

\$1549

Refurbished Dell OptiPlex GX1 400 Desktop

Pentium II Processor at 400MHz
128MB Memory • 6.4GB⁴ Hard Drive • 32X⁵
Variable CD-ROM • 64-Voice Sound • 4MB A
Video • 56Kbps Capable¹¹ V.90 Modem •
10/100Mbps Network Interface • 17" (16.0"
viewable) Monitor

\$1299

Refurbished Dell PowerEdge 2300 Server

Pentium III Processor at 450MHz
(Dual-Processor Capable)
128MB Memory • Two 9GB⁴ Hard Drive • 5X⁵
Cache • 32X Max⁶ Variable SCSI CD-ROM •
10/100Mbps Network Interface

\$2399

Accessories (with system purchase):

harman/kardon HK-195 Speakers
Nylon Notebook Carrying Case
Inspiron Secondary Lithium Ion Battery
Hewlett Packard ScanJet 5200Cxi
Scanner
Hewlett Packard DeskJet® 882C
Color Printer

BE DIRECT
DELL

www.dell.com/outlet/h

WWW.BARCODEHQ.COM

Bar Code Labeling

LabelRIGHT Software \$295

- Any Format, Any Label. WYSIWYG
- Formats for Sears, K-Mart, Penney's, WalMart, EIA, AIAG, etc.
- Code 128, UPC/EAN, 2 of 5, Codabar, Code 39
- Lines, Boxes, Rotations, Color, PCX, BMP, etc.
- Simple Custom Operator Interface
- Prints to LaserJet, DeskJet, and Dot-Matrix.
- DOS Version too - only \$279



Bar Code Fonts \$199

- For Windows and Mac
- Insert bar codes into any font based Windows program
- Prints Code 39, UPC/EAN, Code 128, PostNet, Codabar, 12 of 5
- Hotkey Desktop Translation or DLL for Programmers

Bar Code Printers

- Complete Package - \$895
- Thermal Transfer Printer for Bar Codes, Text and Graphics
- Includes Windows or DOS Software, Cable, Labels and Ribbon
- Up to 4 inch label width
- High Speed and Industrial Models Available



Wireless Readers

- Cordless On-line Scanning
- Transmits up to 100 feet
- Complete One-Way Wand - \$595
- Two-Way Laser with Base - \$1650
- No license necessary
- Base attaches as a second keyboard
- Serial attachment also



Wireless Terminals

RF Data Terminal

- 1,000 ft. Range (1,000,000 sq. ft.)
- Scan and Key Data On-line
- Computer Sends Display and Triggers Voice Messages on Terminal
- All Programming on Host (VB, C, Access, etc.)
- Bar Code Input by Wand, Laser or CCD
- Base Station - \$845 (up to 16 Terminals)
- Complete Terminal with Wand - \$1215
- With Integrated Laser Scanner - \$1790



Fixed Readers

Keyboard Wedge Wand \$299

- Attaches as second keyboard
- No software needed
- For Windows, DOS, Mac
- Code 39, UPC/EAN, 128, 2 of 5, 93, Codabar, etc.
- Wand, Laser, CCD, Slot Badge and Magstripe



Keyboard Laser Reader \$659

- "Point and Shoot" Reading
- Decoder Built into Laser
- No extra box
- For PC and Mac
- Code 39, UPC/EAN, 128, 93, Codabar, Interleaved 2 of 5, etc.
- Lifetime Warranty on Scan Element
- Withstands 5' Drops to Concrete



Laptop Laser Reader \$795

- Does not Draw Power from Laptop
- 4 AA Batteries in Handle or Uses Wall Power
- Attaches to DB-9 serial port
- Supplied Program makes Scanned Data Appear as Keyed

Portable Readers

Batch Data Collection Unit

- 64K Unit with wand \$759
- Scan and key Data to Memory
- Scan and Key Data to Battery Operated Memory (3 AAs)
- Upload collected data to host computer - serial or keyboard
- 2 Built-in Inventory Programs
- Patented Voice Prompts
- XModem Serial Upload
- Windows and DOS Uploading Software Included at No Charge
- Easy to create custom prompts and custom voice messages.
- Cord Attached Wand, Laser or CCD



64K Built-in Laser Model \$1299

- Laser Scanner built-in to top
- One hand scanning
- Right hand or Left hand
- Eliminates cord and separate scanner
- Very rugged and lightweight
- Windows and DOS Uploading Software Included at No Charge
- Lifetime warranty on scan element



Ordering is Easy! 1-800-345-4220

Europe Phone: (353) 1 6614 566 • Fax: (353) 1 6614 622 • USA Phone: 831-458-9938 • Fax: 831-458-9964 • www.barcodehq.com

- Made in the USA
- 800 Tech Support
- 30 Day Money Back Guarantee
- 2 Year Warranty on Readers
- Free, Same Day UPS Blue Shipping
- 13 Years of service
- Widest range of Products Available
- See Website for Complete On-line Catalog

Sales, Service and Support
Direct From the Manufacturer
www.barcodehq.com

CALL FOR FREE
CATALOG AND
BAR CODE
PRIMER!

WORTHINGTON
DATA SOLUTIONS

PRODUCTIVITY

POINT OF SALE!

Before You Buy or Sell
Another Point Of Sale Package,
Take A Serious Look At



The POS Software You Can Depend On!

- Point of Sale
- Accounts Payable
- Inventory Control
- General Ledger
- Accounts Receivable
- Mailing List

Over the past 15 years, The General Store has replaced over 40 competitive packages. The General Store is a dependable, powerful, and flexible software solution that has been installed in retail stores around the world.



Call today for more information
and a FREE DEMO,
or visit our web site at
www.thegeneralstore.com.

800-678-4535

Lakeland, FL 33801

426 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTIVITY

PRODUCTIVITY

Herman Miller
Aeron Chair

Much better
than your
first husband.

800-883-9697

www.sittingmachine.com
www.mcgrawmemory.com



491 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTIVITY

MEMORY/UPGRADES

HOT DEALS
ON MEMORY,
CPU'S, HARD DRIVES
& LAPTOP MEMORY

BEST PRICES IN THE USA
(WE KNOW, WE CHECKED)

WE BUY
SELL AND
TRADE

MemoryDepot
YOUR ONE STOP COMPUTER STORE

(800) 755-0586

HOURS: MON-FRI 9am-5pm PST
QUALIFIED PO'S WELCOME
VISIT US ON THE WEB

www.memdepot.com

425 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTIVITY

MARKETPLACE Shop Here! Productivity • Memory • Upgrades

BARCODE

BAR CODE SOLUTIONS

- Bar Coding & Labeling Software
- Bar Code Font Packages
- Scanners, Lasers & Printers
- Inventory Management
- Time & Attendance

UPC/EAN
CODE 39
CODE 128
INTERLEAVED 2of5
POSTNET and More!

Visit us online at:
www.bearrock.com

Bear Rock Offers:
Free Expert Consultation,
Lifetime Technical Support
and Satisfaction Guaranteed
on ALL Bar Coding products!

Bear Rock Welcomes VARS.

FREE Handbook
"Guide to Understanding Bar Code Basics"

Call Today for a FREE Consultation!
800 232-7625
Intl: (530) 672-0244 Fax: (530) 672-1103

418 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

Blank CDRs

in
packs of
2000

79¢

TDK • SONY Digital Audio, 80Min & DVD

TDK City 50	ea. 1.79	DA CDR for Philips 50	1.99
Sony City 50	1.89	DA CDR for Philips 100	1.89
Kodak Gold 50	1.79	80m 730MB 50	1.49
		80m 730MB 100	1.29
		DVD 5.2GB	39.00
		DVD 4.7GB	37.00
		DVD 2.6GB	32.00

High Quality Blank CD-Rs

74 min, 650MB spindle

Pks / 100	ea. .99		
Pks / 200	.89		
Pks / 1000	.85		
Gold on Gold/100	1.19	Silver Surface/500	.99
Silver on Silver/100	.99	Gold Surface/100	1.19
CDRW Pks / 50	1.99	White Surface/100	1.19

Printable CD-Rs

8X CD-R pk 100	\$1.19	GD Labels pk 200	\$25
8X CD-R pk 200	\$1.09	Jewelcase pk 200	\$24

CD Accessories

Americal Micro Products, Inc.
800-644-4404
www.americal.com
Visa • MC • Amex • Corporate/Gov't Accts Welcome

445 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

SUPPLY DEPOT INC.

Genuine Brand Toners for Less!!

All Brands Discount Prices

Copy Toners • Laser Toners
Inkjets • Fax Toners
Ribbons • MagMedia
Xerox • Canon • Ricoh
Savin • Sharp • Okidata
HP • Epson • IBM etc.

We're one of the U.S.'s Largest Discount
Retailer of Genuine Brand Toners,
Drums, Ribbon, etc. to the Public

When You Need Toner Order Toll Free
800-331-3810

Canon Copy & Fax Toner
Genuine Brand Cartridges! ✓ *Out there prices*

3030/3050 Copy Toner (G-5) \$49/case
4050/4080 Copy Toner (G-4) \$45/case
6025/6030 Copy Toner (G-7) \$39/case
5000/7000 Copy Toner (FX-2) \$76/each

118 Morton Ave
Providence, RI 02909 Fax 401-331-3146

462 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

EDUCATION

STUDENTS!

Save up to **75% OFF** popular software!

DTP
Animation
CAD
Business
Medical
Utilities
Music
Programming
Web Publishing

Adobe
Microsoft
Kinectix
Alias/Wavefront
Softimage
Autodesk
MetaCreations
Macromedia
Corel
ADAM
Many More!!

FREE CATALOG!

MAYA • SOFTIMAGE • MAX
1-800-874-9001
YOUR PROFESSIONAL ANIMATION SOURCE!

JourneyEd COM

JOURNEY EDUCATION MARKETING

518 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

EDUCATION

Become a PC repair expert!

Accredited home study course.
Learn how to install, upgrade, troubleshoot, and repair hardware and software. Increase your on-the-job value, or open your own PC repair business.

Send or call 24 hours a day for your free career literature.

Call 800-223-4542

Name _____
Age _____ Phone (____) _____
Address _____
City/State _____ Zip _____

The School of PC Repair
PCDI, 430 Technology Parkway
Dept. JJK684, Norcross, GA 30092

451 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

EDUCATION

Students & Teachers

Up to 80% OFF

CALL FOR MICROSOFT PRICING!!

+Autodesk +Macromedia and 1,000's more!!
+Borland +NetObjects
+Corel +Symantec

3D Suite 3.0	\$299	Flash 3.0	\$99
C++Builder Pro 4.0	\$119	FreeHand 8.0	\$99
Bryce 4.0	\$159	HyperStudio 3.2	\$119
Canvas 6.0	\$199	Kai's Power Tools 5.0	\$89
Coda Finale 98	\$249	LightWave 3D 6.0	\$889
CodeWarrior Pro R5	\$119	NetObjects Fusion 4.0	\$99
CorelDRAW 9.0	CALL	PC MACLAN 7.2	\$129
Director 7.0	\$349	Painter 5.5	\$219
Eye Candy 3.01	\$79	Poser 4.0	\$195
FileMaker Pro 4.1	\$139	TrueSpace 4.0	\$319
Draft 4.1	\$149	Wacom Intuos 6x8	\$285
FireWorks 2.0	\$99	WordPerfect Offic2000	CALL

FREE Catalog (800) 699-1836

Software Showcase Inc.
Phone (732) 660-8820 FAX (732) 660-8828
417 Euclid Ave, Loch Arbour, NJ 07711

www.softwareshowcase.com

412 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

DATA RECOVERY:

800-440-1904

7 good reasons to choose DriveSavers:

DRIVESAVERS DATA RECOVERY
Since 1989

1. We are the fastest, most trusted, data recovery professionals.
2. Retrieve recovered data instantly with DATAEXPRESS™ over secured Internet lines.
3. Recommended and certified by all drive companies to maintain your warranty.
4. 24-hour, onsite and weekend service available.
5. Advanced, proprietary data recovery techniques.
6. Featured by CNN, BBC, Forbes, & many others.
7. Federal & State Contracts (GSA, CMAS.)

www.drivesavers.com

431 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

DATA RECOVERY IN HOURS

Over 10 years of experience with clients worldwide including HP, NASA, & FedEx.

We've recovered more than half-a-million megabytes of lost data.

No minimum charge or diagnostic fee.*

Call 24 hours a day.

LAZARUS
DATA RECOVERY

800-341-3282

415-495-5556 • FAX 415-415-5550 *RESTRICTIONS MAY APPLY*
381 Clementina Street • San Francisco, California 94103

470 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

Mouse Pads

Great Desk Advertising

Cloth and Plastic

- Your design/logo
- Fast turnaround
- Guaranteed Quality
- Fulfillment Available

<http://www.microstore-mousepads.com/>

MicroStore Inc.
P.O. Box 125
Le Sueur, MN 56058
800-962-8885
Fax: 507-665-2604

497 ON CARD OR GO TO WWW.PCWORLD.COM/PRODUCTINFO

SERVICES/SUPPLIES

IF YOU HAVE A PRODUCT OR SERVICE TO SELL
WE HAVE THE
PERFECT PLACE TO ADVERTISE!

When you advertise in PC World Marketplace you reach buyers, not just readers. That's because PC World is more than just a computing magazine... It's a buying resource guide! To place your ad in the "Products and Services" section

PLEASE CALL
888-254-0711

VENTUREDirect
Direct Response Marketing & Media Solutions • WORLDWIDE

PC World provides readers with three easy ways to get product information. Choose from one of these options:

FREE PRODUCT INFORMATION AT YOUR FINGERTIPS!

- ▶ **mail** Fill out the pre-paid postcard below and mail.
- ▶ **fax** Fill out form below and fax to 503/684-5370.
- ▶ **online** Visit us at: www.pcworld.com/productinfo

PC WORLD FREE PRODUCT INFORMATION

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE () _____ FAX () _____

E-MAIL _____

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription to PC World PLUS a free mouse pad (U.S. only). You will be billed \$24.95.

▶ **CIRCLE THE NUMBER** corresponding to the product or product category you want to know more about. Mail, fax (503/684-5370), or go online at www.pcworld.com/productinfo. Manufacturers will send product information directly to you.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Advertised Products

951	Desktop computers	956	Graphics software	961	Mail order companies
952	Notebook computers	957	Network/sharing products	962	Storage devices
953	Windows software	958	Printers	963	Web products/services
954	Monitors and video boards	959	Multimedia products		
955	Accounting software	960	Utilities		

PC WORLD Visit us at: www.pcworld.com/productinfo

4CYX7

September 1999 This card expires January 7, 2000 51

FREE PRODUCT INFORMATION

For a Quicker Response:

- ▶ Go Online at: www.pcworld.com/productinfo
- ▶ Or, Fax to 503/684-5370

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



PC World provides readers with three easy ways to get product information. Choose from one of these options:

FREE PRODUCT INFORMATION AT YOUR FINGERTIPS!

- **mail** Fill out the pre-paid postcard below and mail.
- **fax** Fill out form below and fax to 503/684-5370.
- **online** Visit us at: www.pcworld.com/productinfo

FREE PRODUCT INFORMATION

For a Quicker Response:

- Go Online at: www.pcworld.com/productinfo
- Or, Fax to 503/684-5370

BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO 848 PORTLAND OR

POSTAGE WILL BE PAID BY ADDRESSEE

PC WORLD

READER SERVICE DEPARTMENT
12950 SW PACIFIC HWY STE 7
TIGARD OR 97223-9750

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

PC WORLD FREE PRODUCT INFORMATION

NAME _____

TITLE _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE () _____ FAX () _____

E-MAIL _____

INFORMATION FROM ADVERTISERS

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140
141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160
161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180
181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200
201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220
221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240
241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260
401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420
421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440
441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460
461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480
481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500
501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520

☐ Check here for a 1-year (12 issue) subscription to PC World PLUS a free mouse pad (U.S. only). You will be billed \$24.95.

► CIRCLE THE NUMBER corresponding to the product or product category you want to know more about. Mail, fax (503/684-5370), or go online at www.pcworld.com/productinfo. Manufacturers will send product information directly to you.

PRODUCTS FEATURED IN EDITORIAL

601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620
621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640
641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660
661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680
681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700
701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720
721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740
741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760
761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780
781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800
801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820
821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840
841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860
861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880
881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900

PRODUCT CATEGORY INFORMATION

For information on all of the products mentioned in an article or an entire category of advertised products, circle the appropriate number below.

Editorial Features (see article for numbers)

901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920

Advertised Products

951 Desktop computers	957 Graphics software	961 Mail order companies
952 Notebook computers	957 Network/sharing products	962 Storage devices
953 Windows software	958 Printers	963 Web products/services
954 Monitors and video boards	959 Multimedia products	
955 Accounting software	960 Utilities	

PC WORLD Visit us at: www.pcworld.com/productinfo

PC WORLD

PUBLISHER Jeff Edman

Ad Sales Business Manager Patricia Owen

ADVERTISING SALES

ASSOCIATE PUBLISHER/ADVANTAGE MARKETING
Bob Ostrow (508/370-0844)

SALES ASSOCIATE/OFFICE MANAGER
Ellen Sanderson

EAST

ASSOCIATE PUBLISHER/EAST

New York/New Jersey/Connecticut
Wayne Silverman (201/587-0090)

Thalia M. Karakitsios, Senior
Account Manager (201/587-0090)

Sales Associate Heather Shanley
New England/Ohio/Eastern Canada

Michael Carroll, Director of
Consumer Advertising
(508/370-0842)

Sales Associate Luanne Kiley

Mid-Atlantic/Southeast/Pennsylvania
Judy Sutter, Senior Account
Manager (770/394-0758)

Sales Associate Charlye Gande
Peter Spande, Account
Representative (201/587-7342)

MIDWEST

Kathy McKay, Senior Account
Manager (847/827-4477)

Sales Associate Tammy O'Sullivan

NORTHWEST

NORTHWEST ADVERTISING DIRECTOR

Mid-S.F. Peninsula/Fremont, CA/South
Bay/Oregon/Washington/Montana/
Wyoming/Western Canada
Roy Kops (415/243-0500)

Sales Associate

Alison Fennings Wetherall

San Francisco Bay Area
Colleen Hirner, Account Manager
(415/243-0500)

Sales Associate Jennifer McQuat

Northwest

Duane Hampson, Senior Account
Representative (415/243-0500)

SOUTHWEST

ASSOCIATE PUBLISHER/WEST

Los Angeles/Orange County
Bill Hanck (310/312-8008)

Sales Associate Joyce Clarke

Texas/Lower Midwest

Harvey Diamond, Senior Account
Manager (972/398-2608)

Sales Associate Janine Copsey

Southern California (San Diego)/
Colorado/Idaho/Nevada/Utah/
New Mexico/Arizona
Susan Green, Account Manager
(949/250-8081)

Sales Associate Janice Mahler

Southwest

Shannon Smith, Account
Representative (415/243-0500)

CONSUMER ADVERTISING SALES

Eastern U.S.

Edman & Company (212/551-1121)

Michigan/Pennsylvania/Ohio
Heth & Associates (248/642-7273)

Western U.S.

Hutch Looney & Associates
(323/931-3444 x227)

PC WORLD MARKETPLACE/
PC WORLD ACTION CARDS

Neal Mandel (212/655-5157)

PC WORLD REPRINTS

Mike Shober (717/560-2001 x29)

MARKETING

DIRECTOR OF MARKETING Sandy Wong
PR SPECIALIST Amy Dalton

PRESENTATION SPECIALIST David Grayson
MARKETING COORDINATOR

Harriet Newman

RESEARCH

VICE PRESIDENT, RESEARCH Bettina Eichel

RESEARCH MANAGER Sandra O'Boyle

SENIOR RESEARCH ANALYST

Stephen Riddle

RESEARCH ASSISTANT Karen Edson

CIRCULATION

VICE PRESIDENT, CIRCULATION

Shawne Burke Pecar

DIRECTOR OF CIRCULATION OPERATIONS

David Cobb

DIRECTOR, SINGLE COPY SALES

Cheryl Stephenson

SENIOR MANAGER, RETENTION MARKETING

Lisa Radler

SENIOR PROMOTION MANAGER

Shira Weisbach

PROMOTION MANAGER Judy Apostol

CIRCULATION ASSISTANT Shama Ali

CIRCULATION ADMINISTRATIVE ASSISTANT

Patrick McConnell

CUSTOMER SERVICE SPECIALIST

Tina Phelps

PRODUCTION

PRODUCTION DIRECTOR Nadia Maudsley

PRODUCTION MANAGER Nancy Jonathans

DIGITAL ADVERTISING PRODUCTION MANAGER

Lewis Lee

ADVERTISING TRAFFIC COORDINATOR

Yvette B. Joplin

PC WORLD ONLINE

CEO Thomas Gewecke

VICE PRESIDENT, FINANCE AND OPERATIONS

Madeleine Buckingham

ASSOCIATE PUBLISHER Sandy Schackman

DIRECTOR, CONSUMER ADVERTISING

Julie Calder

DIRECTOR, AUDIENCE DEVELOPMENT,

MARKETING AND RESEARCH

Noël McLaughlin

DIRECTOR, AUDIENCE DEVELOPMENT

Ellen DiMatteo

DIRECTOR, PRODUCT DEVELOPMENT

Adam Block

DIRECTOR, APPLICATIONS DEVELOPMENT

Matt Turner

NATIONAL ACCOUNTS MANAGER

Gabrielle Green

CLIENT SERVICES MANAGER

Patricia McMahon

WESTERN REGIONAL ADVERTISING SALES

DIRECTOR Stephanie Ericson

SOUTHWESTERN DISTRICT ADVERTISING SALES

MANAGER Eugenie Brown

EASTERN REGIONAL ADVERTISING SALES

MANAGER Don Calamaro

DISTRICT ACCOUNT MANAGER, EAST

Charles Pitzer

NORTHWEST DISTRICT ADVERTISING SALES

MANAGER Melissa Gruber,

Sean Murphy

DESIGN MANAGER Grace Woo

PRODUCT MANAGER Carla Lieberman

ACCOUNT EXECUTIVE David Korman

ADVERTISING PRODUCTION & CLIENT SERVICES

MANAGER Erin Wayman

ADVERTISING PRODUCTION MANAGER

Elizabeth McGrath

PRODUCT MANAGER, ONLINE NEWSLETTERS

Declan Fox

INTERACTIVE CUSTOMER SERVICE MANAGER

Mark Green

CUSTOMER SERVICE REPRESENTATIVE

Maureen Kilkeary

BUSINESS MANAGER Ulla McGee

BUSINESS OPERATIONS MANAGER

Kate Agrell

SENIOR ONLINE BUSINESS ANALYST

Tobias Harting

BILLING MANAGER Diane Hacker

ADVERTISING ANALYSIS COORDINATOR

Kristine Equihua

ONLINE BUSINESS ANALYST Charles Lee

ADVERTISING PRODUCTION SPECIALIST

Amy Bellia

ADVERTISING PRODUCTION COORDINATOR

Dalia Schwartz

ONLINE BILLING COORDINATOR

Lisette Walsh

ASSISTANT MANAGER, MARKETING

Cheryl Allen

AUDIENCE DEVELOPMENT COORDINATOR

Traci Shefcyk

MARKETING AND ADVERTISING SALES

COORDINATORS Adrianna Cecchini,

Mariela Baiz

PRODUCERS Matt Donham,

Patrick Herns

SENIOR APPLICATIONS DEVELOPER

Simon King

APPLICATIONS DEVELOPERS Newton

Bailey, Alison King, Karen Windus

PROJECT MANAGERS Lisa Engelbert,

Victoria Klum, Licia Slimon

SENIOR CONTENT ENGINEER

Nick Van Cleve

SYSTEMS ADMINISTRATOR Tom Cowan

ONLINE DESIGNER Eliza Wee

EXECUTIVE EDITOR, TIPWORLD Jim Welp

COPY CHIEF, TIPWORLD Celilia Crosby-

Lampkin

ADMINISTRATION

HUMAN RESOURCES AND

INFORMATION SYSTEMS

VICE PRESIDENT Richard Willoughby

DIRECTOR Katherine Coldwell

VICE PRESIDENT, CIO Henri Froissart

DIRECTOR, INFORMATION SYSTEMS

Norman Noble

NETWORK MANAGER Rodney Barnes

IT DEVELOPER/ANALYST Stan Erhart

INFORMATION SYSTEMS SPECIALISTS

Mario Echevarria, Eileen Quan

FINANCE

COO/CFO Vicki Peilen

EXECUTIVE DIRECTOR OF ACCOUNTING AND

OPERATIONS Pat Murphy

ACCOUNT MANAGER Michelle Reyes

DIRECTOR, ADVERTISING ACCOUNT SERVICES

Kevin Greene

ADVERTISING SERVICES COORDINATOR

Yuliya Korentsvit

PC World is a business unit of International Data Group (IDG). Headquartered in Boston, IDG informs more people worldwide about information technology than any other company in the world. With annual revenues of \$2.05 billion, IDG is the leading global provider of IT media, research, conferences, and expositions. IDG publishes more than 290 computer newspapers and magazines and 700 book titles in 75 countries, led by the *Computerworld/InfoWorld*, *Macworld*, *Network World*, *PC World*, *Channel World*, and *For Dummies* global product lines. IDG offers online users the largest network of technology-specific sites around the world through IDG.net (www.idg.net), which comprises more than 225 targeted Web sites in 55 countries. IDG is also a leading producer of 168 computer-related expositions in 35 countries, and research arm International Data Corporation (IDC) provides computer industry research and analysis through 49 offices in 41 countries worldwide. Company information is available at www.idg.com.

THE COMPANY: IDG is the world's leading IT media, research, and exposition company. Founded in 1964, IDG had 1997 revenues of \$2.05 billion and has more than 9000 employees worldwide. IDG offers the widest range of media options, which reach 90 million IT buyers in 75 countries representing 95 percent of worldwide IT spending. IDG's diverse products and services portfolio spans six key areas including: print publishing, online publishing, expositions and conferences, market research, education and training, and global marketing services.

PUBLICATIONS: More than 90 million people read one or more of IDG's 290 magazines and newspapers in 75 countries each month. IDG's five global publication product lines—*Computerworld/InfoWorld*, *Macworld*, *Network World*, *PC World*, and *Channel World*—account for more than 175 of these titles, delivering a consistent class of buyers throughout the world.

BOOKS: IDG Books Worldwide is the fastest-growing computer book publisher in the world, with more than 700 titles in 38 languages. IDG Books Worldwide's leading brands include *For Dummies*, *One Step at a Time*, *Dummies 101*, the *Simplified* series, and the *SECRET* series. The *For Dummies* series alone, which includes more than 350 titles, has more than 50 million copies in print worldwide.

ONLINE: IDG offers online users the largest network of technology-specific Web sites around the world through IDG.net (www.idg.net), which comprises more than 225 targeted Web sites in 55 countries. IDG.net provides a global gateway to the Web's richest content via highly targeted sites that reflect the distinct

information needs of each audience they serve. IDG Web sites are supported by the world's only global IT news organization: 2000 journalists in 75 countries reporting the latest technology news and analysis in multiple languages around the world.

RESEARCH: International Data Corporation (IDC) is the world's leading provider of information technology data, analysis, and consulting. With research centers in 41 countries and more than 400 research analysts worldwide, IDC is uniquely positioned to provide a global perspective on IT market and technology trends, serving more than 3900 corporate and government agencies worldwide. IDC/LINK is the leading provider of worldwide market research in consumer computing, including personal computing, interactive entertainment, and online services.

EVENTS: IDG World Expo is a leading producer of more than 168 globally branded conferences and expositions in 35 countries. Industry leading international event series include E* (Electronic Entertainment Expo), *Macworld Expo*, *ComNet*, *Windows World Expo*, and *ICE* (Internet Commerce Expo). Leading conferences include *Agenda*, *DEMO*, and *Spotlight*, in addition to customer-sponsored events such as the *Netscape Developers Conference*. IDG produces 15 conferences and expositions in China alone, and was first to offer expos in emerging markets throughout Asia, Eastern Europe, and Latin America.

EDUCATION: IDG's training subsidiary, *ExecuTrain*, is the world's largest computer training company, with more than 230 locations worldwide and 785 training courses. *ExecuTrain* specializes in the education of business professionals, teaching clients how to use popular business-related software through hands-on, instructor-led, and multimedia training. *ExecuTrain* also offers technical training designed to help technology professionals keep pace with technological advancements, as well as custom training solutions for an organization's unique software requirements.

MARKETING SERVICES: IDG Marketing Services helps the industry's leading IT companies build international brand recognition by developing globally integrated marketing programs via IDG's print, online, and exposition products worldwide. IDG's diverse portfolio of global partnership services includes customized research, customized publishing, targeted conferences and seminars, and direct response tools. Further information about the company can be found at www.idg.com.

PC WORLD

It's quick and easy! For free product information, visit

www.pcworld.com/productinfo

Or you can mail or fax the PC World reader service card included in this issue (fax: 503/684-5370).

Product
info
number

Page

Advertiser Index A-Z

Get more information—circle the product info number on the reader service card.

202	allCLEAR	265
-	Anthro Corporation	28
45	APC	97
28	APC	101
-	Argon Technology	242
-	ATI	32
21	Attest Systems, Inc.	24
-	Autodesk, Inc.	25
-	Barnes & Noble	38-39
-	C/NET	30-31
91	Caere Corporation	253
68	Canon Computer Systems	2-3
41	CDW Computer Centers, Inc.	50-51
46	CDW Computer Centers, Inc.	52-53
44	CDW Computer Centers, Inc.	54-55
-	Compaq Consumer	144-146
-	Compaq Consumer	228-229
-	Compaq Direct Plus	40
-	Compaq Direct Plus	126-129
-	Cornerstone Imaging	169
42	Crossline Commercial	16-17
50	Crucial Technology	10-11
59	CruiseNet	63
-	CyberMax Computer, Inc.	161
-	Dell Computer	C5-C8
-	Dell Computer	175-180
-	Egghead.com	269
-	Elsa Inc.	234
84	Executive Software	241
72	FileMaker	26-27
-	firstsource.com	273-275
-	Hewlett Packard	74
-	Hewlett Packard - OfficeMax	45
125	Hot Office Technologies	81
-	Hughes Network Systems	158-159
-	IBM Corp.	91
-	IBM Corp.	93
-	IBM Corp.	95
119	Imation Corporation	85
-	Intel	86-87
-	Iomega Corporation	105
-	Iomega Corporation	115
105	Keystone Learning	240

Product
info
number

Page

133	Kingston Technology	259
-	Lexar Media	157
96	LG Electronics USA Inc.	83
-	Matrox Graphics Inc.	22
-	Micrografx	304
-	Micron Electronics	C2-C4
-	Micron Electronics	1
-	Microsoft Corp.	4-5
-	Microsoft Corp.	42-43
159	Microsolutions	243
153	MidWest Micro	245-246
153	MidWest Micro	249
212	Mindscape Entertainment	18
57	Mindspring	103
150	Minolta	225
138	MIPS Dataline	34
203	NEC Technologies	141
205	NetObjects	9
-	Network Solutions	65
-	Office Depot, Inc.	189-200
-	Okidata	227
-	Onsale.com	98-99
-	OnStream	48
-	Optique	67
-	Pacific Bell	236
-	Packard Bell	117
195	PC America	278
66	PC MALL	276-277
-	PowerQuest	36
151	Princeton	230
190	Robert Half International Inc.	44
-	Samsung America	238
130	Savin Corporation	222
219	Service Metrics	171
222	SGI.COM/GO/VISUAL	153
223	SGI.COM/GO/VISUAL	155
-	Sony VAIO Direct	12-13
-	Sprint Spectrum	15
-	SPSS	113
214	Symantec	233
-	The Webby Awards	306
229	Tiger Direct	307
-	Toshiba America	20-21
236	Tripp Lite	272
240	Twinhead Corporation	79
230	Umax Technologies	35
250	Umax Technologies	46
239	Value America	68-69
248	Vega Technologies	258
-	Viewsonic	29
255	Visioneer	267
254	WinBook	71
-	XI Computer	236
-	Xircom	77

Advertiser Index by Product Category

Get more information—circle the product info number on the reader service card.

HARDWARE

Boards/Cards/Chips

-	ATI	32
50	Crucial Technology	10-11
-	Elsa Inc.	234
-	Intel	86-87
133	Kingston Technology	259
-	Matrox Graphics Inc.	22
-	Xircom	77

Communications/Fax/Modems

-	Pacific Bell	236
-	Sprint Spectrum	15

Computers

41	CDW Computer Centers, Inc.	50-51
46	CDW Computer Centers, Inc.	52-53
44	CDW Computer Centers, Inc.	54-55
-	Compaq Consumer	144-146
-	Compaq Consumer	228-229
-	Compaq Direct Plus	40
-	Compaq Direct Plus	126-129
42	Crossline Commercial	16-17
-	CyberMax Computer, Inc.	161
-	Dell Computer	C5-C8
-	Dell Computer	175-180
-	IBM Corp.	91, 93, 95
-	Micron Electronics	C2-C4
-	Micron Electronics	1
153	MidWest Micro	245-246
153	MidWest Micro	249
-	Packard Bell	117
66	PC MALL	276-277
222	SGI.COM/GO/VISUAL	153
223	SGI.COM/GO/VISUAL	155
229	Tiger Direct	307
230	Umax Technologies	35
239	Value America	68-69
248	Vega Technologies	258
-	XI Computer	236

Laptop/Notebook

46	CDW Computer Centers, Inc.	52-53
-	Compaq Consumer	144-146
-	Compaq Consumer	228-229
42	Crossline Commercial	16-17
-	IBM Corp.	91, 93, 95
-	Sony VAIO Direct	12-13
-	Toshiba America	20-21
240	Twinhead Corporation	79
254	WinBook	71

Local Area Networks

-	Hughes Network Systems	158-159
---	------------------------	---------

Monitors/Displays

-	Argon Technology	242
-	Cornerstone Imaging	169
203	NEC Technologies	141
-	Optique	67
151	Princeton	230
-	Samsung America	238
-	Viewsonic	29

Other

96	LG Electronics USA Inc.	83
130	Savin Corporation	222

Product
info
number

Page

Peripheral/Sharing Devices		
248	Vega Technologies	258
-	Xircom	77
Power/Protection		
45	APC	97
28	APC	101
236	Tripp Lite	272
Printers/Plotters		
68	Canon Computer Systems	2-3
150	Minolta	225
-	Okidata	227
Scanners/Digitizers		
250	Umax Technologies	46
255	Visioneer	267
Storage/Backup Devices		
-	Hewlett Packard	74
119	Imation Corporation	85
-	Iomega Corporation	105
-	Iomega Corporation	115
159	Microsolutions	243
-	OnStream	48

SOFTWARE

Accounting/Financial		
21	Attest Systems, Inc.	24
138	MIPS Dataline	34
CAD/CAM		
-	Autodesk, Inc.	25
Database Management		
72	FileMaker	26-27
Entertainment		
212	Mindscape Entertainment	18
Graphics		
202	allCLEAR	265
Local Area Network		
21	Attest Systems, Inc.	24
Management		
195	PC America	278
Optical Character Recognition		
91	Caere Corporation	253
Other		
-	Egghead.com	269
Software Suites		
-	Microsoft Corp.	4-5
-	Microsoft Corp.	42-43
214	Symantec	233
Spreadsheets/Templates/Forms		
202	allCLEAR	265
Statistics		
-	SPSS	113
Utilities		
84	Executive Software	241
-	PowerQuest	36
Video		
105	Keystone Learning	240
Web Authoring Tools		
138	MIPS Dataline	34
205	NetObjects	9

MISCELLANEOUS

Books/Periodicals/Subscriptions		
-	Barnes & Noble	38-39
Furniture		
-	Anthro Corporation	28
Internet Services		
-	C/NET	30-31
59	CruiseNet	63
-	Onsale.com	98-99
219	Service Metrics	171

Product info number	Page	Product info number	Page	Product info number	Page	Product info number	Page
Mall Order		633 Gateway Essential 466c	220	717 Quantum3D Raven PCI	237	- IBM ThinkPad 240	66
41 CDW Computer Centers, Inc.	50-51	629 Gateway Performance 500	220	Graphics Software		726 Macintosh PowerBook G3/333, Apple Computer	90
44 CDW Computer Centers, Inc.	54-55	634 HP Pavilion 6475Z	220	706 IGraph Professional, Micrografix	100	627 Micron Transport Trek2	216
- firstsource.com	273-275	- IBM PC 300PL	204	Home Networking Kits		729 Sharp Actius PC-A250	66
153 MidWest Micro	245-246	644 IDot.com 500P3BX	204	710 2 mbps Wireless LAN, Compaq Computer	104	730 Sony VAIO PCG-505TR	66
153 MidWest Micro	249	659 Micro Express MicroFlex-34C	210	710 CableFree Home Networking Desktop Starter Kit, NDC	104	731 Toshiba Portege 3110CT	66
66 PC MALL	276-277	654 Micro Express MicroFlex-50C	210	Image Editing Software		625 Toshiba Satellite 4030CDT	216
229 Tiger Direct	307	656 Micro Express MicroFlex-5B	210	727 Adobe Photoshop 5.5	90	PDA's	
Online Services		632 Micron Millennia C466	220	Input Device		701 Palm IIIe, Palm Computing	92
- C/NET	30-31	664 Micron Millennia Max 450	210	707 Dr. Mouse, Animax	100	700 Series 5mx, Psion	92
125 Hot Office Technologies	81	638 Micron Millennia Max 500	204, 220	Internet Call Managers		Printers	
57 Mindspring	103	641 MidWest Micro Business Solutions XPP-450	204	734 Internet Call Manager, InfoInteractive	72	677 Canon BJC-6000	231
- Network Solutions	65	645 MidWest Micro Business Solutions XPP-550	204	733 Internet Caller ID/Call Waiting Manager, Computer Peripheral Systems	72	- Epson Stylus Photo 700	231
- Onsale.com	98-99	660 MidWest Micro Office Pro 400	210	Modems		673 HP DeskJet 812C	231
Other		662 MidWest Micro Office Pro XPO 450	210	689 3Com Megahertz 56K Cellular Modem PC Card	239	676 HP DeskJet 882C	231
- Hewlett Packard - OfficeMax	45	647 NEC PowerMate 8100	204	683 3Com U.S. Robotics Winmodem PCI	239	675 Lexmark 5700 Color Jetprinter	231
- Lexar Media	157	642 NEC Powermate VT 300	204, 210	732 Actiontec 56K Call Waiting Modem	72	686 Lexmark Optra SC 1275	231
- Micrografix	304	636 Packard Bell Multimedia 7950	220	688 Boca WinStorm 56K Internal Speakerphone Modem	239	678 Lexmark Z11 Color Jetprinter	231
- Office Depot, Inc.	189-200	655 Quantex M400C	210	685 Digicom Systems Modem Blaster Flash 56K PCI	239	674 Lexmark Z51 Color Jetprinter	231
190 Robert Half International Inc.	44	658 Quantex M466C	210	- IBM 56K PC Card Modem	239	679 QMS Magicolor 2 DeskLaser	231
- Sprint Spectrum	15	643 Quantex SM500	204	684 MaxTechXPV56P NetPacer V.90 Internal PCI Data/Voice/Fax Modem	239	712 Pagis Pro 3 Scanning Suite, ScanSoft	104
- The Webby Awards	306	630 Quantex SM550 SE	220	690 Psion Dacom Gold Card Global 56K PC Card Modem + Fax	239	Servers	
Retail/Distributors		737 Quantex SM600 SE	61	687 Viking V.90 56K Speakerphone ISA Modem	239	614 Acer Altos 12000	182
- Barnes & Noble	38-39	661 Racer LX1500	210	682 Zoom/FaxModem 56K ISA Dualmode	239	615 Compaq ProLiant 1600	182
- Hewlett Packard - OfficeMax	45	631 Sony VAIO Digital Studio PCV-R528DS	220	686 Zoom/FaxModem 56K PCI Dualmode	239	616 Gateway ALR 7200NTS	182
Training		668 Sys Technology AX-450 P3	210	Monitors		617 Micron NetFrame 5200	182
105 Keystone Learning	240	646 Sys Technology Performance AX-500P3	204	- Dell UltraScan P990	235	618 SAG STF 5500H	182
		666 Sys Technology TaskMaster Z366C	210	723 Gateway Profile	89	619 Toshiba Magnia 3010	182
		653 Tagram ThunderBolt H2810	204	- IBM P92	235	620 Xi Computer 1100X NetRAIDER	182
		663 Xi Computer 400A MTower	210	695 Iiyama VisionMaster 450	235	Utilities	
		651 Xi Computer 500 MTower SP	204	697 Iiyama VisionMaster Pro 450	235	602 CardWizard 5.0, SystemSoft	254
		Digital Video Camera		693 Mitsubishi Diamond Pro 9000	235	603 DLLChecker, VBJava.Com	47
		704 Sharp VN-EZ1 Internet ViewCam	94	694 NEC MultiSync FP950	235	613 Lost & Found, PowerQuest	44
		E-mail Manager		724 NEC Z1, Packard Bell NEC	89	702 McAfee Office 2000, Network Associates	96
		738 Eudora Pro Email 4.2, Qualcomm	104	699 Princeton AGX900	235	602 PowerProfiler/SE, SystemSoft	254
		Fax Software		698 Samsung SyncMaster 900SL	235	601 Softex PC Card Controller for NT	254
		709 ClearFax, Xerox	102	696 Sony Multiscan CPD-420GS	235	601 Softex Power Management Controller	254
		GPS Device		692 ViewSonic PT795	235	Web Design Software	
		708 GPS Receiver and StreetFinder Deluxe 1999 Software, Rand McNally	102	Notebook Computers		705 Vizact 2000, Microsoft	96
		Graphics Boards		626 Chem USA ChemBook 7200	216	Y2K Utilities	
		721 3dfx Voodoo3 3000	237	728 Compaq Armada M300	66	610 2000Tools Group Datefind-db 4.1	167
		720 ATI Xpert 128	237	- Dell Inspiron 3500 C366GT	216	611 2000Tools Group DateSpy Professional 3.0c	167
		713 Creative Labs 3D Blaster Banshee	237	- Dell Inspiron 7000 A366LT	216	604 Greenwich Mean Time-UTA Check 2000 PC Deluxe	167
		716 Creative Labs Graphics Blaster RIVA TNT	237	- Dell Latitude CPI A366XT	216	612 ID Four Discover Y2K	167
		718 Creative Labs Graphics Blaster RIVA TNT	237	622 Fujitsu LifeBook E360	216	605 IMSI Year 2000 Now	167
		715 Elsa Erazor II	237	623 Fujitsu LifeBook L470	216	605 Intelliquis IntelliFix 2000 Pro 3.5	167
		722 Guillemot Maxi Gamer Xentor	237	621 Gateway Solo 5150LS	216	607 Network Associates 2000 Toolbox	167
		714 Matrox Millennium G200 SD PCI	237	624 HP Omnibook XE2	216	608 Planet City Software Millennium Bug Compliance Kit-Survive 2000 Edition 5.0	167
		719 Matrox Millennium G400	237			609 Symantec Norton 2000 2.0	167

Products Featured in Editorial

Get more information-circle the
product info number on the
reader service card.

Accounting Software

- 725 Peachtree Complete
Accounting 7 89

Backup/Storage

- 703 PlexWriter 8/2/20, Plexor 94

Desktop Computers

- 671 Acma Exp 6433 210
648 Acma ZPower 8500
PIII-500 204
670 Axis Systems Metropolis
NX5-333C 210
649 Compaq Deskpro
EN 6450+ 204
650 Compaq Deskpro
EN 6500+ 204
635 Compaq Presario 5240 220
735 Compaq Presario 5861 61
736 Compaq Prosignia 330 61
640 Compaq Prosignia
Desktop 330 PIII-550 204
652 CompUSA AmericanPro
500 204
672 CyberDyne Micro Centron
450 BMN 210
639 CyberMax Enthusiast 500 204
657 CyberMax Enthusiast
KIII-400A 210
669 CyberMax Entrepreneur
PIII-450A 210
- Dell Dimension
XPS T450 210
- Dell Dimension
XPS T550 204, 220
- Dell OptiPlex GX1p 500 204
665 Gateway E-3200 450 210
637 Gateway E-4200 500 204

Here's your
chance to tell

America Online
Autodesk
Canon
Computer Associates
Epson
ForeLogic
GoldMine
Hewlett-Packard
Inc. Magazine
Intel
Micrografx
Microsoft
Tektronix
Visio
WRQ
Xerox
Ziff-Davis

they don't
know beans.

1998 CATTLE BARON SPONSORS



What do all these companies have in common? They all think they can serve up a meaner bowl of chili than your company can. So, are you going to just sit there and take that? We didn't think so. That's why we're inviting you and your company to participate in the Micrografx Chili for Children Cook-Off. It's the premier event of COMDEX/Fall, benefiting the National Center for Missing and Exploited Children. And this year, we've added a little spice to our website. In the spirit of heated competition, we've engineered a customizable e-mail that you can send to your friends at other companies, challenging them to sponsor at one of the two top levels. After all, what would a chili cook-off be without a little heat?

For more information, contact Kate Potts @ 972-994-6413 or visit www.micrografx.com/chili/nobeans

Sponsorships: \$3,500; \$9,500; \$19,000; and \$35,000. Competition is limited to sponsors in the top two levels (\$19,000 and \$35,000) only. © 1999 Micrografx, Inc. All rights reserved.





In a developing story, IDG.net and CNN.com have been linked in a technology information coup.



This just in: CNN.com, the world's leading news site, now features technology news and information from the Web's fastest growing global technology information network — IDG.net.

CNN Interactive has discovered what readers of IDG publications have known for over 30 years: no other company can match the breadth and quality of technology information offered by IDG.

Now millions of new readers worldwide will discover what IDG.net's users have known all along — that IDG.net offers the most comprehensive, current, and useful computing information on the Web today.

PC World Online — along with fellow IDG.net sites CIO.COM, civic.com, Computerworld Online, fcw.com, InfoWorld.com, JavaWorld, Network World Fusion, and TheStandard.com — is proud to be part of the Web's most trusted network of computing publications. With 240 sites in 55 countries, IDG.net reaches more readers, in more markets, than any other Web network — and, it's growing every day.

More publications, more product reviews, more technology news — more of the quality information you need to make technology decisions for any computing environment, from the home office to the global enterprise.

IDG.net. IT all starts here.



IT ALL STARTS HERE.



www.idg.net

"Forget the Oscars, here come the Webbies."

- The New York Times, January 7, 1999

Call for Entries

The International Academy of Digital Arts & Sciences™ invites
you to submit your Web site for The 4th Annual Webby Awards®

www.webbyawards.com

Honoring the Best of The Web In 24 Categories:

Activism, Arts, Community, Commerce, Education,
Fashion, Film, Finance, Games, Health, Humor, Living, Music,
News, Personal Web Site, Politics & Law, Print & Zines, Radio,
Science, Sports, Technical Achievement, TV, Travel, Weird

Deadline: September 16, 1999



An IDG Event

we also walk dogs



HEWLETT
PACKARD



PREFER



METAMOR
CONSULTING SOLUTIONS



freesty
interact

TigerDirect.com

800-830-0053 24 HOURS A DAY!
IN CANADA CALL: 800-888-6167
HARDWARE, SOFTWARE, SYSTEMS AND ACCESSORIES.
THE INDUSTRY'S BEST TELEPHONE SUPPORT STAFF!

Premium Component PC Systems

New!
AMD K6-2 475MHz

AMAZINGLY LOW!
\$639⁹⁹

Tiger Credit Card

\$20/mo.

#TS4-M-11E

Monitor sold separately

One Of The Fastest PCs In The World Today!
Premium Components, Low Price!



Editors' Choice

BlackoutBuster UPS

Protect Your Complete System!
Ask for Item #P140-1000x \$99.99*
*With the purchase of a TigerSystem



LOWEST PRICES—GUARANTEED!

All Tiger By Systemax Systems Include...

- High-Speed CD-ROM
- Windows 98 Pre-loaded
- 56K v.90 Faxmodem
- One-Year Depot Warranty
- Scrolling Wheel Mouse
- 100% Quality Components
- Wavetable 3D Sound
- Two 16550 Serial Port
- One Parallel Port
- 3.5" Floppy Diskette Drive
- Amplified Speakers
- 6-Bay Case w/235 Watt Power Supply

10 Years In The PC Business!

NEW AT TIGER BY SYSTEMAX

- Ask about our special offer on Internet Access—Save Hundreds
- Ask about our software bundle offer available only with the purchase of a new PC.
- We now offer 24 Hour Toll-Free Tech Support—Monday-Saturday

Tiger By Systemax MONITOR UPGRADES
Upgrade When You Order!

Tell Your Sales Agent To "SUPER-SIZE" Your Monitor—And Save!

Upgrade From 15-inch TO 17-inch—\$110.00
Upgrade From 15-inch TO 19-inch—\$290.00
Upgrade From 17-inch TO 19-inch—\$180.00

T-A-GLANCE

Item #	CPU	Monitor	RAM	Hard Drive	CD-ROM †	Video	Motherboard	Software	Tiger Credit Card	Price
CTTTM44B	AMD K6-300MHz	15"	32MB PC 100	4.3GB UDMA	24X	PCI/2MB	AT/512KB Cache	Windows 98	\$17/Month	\$549.99
CTTTM40B	AMD K6-2/475 3DNow!	15"	64MB PC 100	6.4GB UDMA	32X	AGP/8MB	AT/1MB Cache	Windows 98	\$23/Month	\$739.99
CTTTM17C	AMD K6-2/350 3DNow!	17"	64MB PC 100	6.4GB UDMA	32X	AGP/8MB	AT/1MB Cache	Windows 98	\$23/Month	\$749.99
CTTTM35C	AMD K6-2/350 3DNow!	17"	128MB PC 100	10GB UDMA	32X	AGP/8MB	AT/1MB Cache	Windows 98	\$25/Month	\$819.99
CTTTM37	AMD K6-2/400 3DNow!	17"	128MB PC 100	10GB UDMA	32X	AGP/8MB	ATX/1MB Cache	Windows 98	\$26/Month	\$859.99
CTTTM12B	Pentium II 400MHz	17"	96MB PC 100	10GB UDMA	32X	AGP/8MB	ATX/Slot 1	Windows 98	\$29/Month	\$939.99
CTTTM29B	Pentium III 450MHz	17"	64MB PC 100	8GB UDMA	32X	AGP/8MB	ATX/Slot 1	Windows 98	\$30/Month	\$969.99
CTTTM50A	Celeron 400MHz	15"	64MB PC 100	8GB UDMA	32X	AGP/8MB	ATX/Slot 1	Windows 98	\$23/Month	\$749.99
CTTTM51A	Celeron 500MHz	15"	96MB PC 100	8GB UDMA	32X	AGP/8MB	ATX/Slot 1/Socket 370	Windows 98	\$26/Month	\$849.99
CTTTM39	AMD K6-III/400 3DNow!	17"	128MB PC 100	13GB UDMA	40X	AGP/8MB	ATX/1MB Cache	Windows 98	\$30/Month	\$999.99
CTTTM47	AMD K6-III/450 3DNow!	17"	128MB PC 100	20GB UDMA	40X	AGP/8MB	ATX/1MB Cache	Windows 98	\$34/Month	\$1129.99
CTTTM41B	Pentium III 500	15"	64MB PC 100	6.4GB UDMA	32X	AGP/8MB	ATX/Slot 1	Windows 98	\$33/Month	\$1079.99
CTTTM42B	Pentium III 450	17"	128MB PC 100	13GB UDMA	40X	AGP/8MB	ATX/Slot 1/Socket 370	Windows 98	\$33/Month	\$1069.99
CTTTM43B	Pentium III 500	17"	128MB PC 100	13GB UDMA	40X	AGP/8MB	ATX/Slot 1/Socket 370	Windows 98	\$39/Month	\$1279.99
CTTTM45B	Pentium III 550	17"	128MB PC 100	20GB UDMA	40X	AGP/8MB	ATX/Slot 1/Socket 370	Windows 98	\$43/Month	\$1429.99

* Monthly payments when purchased using the Tiger Credit card. Ask about special financing programs available. Call for on-site installation. † CD-ROM speeds are variable, maximum speeds are shown. Sorry, we do not offer price protection in the event prices rise or fall. Call for warranty information. All systems include a 1-year upgradable Depot warranty. See www.tigerdirect.com for entire policy. Copyright, 1999, TigerDirect. All trademarks acknowledged. Monitor viewable areas: 15"—13.9". 17"—15.8". The AMD logo, K6, 3DNow!, and combinations thereof, are registered trademarks of Advanced Micro Devices, Inc.

NOTEBOOK PCs!

300MHz, \$999⁹⁹*

New!

TigerBook Z-Series

Z-Series Includes:

- AMD K6-2 Processors
- Built-in CD-ROM & Floppy Drive
- Ultra DMA Hard Drive
- Microsoft Windows 98

TigerBook Z3

- AMD K6-2/300
- 12.1" STN Passive Color LCD SVGA
- 32MB EDO RAM
- 3.2 Gigabyte UDMA Hard Drive
- 24x CD-ROM Drive†
- 1.44MB Floppy Drive
- Trident 9385 video with 2MB
- MS Windows 98 Pre-Installed
- #TNB-1000 \$999.99*

TigerBook Z5

- AMD K6-2/350
- 13.3" Active Matrix XGA
- 64MB EDO RAM
- 4.3 Gigabyte UDMA Hard Drive
- 24x CD-ROM Drive†
- 1.44MB Floppy Drive
- Trident 9385 video with 2MB
- MS Windows 98 Pre-Installed
- #TNB-2000 \$1449.99



* Price After \$50 Tiger Mail-In Rebate.

Circle 229 on card or go to www.pcworld.com/productinfo

The Age of Almost-Information

I'M LOOKING FOR A hotel's phone number. I know the hotel's name. I know it's near the San Francisco airport. But when I search Yahoo's Yellow Pages, I come up empty.

Three other online directories do no better, so I end up surfing to the hotel chain's Web site and finding the number there. Considering the time I wasted, I'd have come out ahead by picking up the

phone and paying for directory assistance. It's a typical tale of the Information Age: dubious information, bad information, or no information at all. Too many Internet start-ups seem to have taken their inspiration from Microsoft: More obsessed with stock price than product quality, they provide data that's often incomplete, inaccurate, or both.

ALMOST INFORMATIVE

MAPS ARE A PERENNIAL problem. The databases simply aren't smart enough to get everything right. When I sought directions from my Seattle home to an address on a local island served only by two ferries, MapQuest calculated a route that would have sent me more than 30 miles out of my way. And in Boston it came up with an airport-to-hotel route that no one in the area would ever have recommended, and even then it omitted a tricky final turn.

Stuck in a limo in a traffic jam on the way to New York's JFK Airport, I tried the new Palm 7's wireless version of Travelocity to inquire whether my plane would be departing on time. The system assured me that it would, meaning I'd miss my flight. In reality, the plane had been delayed 45 minutes. I got onboard with plenty of time to spare.

True, I might have heard the same misinformation had I used my cell phone to call the airline. But who cares? It was yet another example of bad data masquerading as information. That's even worse than a simple "I don't know," which at least avoids implying they possess knowledge that they don't.



It's a typical tale of the Information Age: **dubious information, bad information, or no information at all.**

It's not just the raw content that causes problems; it's also the way the sites handle data. For instance, ordering a wedding gift from the Macy's online registry left me thoroughly frustrated. When I returned to the site right after I'd ordered the gift, the registry insisted the newlyweds still needed the pot I'd just sent. It took a phone call to learn that Macy's wouldn't remove the item from the wish list until it had shipped. So over the weekend any number of people could have ordered duplicates, inconveniencing themselves, me, and the newlyweds. Macy's had the data; it just didn't use it properly.

Microsoft's Expedia is equally amusing. Telling it to look for the cheapest flight on any airline often yields a higher price than telling it you want the cheapest flight on a single airline.

Is this some violation of Euclidean logic? Nope. The system simply gives more weight to departure time than to price. When you ask for a single airline, you get flights departing at a wider range of times—and thus a better chance of finding a cheap ticket.

NOT SO SMART

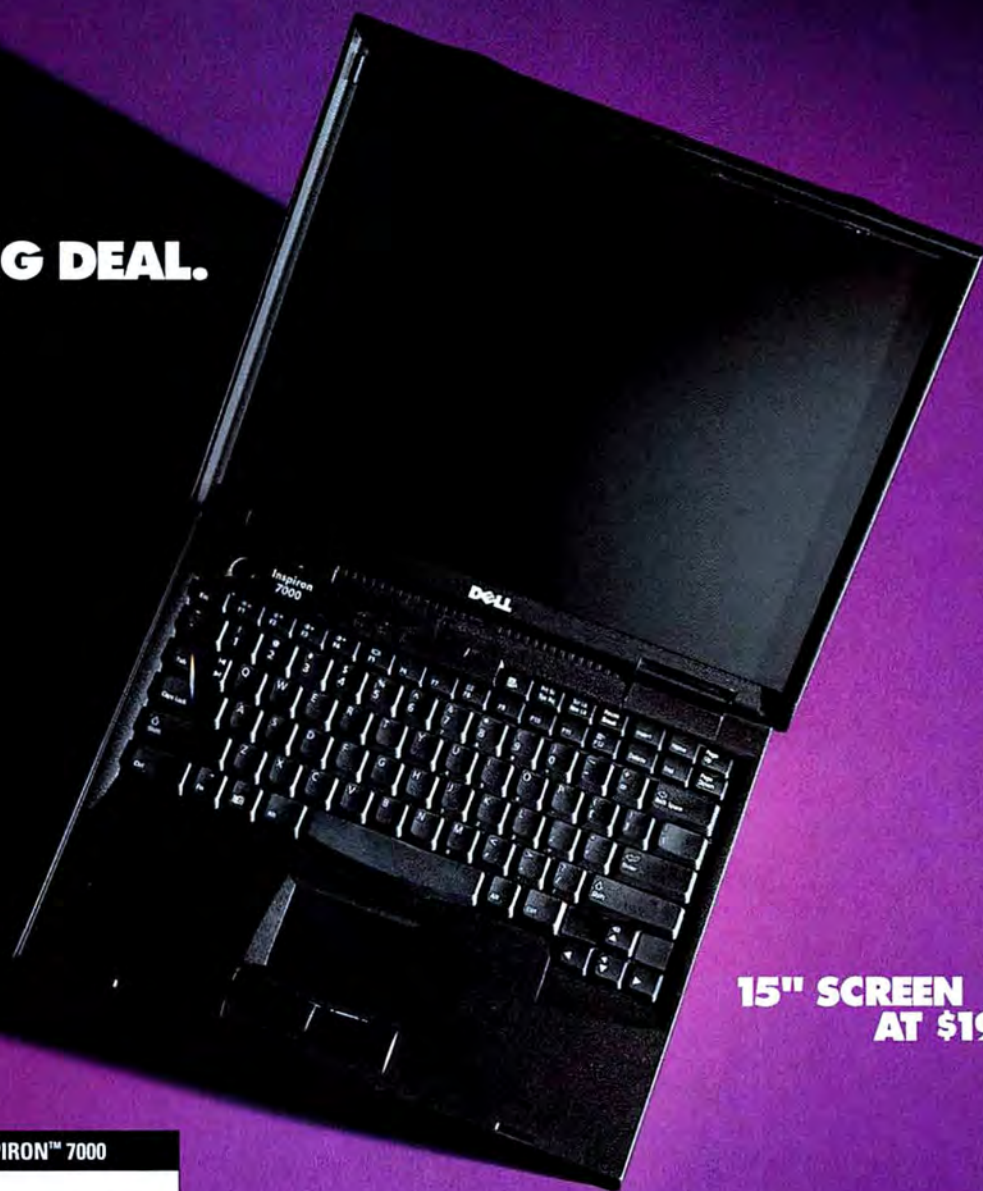
DATA QUALITY NOW SEEMS about as important to the Web industry as software quality does to the computer industry. And usability? Fuggedaboutit! If you ask Weather.com to check the temperature in Boston, it will ask you which of six Bostons you had in mind. Call me wacky, but I'll bet 99.99 percent of the queries are for the one in Massachusetts. So how about putting that up on the screen as the default? You could always choose a different one if you're really looking for, say, Boston, New York.

Even a so-called breakthrough may not be. Ask Jeeves (www.ask.com) has been touted as a natural-language interface with smarts. But it does far better with the question "What's the population of Las Vegas?" than with "How many people are in the Las Vegas metropolitan area?" How smart is that?

Getting past the age of almost-information will take a commitment to quality and design that the computer industry has shown virtually no sign of embracing. Until then, assume that data on the Internet may *almost* be correct.

PC World contributing editor Stephen Manes is the cohost of Digital Duo, a series appearing on public television stations nationwide. For program information, see www.digitalduo.com.

BIG DEAL.



**15" SCREEN
AT \$1999.**

DELL® INSPIRON™ 7000

Mobile Desktop

- Intel® Celeron™ Processor at 366MHz
- 15" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB* Ultra ATA Hard Drive
- Removable Combo 24X Max* Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE™ LT Pro 3D Video
- 3D Surround Sound with Wavetable
- Lithium Ion Battery
- Microsoft® Works Suite 99 with Money 99 Basic
- McAfee VirusScan
- Microsoft Windows® 98 Second Edition
- Touchpad
- 3-Year Limited Warranty²
- ★ Upgrade to 64MB SDRAM, add \$99.
- ★ Upgrade to a 4X¹⁰ DVD-ROM Drive, add \$129.

\$1999

Business Lease¹: \$67/Mo., 36 Mos.



E-VALUE CODE: 03660-890819

800-626-4390



**USE THE POWER OF
THE E-VALUE™ CODE.**
MATCH OUR LATEST TECHNOLOGY WITH
OUR LATEST PRICES. ENTER THE E-VALUE
CODE ONLINE OR GIVE IT TO YOUR SALES
REP OVER THE PHONE.
WWW.DELL.COM/EVALUE

BE DIRECT™



www.dell.com

Are you Y2K OK? www.dell.com/y2k

Phone Hours: M-F 7a-9p • Sat 10a-6p • Sun 12p-5p CT • In Canada¹ call 800-232-6978 • in Mexico¹ call 01-800-021-4531

AT dell.com YOU CAN MAKE

DELL® DESKTOPS FOR BUSINESS

Common features: Dell QuietKey® Keyboard • 24-Hour Toll-free Telephone and Online Technical Support • 3-Year Limited Warranty* • 1-Year Next-Business-Day On-Site² Service • Microsoft Windows® 98 Second Edition

Common features: Perform Asset Tracking and Remote Diagnostics with Dell OpenManage™ IT Assistant • 3Com® Fast EtherLink™ XL 10/100MB NIC • Long Product Lifecycles for Network Stability • 24-Hour Toll-free Telephone and Online Technical Support

DELL DIMENSION XPS T500

High Performance, High Value

- Pentium® III Processor at 500MHz
- Mini-Tower Model
- 96MB 100MHz SDRAM
- 13.6GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis., .26dp) M780 Monitor
- 8MB ATI XPERT 98D 3D AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- Yamaha XG 64V Wavetable Sound
- 100MB Iomega Zip BUILT-IN Drive
- 3Com 3C905C-TXM 10/100 NIC
- Microsoft® Office 2000 Small Business plus Bookshelf 2000, McAfee VirusScan
- MS® IntelliMouse®

\$1599

Business Lease¹⁵: \$54/Mo., 36 Mos.

 **E-VALUE CODE: 03661-590815**

DELL DIMENSION® L400c

Value-Optimized Desktop

- Intel Celeron Processor at 400MHz
- Micro-Tower Model
- 32MB 100MHz SDRAM
- 4.3GB⁴ Ultra ATA Hard Drive
- 15" (13.8" vis.) 800F Monitor
- Intel 3D AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- Soundblaster 64V Integrated Sound
- Intel 10/100 Ethernet Controller
- Microsoft Works Suite 99 with Money 99 Basic; McAfee VirusScan
- Logitech First Mouse+ Wheel (PS/2v)
- ★ Upgrade to 64MB 100MHz SDRAM, add \$49.

\$799

Business Lease¹⁵: \$27/Mo., 36 Mos.

 **E-VALUE CODE: 03661-590807**

DELL OPTIPLEX GX1 450L

Network-Optimized Desktop

- Pentium III Processor at 450MHz
- Opti-Frame™ Low-Profile Tool-Less Chassis
- 64MB 100MHz SDRAM
- 6.4GB⁴ SMART Ultra ATA Hard Drive
- 17" (16.0" vis., .27dp) M770 Monitor
- 4MB ATI RAGE™ Pro AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- Sound Blaster Pro Compatible Sound
- MS Windows NT® Workstation 4.0
- Dell QuietKey Keyboard
- Dell System Mouse
- 3-Year NBD On-site³ Service

\$1349

Business Lease¹⁵: \$45/Mo., 36 Mos.

 **E-VALUE CODE: 03661-390813**

DELL OPTIPLEX® GX100 433L

Network-Optimized Desktop

- Intel Celeron Processor at 433MHz
- Opti-Frame Low-Profile Tool-Less Chassis
- 32MB 100MHz SDRAM
- 4.3GB⁴ SMART Ultra ATA Hard Drive
- 15" (13.8" vis.) 800F Monitor
- Intel 3D AGP Graphics
- MS Windows NT Workstation 4.0
- Dell QuietKey Keyboard
- Dell System Mouse
- 3-Year NBD On-site³ Service
- ★ Upgrade to 64MB SDRAM, add \$49.

\$949

Business Lease¹⁵: \$32/Mo., 36 Mos.

 **E-VALUE CODE: 03661-390809**

DELL DIMENSION DESKTOPS FOR HOME

Common features: 512KB Integrated L2 Cache (128KB on Intel Celeron Processor-based Systems) • Dell Quiet Key Keyboard • 3.5" Floppy Disk Drive • Two USB Ports • MS Works Suite 99 with Money 99 Basic • McAfee VirusScan 4.02 • MS Windows 98 Second Edition • 3-Year Limited Warranty* • 1-Year At-home³ Service

Upgrades: 3-Year At-home³ Service, add \$99 • HP DeskJet® 882c, add \$299

NEW DELL DIMENSION XPS T600 PENTIUM III PROCESSOR AT 600MHz

- 128MB 100MHz SDRAM
- 13.6GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis., .26dp) M780 Monitor
- NEW 16MB 3Dfx Voodoo3 3000D AGP Graphics
- NEW 8X Max⁵ Variable DVD-ROM Drive
- Turtle Beach Montego II A3D™ 320V Sound Card
- NEW ACS-340 Speakers with Subwoofer
- 3Com® USR v90™ PCI Telephony WinModem
- 100 MB Iomega Zip BUILT-IN Drive
- Logitech MouseMan Wheel (PS/2v)
- ★ NEW 1-Year Dellnet ISP Service**
- ★ Orders accepted July 31, 1999

\$2199

 **E-VALUE CODE: 03661-500821**

NEW DELL DIMENSION XPS T600 PENTIUM III PROCESSOR AT 600MHz

- 128MB 100MHz SDRAM
- 13.6GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis., .26dp) M780 Monitor
- 16MB Diamond Viper nVidia TNT AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- Turtle Beach Montego II A3D™ 320V Sound Card
- harman/kardon HK-195 Speakers
- 3Com® USR v90™ PCI Telephony WinModem
- Logitech MouseMan Wheel (PS/2v)
- ★ NEW 1-Year Dellnet ISP Service**
- ★ Orders accepted July 31, 1999

\$1899

 **E-VALUE CODE: 03661-500818**

DELL DIMENSION XPS T450 PENTIUM III PROCESSOR AT 450MHz

- 96MB 100MHz SDRAM
- 6.4GB⁴ Ultra ATA Hard Drive
- 17" (16.0" vis., .26dp) M780 Monitor
- 16MB Diamond Viper nVidia TNT AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- Yamaha XG 64V Wavetable Sound
- harman/kardon HK-195 Speakers
- v.90 PCI DataFax Modem
- Logitech MouseMan® Wheel (PS/2v)
- ★ NEW 1-Year Dellnet ISP Service**

\$1399

 **E-VALUE CODE: 03661-500813**

DELL DIMENSION L400c INTEL CELERON PROCESSOR AT 400MHz

- 64MB 100MHz SDRAM
- 4.3GB⁴ Ultra ATA Hard Drive
- 15" (13.8" vis.) 800F Monitor
- Intel 3D AGP Graphics
- 40X Max⁵ Variable CD-ROM Drive
- SoundBlaster 64V PCI Sound Card
- harman/kardon HK-195 Speakers
- 3Com® USR v90™ PCI Telephony WinModem
- Logitech First Mouse+ Wheel (PS/2v)

\$899

 **E-VALUE CODE: 03661-500808**



pentium® III

Pricing not discountable. *Prices and specifications valid in U.S. only and subject to change without notice. **For a complete copy of Guarantees or Limited Warranties, write Dell U.S.A. L.P., Attn: Warranties, One Dell Way, Round Rock, TX 78682. †On-site service may be provided by a third-party provider under contract with Dell, and is not available in certain areas. Technician will be dispatched if necessary following phone-based troubleshooting. At-home service provided via service contract between customer and third-party provider, and is not available in certain remote areas. Technician dispatched if necessary pursuant to phone-based troubleshooting with technical support personnel. ‡For hard drives, GB means 1 billion bytes; total accessible capacity varies depending on operating environment. §17X Min. §14X Min. §10X Min. §12X Min. ¶Downward speeds limited to 53Kbps. Upload speeds are less (in the 30Kbps range) and vary by modem manufacturer. Speeds also vary depending on line conditions. Analog phone line and compatible server equipment required. ††Maximum RAM configurations require factory installed 128MB SDRAM, which must be installed at time of initial purchase. †††Includes 150 hours Internet access per month, with \$1.50 per hour charge for each 1 (or fraction thereof) over 150 hours. Remote subscribers subject to an additional charge of \$4.95 for each hour of Dellnet Service. Excludes applicable taxes and local/long distance telephone access fees; charges †††Business leasing arranged by Dell Financial Services L.P., an independent entity, to qualified customers. Above lease payments based on 36-month lease, and do not include taxes, fees, shipping charges subject to credit approval and availability. Above lease terms subject to change without notice. †††While supplies last. Packaging and documentation differ from retail versions of software. Intel, the Intel Inside logo, Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. MS, Microsoft, IntelliMouse, Windows and Windows NT are registered trademarks of Microsoft Corporation. 3Com is a registered trademark and Fast Ethernet is a trademark of 3Com Corporation. Trinitron is a registered trademark of Sony Corporation. HP and DeskJet are registered trademarks and OpenView is a trademark of Hewlett-Packard Corporation. ©1999 Dell Computer Corporation. All rights reserved.

BE A MILLION. (PCs, THAT IS.)

SOFTWARE OPTIONS for Dell Desktops & Notebooks

Microsoft Works Suite 99 Includes:

- Word 97
- Encarta Encyclopedia 99
- Works 4.5a
- Works Calendar
- Graphics Studio Greetings
- Expedia Streets 98

Microsoft Office 2000 Small Business Includes:

- Word 2000
- Excel 2000
- Publisher 2000
- Outlook 2000
- Small Business Tools

Microsoft Office 2000 Pro Includes:

- Same as MS Office 2000 Small Business, plus:
- PowerPoint 2000
- Access 2000
- Microsoft Office Assistant

DELL WORKSTATION

DELL PRECISION™ WORKSTATION 410 (DUAL PROCESSOR/RAID CAPABLE)

Advanced Performance and Graphics

- Pentium III Processor at 550MHz
- 128MB 100MHz ECC SDRAM
- 9GB⁴ Ultra-2/LVD SCSI Hard Drive
- 19" (17.9" vis) P990 Trinitron™ Monitor
- NEW 32MB Diamond Viper V770D Graphics Card
- 40X Max⁵ Variable CD-ROM Drive
- Sound Blaster Pro Compatible Sound
- Integrated 3Com Fast EtherLink XL 10/100 PCI NIC with Remote Wakeup
- Remote Client Manageability Support via DMI 2.0; WUOL Capable
- MS Windows NT Workstation 4.0 and 1-Year NT Telephone Support
- 3-Year NBD On-site³ Service
- 7x24 Dedicated Workstation Hardware Telephone and Online Technical Support

\$3199

Business Lease¹⁵: \$107/Mo., 36 Mos.

 **E-VALUE CODE: 03661-490831a**

DELL POWEREDGE™ SERVERS

Common features: 512KB Integrated L2 ECC Cache • Intel Pro/100+ PCI Ethernet Adapter • HP[®] OpenView™ NNM Special Edition • 40X Max⁵ Variable CD-ROM Drive • 7x24 Dedicated Server Hardware Telephone and Online Technical Support • 3-Year Next-Business-Day On-site³ Service


DELL POWEREDGE 2300 SERVER (RAID 5 CONFIGURATION)

Workgroup Server

- Pentium III Processor at 450MHz
- 128MB 100MHz ECC SDRAM
- Three 9GB⁴ Ultra-2/LVD SCSI Hot-Swap Hard Drives
- Ultra-2/LVD PowerEdge Expandable RAID Controller 2/Single-Channel
- Integrated Ultra-2/LVD and Ultra/Narrow SCSI Controllers
- 6 Expansion Slots: 4 PCI, 2 PCI/ISA
- 6-1" Hard Drive Bays
- 4 Media Bays: 3-5.25" and 1-3.5"

\$3999

Business Lease¹⁵: \$134/Mo., 36 Mos.

 **E-VALUE CODE: 03661-290839**

DELL POWEREDGE 1300 SERVER (DUAL PROCESSOR/RAID CAPABLE)

Entry-Level Server

- Pentium II Processor at 400MHz
- 64MB 100MHz ECC SDRAM
- 9GB⁴ Ultra-2/LVD SCSI Hard Drive
- Integrated PCI Ultra-2/LVD SCSI Controller
- 6 Expansion Slots: 5 PCI, 1 PCI/ISA
- 4 Hard Drive Bays: 2-1.6" and 2-1"
- 3-5.25" Media Bays
- ★ Microsoft Windows NT Server 4.0 add \$799
- ★ Upgrade to an 18GB⁴ Ultra-2/LVD SCSI Hard Drive, add \$300.

\$1649

Business Lease¹⁵: \$55/Mo., 36 Mos.

 **E-VALUE CODE: 03661-290816**

DELL NOTEBOOKS

Common features: 3D Surround Sound with Wavetable • Lithium Ion Battery • Touchpad • HyperCool™ Thermal Management Solution • StrikeZone™ Shock Absorber (Not Available on Inspiron™ 3500) • 3-Year Limited Warranty² (Inspiron Systems Only) • McAfee VirusScan 4.02 (Not Available on Latitude® Systems)

DELL INSPIRON 7000

Mobile Desktop

- NEW Pentium II Processor at 400MHz
- 15" XGA Active Matrix Display
- 96MB SDRAM
- 14GB⁴ Ultra ATA Hard Drive
- Removable Combo 4X¹² DVD-ROM and Floppy Drive
- 2X AGP 8MB ATI RAGE LT Pro 3D Video
- 56K Capable¹¹ Gold Card Global Modem
- Microsoft Office 2000 Small Business
- MS Windows 98 Second Edition
- Custom Leather Case

\$3579

Business Lease¹⁵: \$121/Mo., 36 Mos.

 **E-VALUE CODE: 03661-890835**


DELL INSPIRON 7000

Mobile Desktop

- Intel Celeron Processor at 366MHz
- 15" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Removable Combo 24X Max⁷ Variable CD-ROM and Floppy Drive
- 2X AGP 4MB ATI RAGE LT Pro 3D Video
- Microsoft Works Suite 99 with Money 99 Basic
- MS Windows 98 Second Edition

\$1999

Business Lease¹⁵: \$67/Mo., 36 Mos.

 **E-VALUE CODE: 03661-890819**


NEW DELL LATITUDE CPi

Network-Optimized Notebook

- NEW Intel Celeron Processor at 400MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM (512MB Max¹³)
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM Drive
- Modular Floppy Drive
- MagicMedia™ 256ZX
- MS Windows NT Workstation 4.0
- 1-Year Next-Business-Day On-site³ Service
- ★ Upgrade to 64MB SDRAM, add \$99.

\$1899

Business Lease¹⁵: \$64/Mo., 36 Mos.

 **E-VALUE CODE: 03661-790818**


DELL INSPIRON 3500

Light Weight, Light Price

- Intel Celeron Processor at 366MHz
- 14.1" XGA Active Matrix Display
- 32MB SDRAM
- 4.8GB⁴ Ultra ATA Hard Drive
- Modular 24X Max⁷ Variable CD-ROM and Floppy Drive
- NeoMagic MagicMedia 256AV AGP Video
- Microsoft Works Suite 99 with Money 99 Basic
- MS Windows 98 Second Edition
- ★ Upgrade to 64MB SDRAM, add \$99.

\$1799

Business Lease¹⁵: \$60/Mo., 36 Mos.

 **E-VALUE CODE: 03661-890817**

Are you Y2K OK? www.dell.com/y2k

Phone Hours: Mon-Sun 7a-11p CT • In Canada¹ call 800-232-6978
In Mexico¹ call 01-800-021-4531 • GSA Contract #GS-35F-4076D



**USE THE POWER OF
THE E-VALUE™ CODE.**
MATCH OUR LATEST TECHNOLOGY WITH
OUR LATEST PRICES. ENTER THE E-VALUE
CODE ONLINE OR GIVE IT TO YOUR SALES
REP OVER THE PHONE.
WWW.DELL.COM/EVALUE

800-626-4390

BE DIRECT™
DELL®
www.dell.com

LOOK INSIDE FOR
DELL SYSTEMS STARTING AT \$799.

NOW INSIDE EVERY PC: A COMPLETE SUPPORT DEPARTMENT.



17" (16.0" viewable) M780 Monitor shown above

DELL® DIMENSION® XPS T SERIES

High Performance, Great Value

- Pentium® III Processor from 450-600MHz
- 64MB up to 768MB 100MHz SDRAM
- 13.6GB¹ up to 37.5GB¹ Ultra ATA Hard Drive
- 15" (13.8" vis) up to 21" (19.8" vis) Monitor
- 8MB up to 32MB Graphics Card
- CD-ROM, Sound, and Speakers
- MS® Office 2000 Small Business
- MS Windows™ 98
- 3-Year Limited Warranty²
- 1-Year Next-Business-Day On-site³ Service
- ★ Upgrade to 100MB Iomega Zip BUILT-IN Drive, add \$79
- ★ Upgrade to 3-Year Next-Business-Day On-site³ Service, add \$99

Starting at **\$1199**

Business Lease^{1b} Starting at: \$40/Mo., 36 Mos.

 **E-VALUE CODE: 03659-590811**

You're getting more than ever before inside our newest Dell PCs. Like the Pentium® III processor from 450 to 600MHz,* designed to run large, multimedia-rich applications. And our many free online services at support.dell.com featuring personal support pages and Ask Dudley™ – a search engine that troubleshoots in every language. What more could you possibly want inside a PC? Visit dell.com and build yours today.

*Orders accepted July 31, 1999 **800-626-4390**

Are you Y2K OK? www.dell.com/y2k

Phone Hours: M-F 7a-9p • Sat 10a-6p • Sun 12p-5p CT
In Canada, call 800-232-6978 • In Mexico, call 01-800-021-4531



USE THE POWER OF THE E-VALUE™ CODE.

MATCH OUR LATEST TECHNOLOGY WITH OUR
LATEST PRICES. ENTER THE E-VALUE CODE
ONLINE OR GIVE IT TO YOUR SALES REP OVER
THE PHONE. ALSO GO ONLINE TO DESIGN YOUR
IDEAL COMPUTER. CHECK THE LATEST PRICES
AND GET 24 HR. ONLINE TECH SUPPORT.

WWW.DELL.COM/EVALUE

BE DIRECT
DELL
www.dell.com