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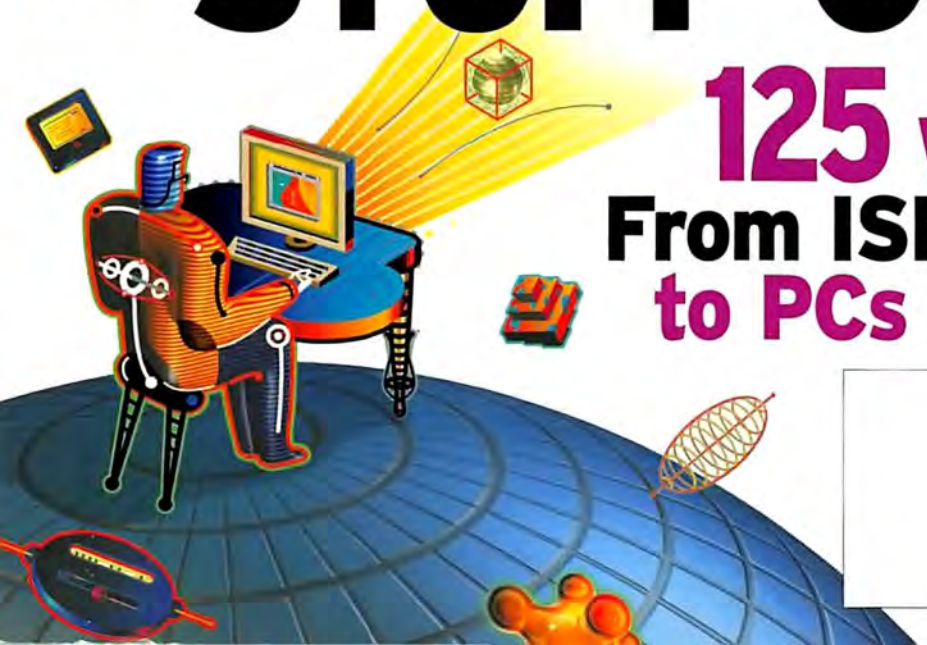

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APRIL

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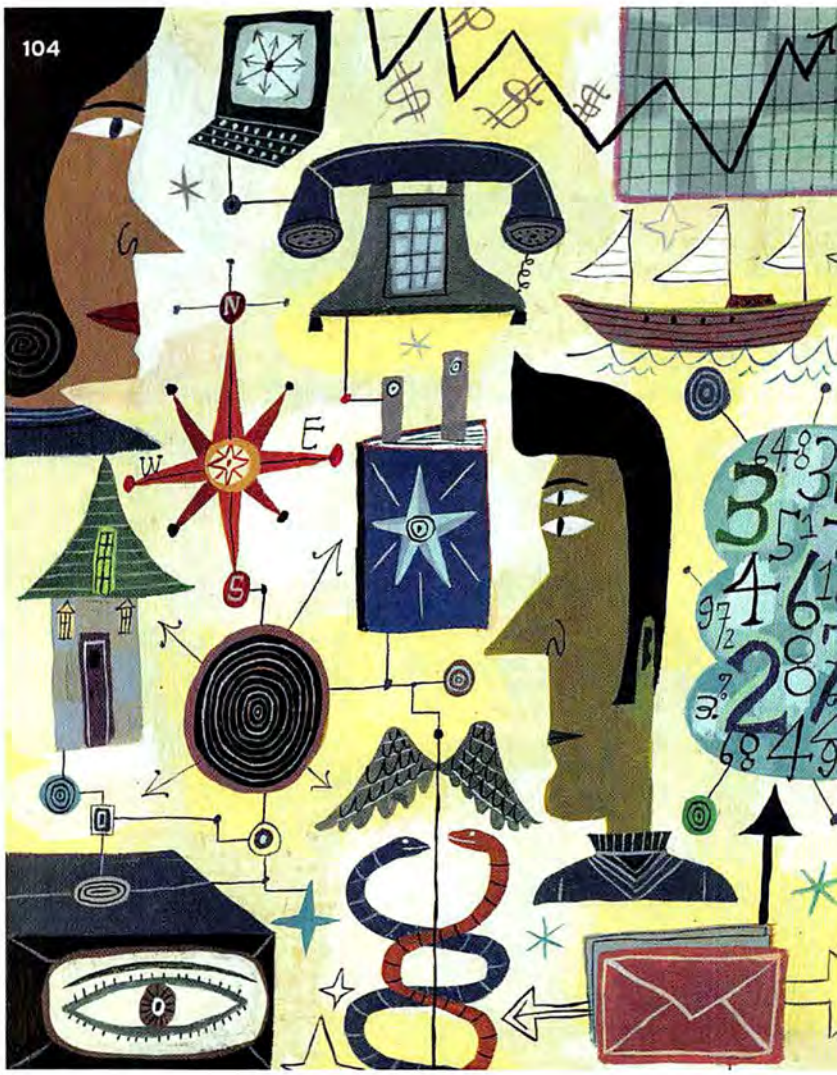

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COVER *Illustration by Steven Lyons*

ICONS: JEFFREY PELO

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NEW COMPRESSION UTILITIES COMPARED

REVIEW Three new compression programs are challenging the market leader WinZip. Is DropZip, PentaZip 4, or ZipMagic 2000 a better way to zip up files?
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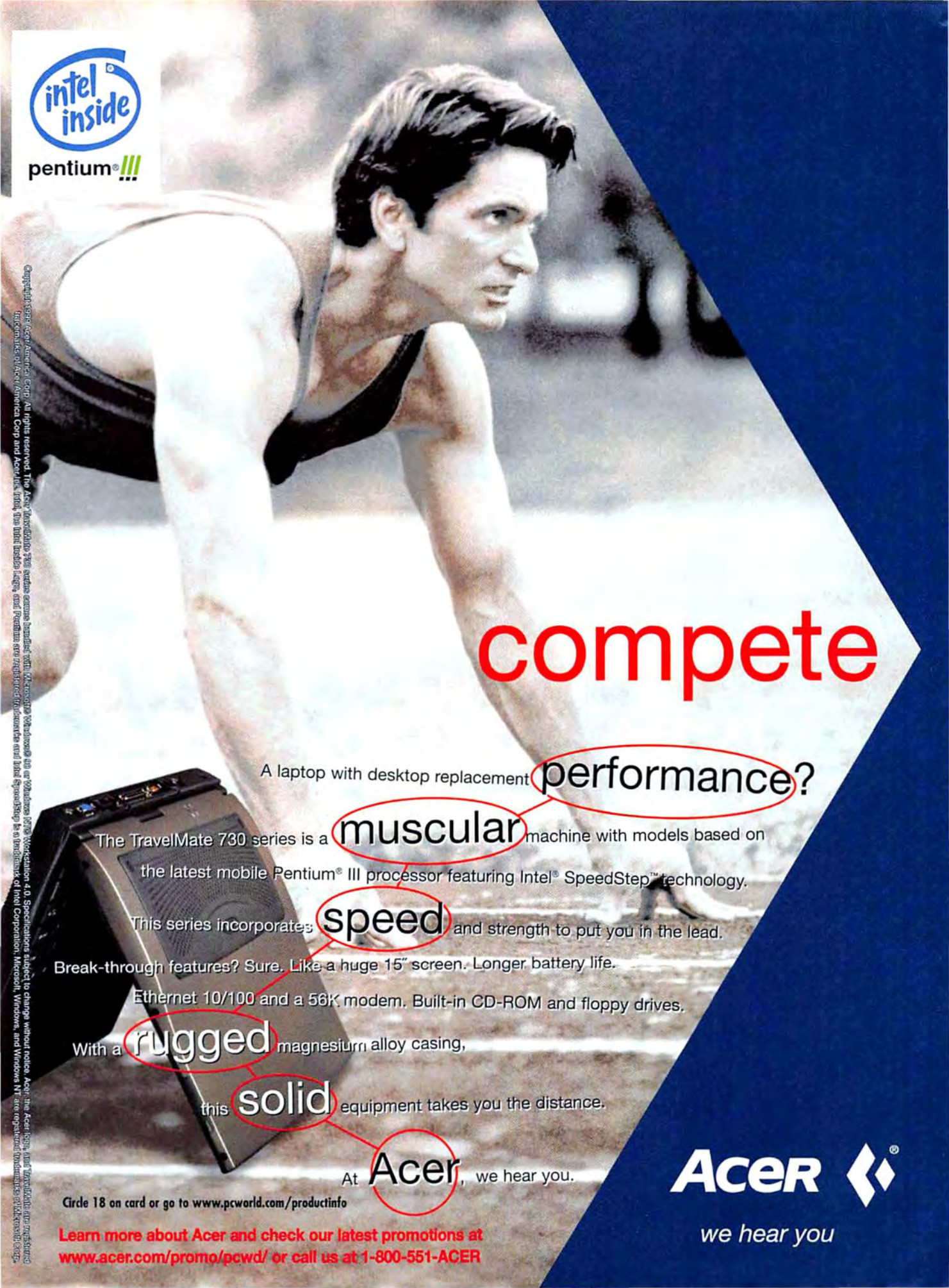

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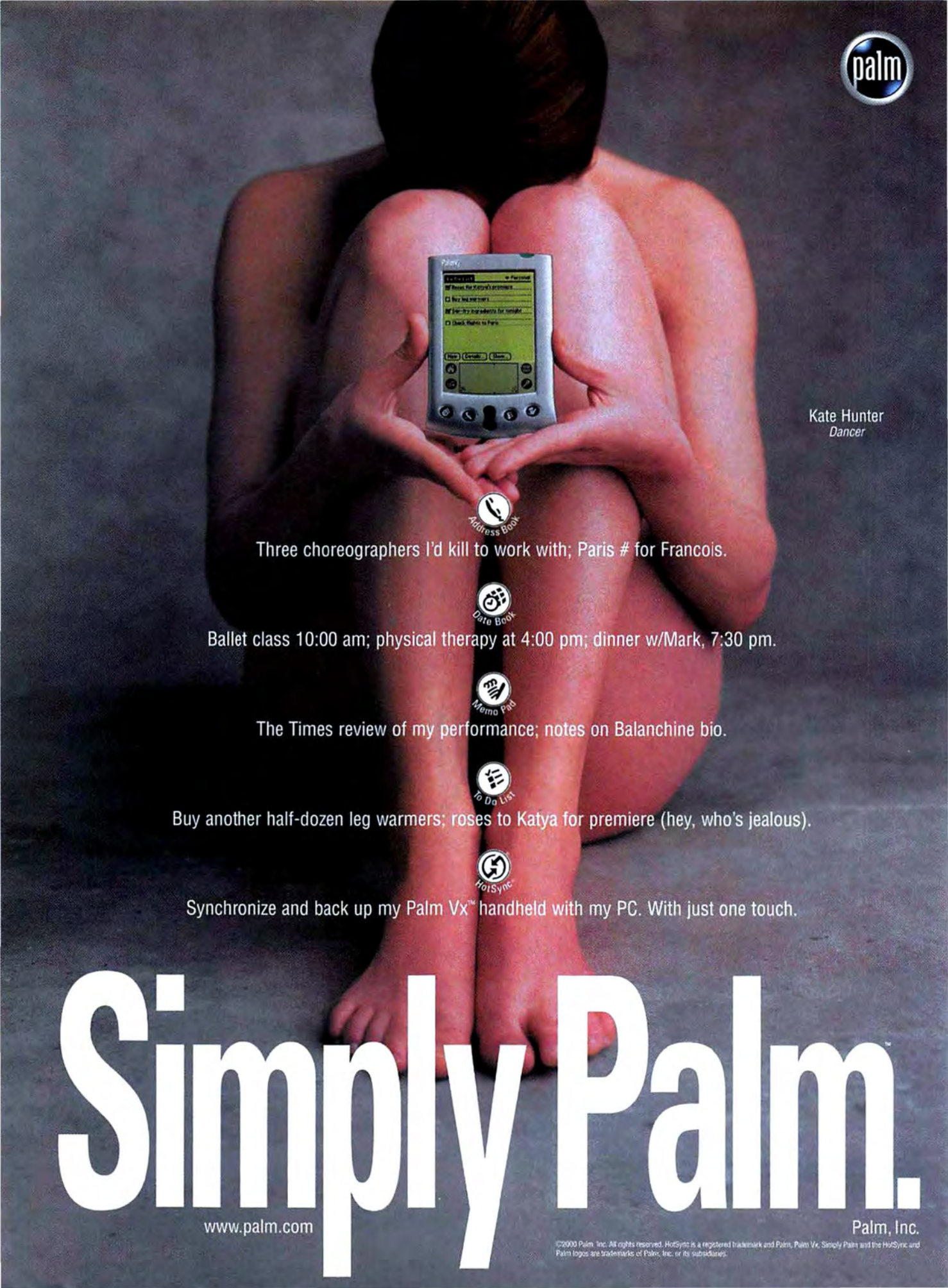
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HERE IN SAN FRANCISCO, we're blessed with a pugnacious weekly newspaper editor named Bruce Brugmann. Bruce, a burly fellow with a penchant for finger wagging, achieved some notoriety when he plastered his mug on billboards and newspaper boxes around town with the slogan "Read my paper. Dammit." Taking a cue from Bruce, I'm here to tell you: "Visit our Web site. Dammit."

If you do, you'll have plenty of company. In December, for example, nearly 1.7 million people stopped in at PCWorld.com, about comparable to traffic on Web sites hosted by the *New York Times*, the *Washington Post*, and CBS.

But if you're a typical *PC World* reader, you don't just go along with the crowd. You need a good reason to invest your valuable time, and there are plenty of reasons why PCWorld.com is worth it. Our readers get the early word on cutting-edge products and technologies they can use at work and at home. You'll find expert tips on hardware and software; authoritative, independent reviews of the most interesting products available today; and a news section that is written with you—the savvy, business-minded technology user—in mind. And all of that information is prepared with the same care, the same independence, and the same pro-consumer attitude that has made *PC World* the leading computer monthly in the world.

PCWorld.com gives the early word on cutting-edge technologies. Visit our Web site. Dammit.

NEW STUFF EVERY DAY

MAYBE YOU VISITED our site a year or two ago and never came back. I can understand that. What we then called PC World Online was perceived as simply an electronic version of our print magazine—useful for people who didn't subscribe, but not nearly as valuable to the six million or so people who read *PC World* every month. You should come back for another visit, though, because today we are doing a lot more of the great things you expect from *PC World*. We've invested (and will continue to invest) substantial resources in what we now call PCWorld.com. Our editorial staff has more than doubled in the last year, and we currently deliver at least 20 original stories, reviews, and tips every business day. That's 400 significant items every month that you won't find in the newsstand issue. And of course, we also publish the full content of the print magazine online.

As I write this column on a rainy February afternoon, our Review of the Day (soon to be *Reviews* of the Day) features MediaShow—a nifty bit of software that'll let you turn a routine slide show into a rich, multimedia presentation. In News, we have a piece on Seagate's fastest new hard drives. The Tip of the Day told me how to solve a hairy problem in Outlook Express, and today's installment of our How It Works series reveals the inner secrets of MP3. Plus, four or five new shareware programs have been posted today—bringing our downloadable library to a total of about 4200 files.

Do I like everything I see on PCWorld.com today? Of course not. We can always make things better, and we are planning to. Let me share part of our lengthy to-do list. Item one: We will streamline our pages and make sure they load faster. Item two: We will diversify the look and feel of our individual pages. Item three: We will include features that take full advantage of the larger, higher-resolution monitors and broader color palettes in the new systems many of you have purchased. This summer, we will be completing a top-to-bottom redesign of the site that will include simpler navigation, a revamped search engine, nimbler pages, and a clean new look.

But we won't wait until summer to unveil a bevy of new features. One to expect soon is a consumer page rich with columns, feature stories, and tools to help you protect your interests.

Before long, we'll be reviewing twice as many new products every month. We just revised our testing benchmark, and we're planning to expand the PC World Test Center to be sure those reviews are based on the best information we can provide.

Now, here's what we won't do. We will *never* sell you out. If we don't like a product, we'll be sure to let you know. And we will never unfairly favor a large company over a smaller competitor. We won't include coverage or links in an article because we have been paid to do so. And we won't cover up our mistakes. You have my word on that.

And if you ever think that we're not living up to these promises, I want you to let me know. If you see something on PCWorld.com that you don't like, or if you have any suggestions for making the site better, please send me an e-mail at heybill@pcworld.com. I welcome your ideas, and I'll do my damnedest to fix anything that needs fixing.

Bill Snyder is editor in chief of PCWorld.com. ■

PHOTOGRAPH: ERIK BUTLER

The fast lane is now open. People have the power to handle any task without breaking stride. And the faster people can go, the more time they have for the rest of their lives. Toshiba's new Tecra® 8100 is a turbocharger for the mobile movement. At the end of the day, mobility and flexibility are what keep a businessperson ahead. And that's what we're all about.

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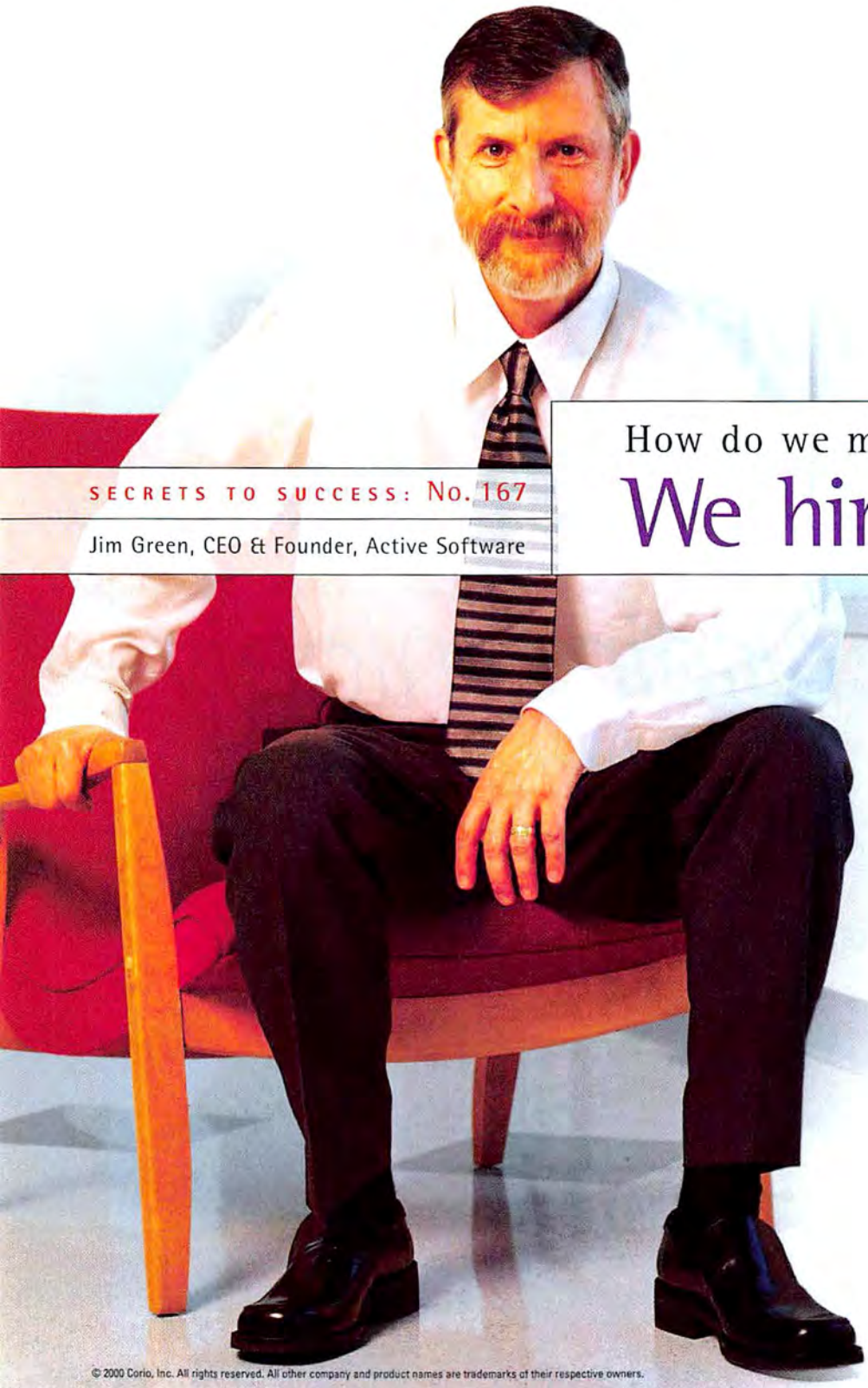

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Jim Green, CEO & Founder, Active Software

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YOUR TAKE ON: Net access headaches ◆ PC killers ◆ Graphics card tests

GRAPHICS BOARD REVIEW: RANK SWITCHES EXPLAINED

I READ WITH utter amazement the results of *PC World*'s latest AGP card evaluation ["Top 10 Graphics Boards: They Got Game," February]. How could December's number seven card (the Creative Labs 3D Blaster RIVA TNT2 Ultra) become February's number one, and December's number one (the Matrox Millennium G400 32MB) slip to number four? One can only conclude that the methodology of the test was flawed, you had nonproduction cards previously, or all the people who based their purchases on earlier rankings have been led astray. And please don't blame it on drivers. I have used all versions up to 3.69 for the Creative Labs board and 5.50 for the Matrox. You owe your readers an explanation.

J. Fox, via the Internet

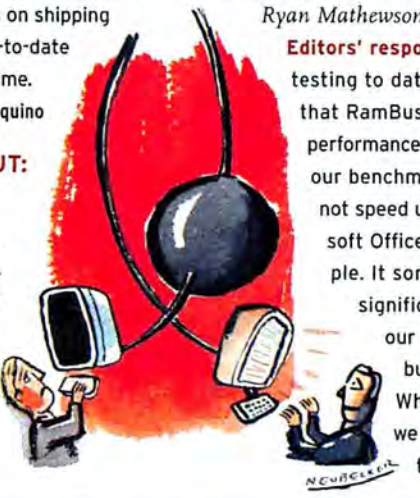
Editor's response: In preparing the February roundup, we revamped our graphics boards testing methodology, employing a different set of 3D games, developing a new set of evaluation criteria—both objectively (by using frame-rate scores) and subjectively (by looking at image quality)—and emphasizing 3D performance more than before. Because the tests are different, the scores and rankings on pre-February Top 10 charts don't match those based on the new methodology. We performed all our tests on shipping boards, using the most up-to-date drivers available at press time.

—Grace Aquino

750-MHZ SHOOTOUT: AMD VS. INTEL

IN YOUR ARTICLE on AMD's and Intel's 750-MHz processors [*Top of the News*, February], the Intel CPU came out slightly ahead, but I noticed that the RAM used on AMD Athlon-750 systems was 128MB PC100 SDRAM, whereas the RAM used on the Pentium III-750 was PC-800 RDRAM (RamBus). This could have made a huge difference in your test results. Other inequalities in system specifications, if any, could have affected the outcome, as well. Your test systems should have been as identical as possible to yield meaningful results.

Ryan Mathewson, via the Internet



Editors' response: In *PC World* testing to date, we have found that RamBus memory affects performance on almost none of our benchmark tests—it does not speed up common Microsoft Office tasks, for example. It sometimes makes a significant difference in our multitasking test, but not in this case. Whenever possible, we test PC configurations that con- ▶

HOT BUTTON

Broadband Blues, Narrow Choices? Readers Speak Out

ERIC BROWN'S ARTICLES on deplorable customer service and limited choices for broadband access could not have been more timely ["Broadband Blues," *Top of the News*, and "Broadband, Narrow Choices," February]. I have only AT&T's @Home cable modem service as an economical broadband choice. It has been down for nine days now. I have spent a total of more than 14 hours on hold, including 3 hours today waiting for a "Tier II" technician to diagnose the network problem. Finally, I was told that the company could not fix the problem for another two weeks. Once DSL is available in my area, believe me, I will be the first to call and sign up!

Ron Rothenberg, Lafayette, California

I HAVE BEEN A subscriber for the past year (at $42 a month) to Time Warner's Road Runner cable modem service, which was installed and running within 36 hours of my application. In the first week, I made two calls to tech support, and the problems were fixed in minutes. The speed is as advertised, the service is always online, and there is no spam or gratuitous pornography. I would rather give up my firstborn than this cable modem.

Milton W. Talbot Jr., Austin, Texas

I SUBSCRIBE TO @Home and have never experienced the problems outlined in your article except slower access to off-server sites in initial visits. The installation was completed within an hour by the service technician, and because the worker arrived three hours late, installation was free.

Brian Loke, Omaha, Nebraska

@HOME BECAME available in my area last October, and promotional discounts made it easy to subscribe. For the past four days I have been able to receive e-mail but not send any. Calling customer service is useless because the service representatives always give the same answer: "Our technicians are working on the problem and your service will be restored shortly." My wife lives by e-mail for her business, so this is extremely frustrating for her; but until the service goes down completely, we can at least surf at speeds only dreamed of previously.

Richard Stall, Garland, Texas

I HAVE ENJOYED my high-speed DSL connection from U.S. West since I got it last March. It has been reliable and fast. With the aid of the excellent technical support line, I did the installation and setup myself—no problems. This fast connection has been well worth the monthly fee.

Ron Lieberson, Scottsdale, Arizona

SINCE AT&T CAME into the @Home picture, we have seen good service go bad. Outages now occur weekly (even daily), hold times for reporting an outage are lengthening (last night I gave up after waiting an hour), and e-mail is sometimes slower than snail mail.

Mike Persell, Richardson, Texas

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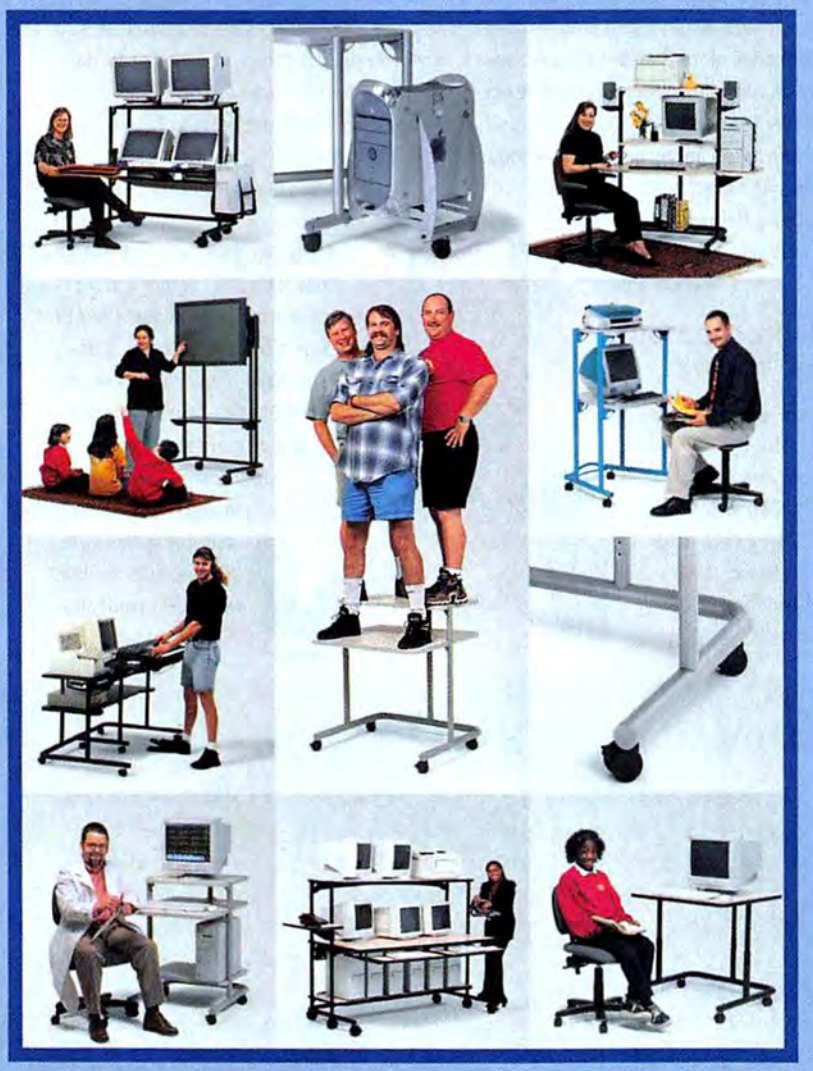

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–Anush Yegyazarian and Laurianne McLaughlin

YOUR REVIEWER leaves out one critical piece of information: An Athlon-750 currently costs approximately $200 less than Intel's PIII-750. Add that to the mix, and the answer to her question—"Does it really matter whether it's Intel or AMD inside at this point?"—becomes a no-brainer.

Dan Mulcahy, Arleta, California

Editors' response: Most consumers do not buy stand-alone microprocessors. Prices for PIII-750 and Athlon-750 systems are usually quite similar, though the configurations on Athlon systems tend to be a bit more generous at a given price.

–Anush Yegyazarian and Laurianne McLaughlin

PROTECTING PC POWER

KIRK STEERS'S column on PC power supplies was very informative, especially regarding the problems electrical power can cause [*Hardware Tips*, February].

However, Steers seems to recommend the APC Back-UPS Office 280 because of its price. But price is not as important as the device's ability to keep the connected equipment up and running through a short-term power failure and to shut it down in the orderly fashion that Win 9*x*/NT machines require.

CORRECTIONS AND CLARIFICATIONS

IN MARCH'S *Top of the News* article "Double Time: New PIII Notebooks Run at 650 or 500 MHz," a sentence on the battery life of the IBM ThinkPad 600X should have stated that this model ran for 2 hours, 40 minutes at 650 MHz; and 2 hours, 26 minutes at 500 MHz.

Contrary to a statement in February's "The Swat Team: Bullet-Proof PC Protection," Command AntiVirus (now CS Virus Free) is not downloadable for free from the Internet except for a 30-day trial, after which the cost is $25. Users who do not purchase the software at the end of the trial period won't be able to obtain upgrades, rendering the product ineffective against new viruses.

PC World regrets the errors.

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Also, the Back-UPS Office 280 is woefully inadequate for most of today's computer/monitor combinations. As a reseller and consultant, I would never sell 280VA devices because they are too small for anything except possibly a 386 PC and a 14-inch monitor. The smallest unit I would sell today is a 525VA unit, which can support a 19-inch monitor and a 500-MHz processor, with room to spare.

Henry S. Winokur
West Bethesda, Maryland

Author's response: Good point. The 280VA model is underpowered for a Pentium III system with a 19-inch monitor. According to APC, the $99 Back-UPS Office 400 can power a PIII system with a 19-inch monitor for more than 8 minutes—easily long enough to properly shut down your PC. **–Kirk Steers**

PC KILLERS

PHIL LEMMONS's thoughts on serial PC killers left me in tears of laughter ["Serial PC Killers Strike Again," *Up Front*, February]. I think the problem is that some of us seem to have an all-or-nothing mentality regarding the role of the PC. In my opinion, there is room for all of the PC killer devices, but nothing is going to force users to give up the benefits of having and controlling their own computing power. And articles like "Broadband Blues" just drive the point home, once again, that a computer in the hand is worth a whole room of servers in the wild blue yonder.

Jim Alexander, Portland, Oregon

MICROSOFT KILLER?

I HAVE CANCELED my subscription. What was once a pleasant, useful magazine about computing has turned into a tireless propaganda machine for attacks on Microsoft, individual achievement, capitalism, and "big business."

Someday, when the market for personal computing has disappeared because of the overwhelming muck of government intervention and regulation, do not come crying to me that "you didn't mean it." You will have gotten what you deserved.

Bill Williams, via the Internet

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Service Agreements: Read the Fine Print

You signed a contract with your ISP or e-mail provider, so you'd better know what's in it.

ILLUSTRATION: RICHARD TUSCHMAN

I'VE BEEN TOLD I'm a Web addict. I've even been called a geek. But I was still taken aback when my Internet service provider recently suggested that the amount of time I spend online just isn't normal. That's right—a representative of my ISP e-mailed me to express concern about my heavy use of the service, saying, "We are reviewing accounts with extraordinarily high usage levels to insure that they comply with [our] terms of service."

It was news to me that I might be breaking any rules—I had thought my account offered unlimited access. The e-mail suggested that I read my terms-of-service agreement. Sure enough, the TOS document clearly stated that continuous usage, running a Web server, and an impressive range of other activities are prohibited.

I e-mailed back, explaining that I wasn't running a server or doing anything else nefarious—I'd just been working too much lately. (Even I was a bit shocked to see my ISP's tally of over 300 online hours during one billing period.) The ISP's representative responded sympathetically and suggested I get some rest. He wasn't trying to harass geeks like me.

By that time, though, I had become engrossed in my TOS agreement. You accept the terms of one of these legally binding contracts whenever you sign up with an ISP, a free e-mail service such as Hotmail, or virtually any other Web service. Though designed primarily to foil spammers and other miscreants who abuse the services, the restrictions in TOS agreements can snag well-meaning users as well. Especially those who never read the things—and that's probably just about everybody.

NOT EXACTLY UNLIMITED

ISPS FREELY BANDY ABOUT the phrase *unlimited access*, but most restrict the amount of Net access you're entitled to for your monthly fee. Maybe you use a "pinging" utility such as In-Kline Global's Stay Connected to keep a dial-up ISP connection alive even when you aren't using it. Or perhaps you and your spouse or business partner share an account and occasionally log in from different phone numbers at the same time. Or maybe you simply have your e-mail program set up to check for new messages every 20 minutes, whether you're sitting at your PC or not (as I did).

If you fall into any of these categories, you should keep an eye out for a letter like the one I got. The restrictions in MSN's agreement are typical: "You may not...under any circumstances, do any of the following: use simultaneous, unattended, or continuous connections to MSN with one account....Your failure to observe any of the foregoing limitations or obligations may result in civil or criminal liability, as well as termination of your membership."

Many ISPs have automatic filters that watch for this sort of activity. Ed Hansen, public relations manager for EarthLink, explains: "[Users receiving service on] flat-rate accounts are prohibited from using artificial means to stay logged in. If someone maintains a full-time connection using a modem port, we can't make ▶

money. People who need to do that should switch to [cable or DSL access] as soon as it becomes available to them."

CAREFUL WHAT YOU E-MAIL

TERMS-OF-SERVICE agreements also lay down the law when it comes to the seemingly private matter of your e-mail's contents. If, for example, you e-mail copyrighted MP3 music files without obtaining the owners' permission, you're violating copyright laws. Maybe you already knew that but figured no one would care? As Deanna Sanford, lead product manager at MSN, points out, "If you are breaking [intellectual property] law...via your Hotmail e-mail account, your account can be terminated." Of course, for that to happen, a recipient would have to report you to your e-mail provider: Service providers don't check your file attachments.

How would you like to explain to your mother that you had to get a new e-mail address because of your foul language? I recently tried (unsuccessfully) to help a reader get her free e-mail account reinstated after she was accused of breaking the rules about abusive and lewd language in an e-mail message (the recipient complained to her e-mail provider). In a case like this, the original e-mail could fall under scrutiny and—in an extreme situation involving threats—law enforcement officials might be called in. In this particular instance, the reader's account was promptly canceled.

So before you push the button to fire off an intemperate e-mail, remember this: If the recipient decides to forward it to your e-mail provider, your angry, salacious, or profane words may be read by strangers at your e-mail provider.

ACTIVE VERSUS INACTIVE

E-MAIL ACCOUNTS can also be terminated either for lack of activity or for too much activity. At Hotmail, for example, if you don't log in to your e-mail account within 10 days of setting it up—and at least once every 90 days thereafter—all your e-mail on the Hotmail server will be deleted. (Hotmail does send you an e-mail alert before trashing your messages; but of course, if you don't check your mail, you won't see this warning.)

You're unlikely to run afoul of rules designed to discourage the excessive use of e-mail unless you number yourself among the parasitic genera of Internet bottom-feeders known as spammers. In fact, many stipulations in terms-of-service agreements expressly target people who send massive amounts of unsolicited junk e-mail. "We have a department that does nothing but handle abuse issues, and the vast majority of problems are related to spam," says EarthLink's Hansen.

None of the providers that I spoke with would divulge what restrictions they place on e-mail volume; they don't want spammers to find out. But the rules aren't there to stop you from, say, broadcasting a ▶

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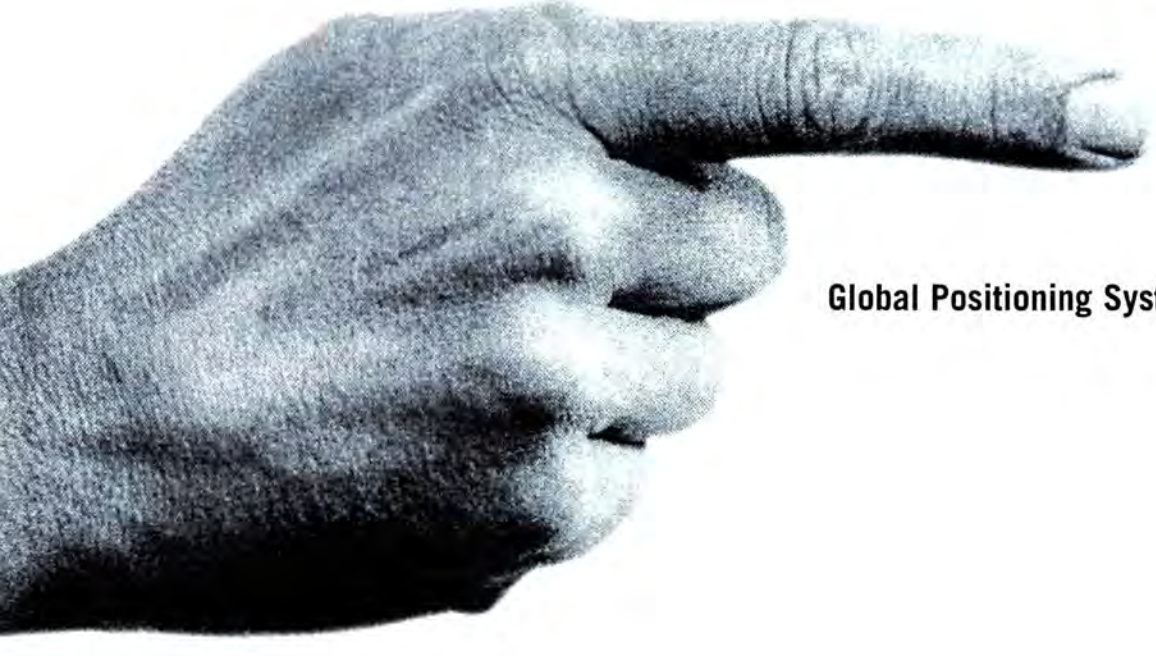

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REGULATING THE RULES

AS YOU SCRUTINIZE your TOS agreements, a multistate group of attorneys general is doing the same thing. Back in May of 1998, a group of states reached a pact with America Online under which the online service must actively and immediately notify users of any alterations it makes to its terms of service. The original inquiry came in response to AOL's switch to a flat-rate fee; the states determined that the company hadn't clearly notified users of the change at the time it was made.

These same attorneys general are now examining other online services' TOS agreements. "Consumers have to understand that the terms-of-service agreement is a contract and they will be bound by the terms," explains Debbie Hagan, chief of the state Bureau of Consumer Fraud at the Springfield, Illinois, attorney general's office. "In particular...reasonable notice should be given to consumers of any contract change." Agreements specifying that terms can be changed without notice may violate basic contract law, she says.

My advice? Make it your business to acquaint yourself with the terms of any service contract you agree to comply with. Says Anna Reboli, security and abuse department manager at Juno, a provider of free e-mail and Internet service, "I think it's important to remember that ISPs do enforce their terms-of-service agreements. Internet users do not always realize that their actions will have repercussions."

Personally, I'm getting just a little paranoid. I used to worry about leaving the iron on and burning down the house. But on a recent weekend getaway, I panicked that I'd left my Net connection running back home. One more run-in with my ISP, and I could find myself a geek without an e-mail address.

Christina Wood is a PC World *contributing editor.* ■

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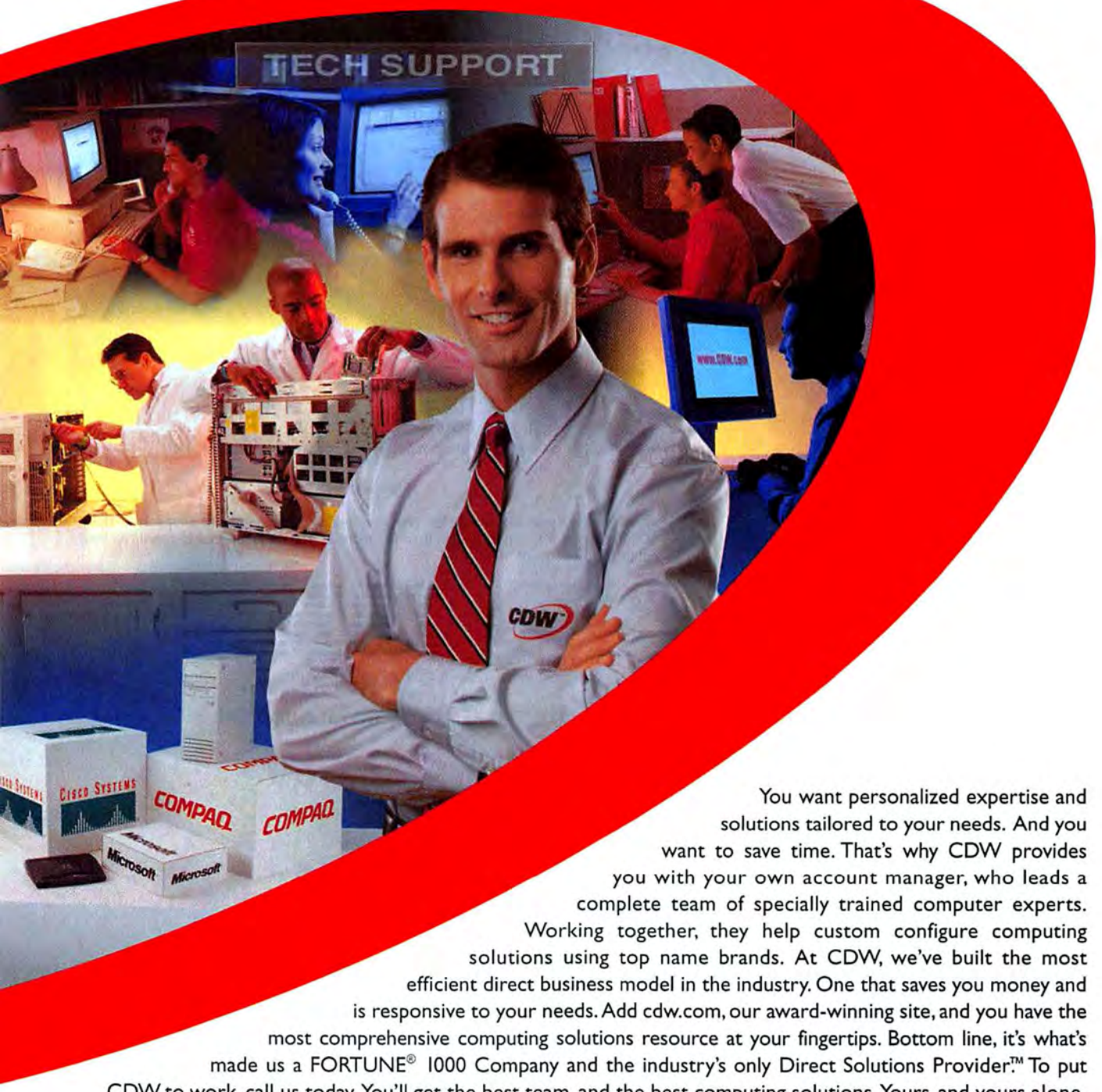

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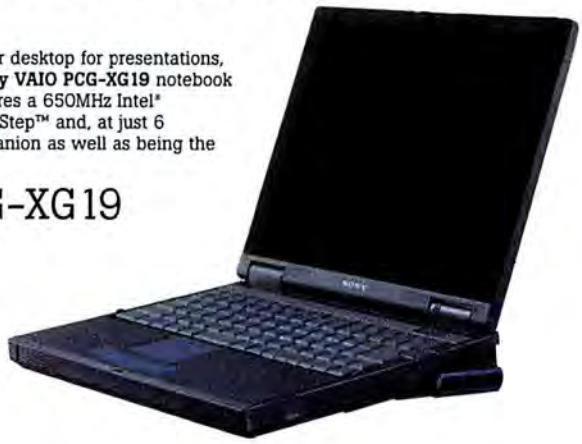

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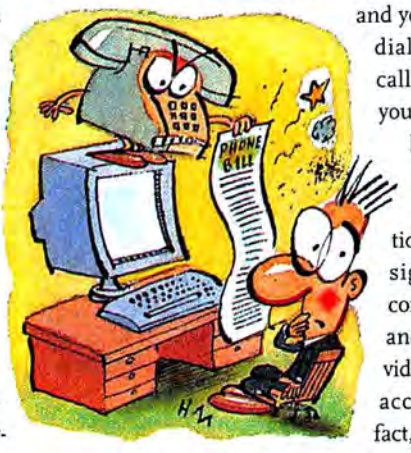
For Whom the Baby Bell Tolls

JON SIMON OF Carmel, California, recently opened his phone bill and got an unpleasant surprise—nearly $200 in AT&T long-distance charges for calls he'd made to access RedShift, his Internet service provider. Simon had been connecting via the same number for several years without paying any long-distance charges. So he contacted AT&T and was told that he should only have been charged long-distance rates if the number his PC dialed included an area code—which it didn't. So it must have been a local call, right?



Don't be so sure. Lately, several readers have reported similar predicaments—with some of them facing up to $1500 in telephone charges.

Most ISPs clearly state that they are not responsible for long-distance charges incurred on dial-up Internet access, nor are they responsible for ensuring that the access numbers they provide are local. And contrary to what Simon was told, a number isn't necessarily local just because it's in your area code, nor is a number that's outside the area code always long distance. "Area codes are constantly being added and calling areas restructured," says AT&T spokesperson Ritch Blasi, "and billing problems sometimes result...If your calling area changes and you don't update your dial-up number, those calls could show up on your long-distance bill."

How can you avoid getting caught in the telecommunications web? Before you sign on with an ISP, contact both your local and long-distance providers to verify that your access number is, in fact, local. Be sure to regularly compare your ISP's access numbers against the most recent area code changes—you can find up-to-date area code maps at www.nanpa.com. And finally, review your phone bill carefully each month to catch any unrecognized long-distance charges.

Heads Up...

VISOR ADVISORY: I've heard from several readers who ordered Visor handheld computers from Handspring and waited weeks beyond the promised shipping date for delivery. Handspring representative Allen Bush reports that the company underestimated demand, then ran into technical problems with its customer database. He predicts that order processing should be back up to speed by the time you read this... **Road Warriors, Unite:** Fed up with flight delays, car rental snafus, and rude hotel clerks? Visit www.passengerrights.com. The site offers a discussion forum for travel-related travails, plus information on consumer rights and liabilities, guidelines for effective complaint letters, and specific policies of airlines, car rental companies, and hotels. It will even forward your complaints directly to the individuals at travel companies who can best address customer problems... **Change Your Password, or Else:** Pacific Bell Internet Services recently told a group of customers that a reported attack on its network (among others) had possibly given hackers access to user passwords. As a security precaution, the ISP decided that subscribers would have to change their passwords in order to access their accounts. The lesson here: Change your password often, because hackers may attack any ISP.

LETTER OF THE MONTH

I PURCHASED A Gateway computer under my wife's name in August 1998, and she passed away in December 1999. Now Gateway tells me the PC is no longer under warranty, and I will not be permitted to trade it in next August because it underwent a change of ownership with her death.

James Wharton
Birmingham, Alabama

***On Your Side* responds:** I spoke with Gateway's manager of corporate communications, Tyson Heyn, who says it is Gateway's policy to allow transfer of ownership in the event of a customer's death. "We want to support customers and family members in that situation. Unfortunately, we've had some [internal] miscommunication among our groups about the [warranty transfer] policy," says Heyn, "but we are now clarifying it within the organization." Gateway reports that it has reinstated the computer's warranty and apologized to Wharton. ■

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. Anne Kandra is a contributing editor for PC World.

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One Mailbox, Indivisible?

CALL ME THE overconnected American. I've got three phone numbers with voice mail (home, work, and cell), both ICQ and AOL Instant Messenger, a fax machine, a pager number, and Lord knows how many e-mail addresses. Even in a world as wired as ours, that's outlandish. So lately, I've been trying to winnow my multiple electronic personalities down to a manageable few.

I really crave a universal in-box—a single message repository that I can access from anywhere at any time. And that's precisely what various new Web services promise—for free. Onebox.com (www.onebox.com) has a typical spiel: "Free voicemail, email, and fax—all in one place!" A bevy of rivals echo this pitch: EFax.com (www.efax.com), GetMessage.com (www.getmessage.com), MessageClick (www.messageclick.com), TeleBot (www.telebot.com), and UReach.com (www.ureach.com).

In truth, even with the best of this bunch, I'm still going to be left with more mailboxes than a Manhattan post office. But even though all-in-one messaging sites don't live up to their considerable hype, they are worth giving a try.

MAILBOXES, ETC.

SIGN UP FOR any of these services, and you get a phone number that can accept voice-mail messages and faxes. The service digitizes each fax or message and routes it either into its own Web-based e-mail account (in the case of Onebox, UReach.com, and others), or to your existing account (as with EFax.com and MessageClick, for example).

Both of these approaches yield the same result: You can retrieve e-mail, faxes, and voice mail from a single in-box. A growing number of the services also allow you to retrieve e-mail over the telephone, via a text-to-speech system that croaks out messages in a synthesized voice.

Free or not, some of the contenders are still too rife with limitations to be worthwhile. GetMessage.com, for example, handles faxes up to only five pages in length. And my interest in TeleBot fizzled when I discovered that my callers would hear only a generic "Please leave a message..." recording, with no mention of my name. No thanks, guys.

Then there's the telephone number itself. Onebox.com let me pick an area code from a lengthy list. But then it assigned me an *extension* on the phone number. Who knows how to send a fax to an extension? Not me. The smartest option is to sidestep extensions alto- ▶

ILLUSTRATION: JOE CIARDIELLO; ICONS: JEFFREY PELO

On the Net...

HAGGLERS' HAVEN: Itching for a price break on your next computer, electronic gizmo, book, or CD? Bop over to NexTag.com, a new shopping site that lets you negotiate prices with a gaggle of Web vendors, including such biggies as Egghead.com. Judging from my experience, there are genuine deals to be had... **Better Than Bookmarks:** Your own private Yahoo—that's as good a way as any to describe Backflip (www.backflip.com). This bookmark manager/search engine for your favorite Web sites is accessible from any browser on any computer. Other sites provide similar tools, but Backflip is slicker and more fun... **MSN to Netscape Fans: Drop Dead?** Thumbs-down to the chat rooms at MSN's otherwise worthy Web Communities. Netscape Navigator users who try to chat are rebuffed with a message recommending that they switch to (surprise!) Microsoft's Internet Explorer. Yahoo Clubs and other rival services (and chat rooms elsewhere at MSN) have no such technical limitation.

GIMME FIVE

Essential Auction Advice Sites

ONLINE AUCTIONS are fun, economical, addictive...and risky. Before you bid, check these resources:

1. **AuctionRover** (www.auctionrover.com): A treasure trove of features, including a multiauction search engine, news, tips, and price histories for popular items.
2. **Gomez Advisors' Internet Auction Scorecard** (www.gomez.com): The respected research firm provides in-depth reviews of 11 leading auction sites.
3. **AuctionWatch** (www.auctionwatch.com): This AuctionRover competitor offers a search engine, message boards, item appraisals, and more.
4. **Tessa Herbert's Auction Articles** (www.mindspring.com/~bookdealers/help.html): Savvy advice for those who have been rooked by a rogue seller or buyer.
5. **Online Auction Users Association** (www.auctionusers.org): News and an ethics code from an alliance of buyers and sellers.

gether by choosing a service like EFax.com, MessageClick, or UReach.com that gives you a unique phone number. (Of course, letting the service choose your area code can produce exotic results: EFax.com and MessageClick assigned me numbers in Idaho and New Mexico, respectively.)

WHAT WORKS, WHAT DOESN'T

WHAT THESE SERVICES do well—really well—is to serve as virtual fax machines. You view faxes from your e-mail in-box and print out just those (few) you really need in paper form. You won't have to track down a vital missive that got stapled to the bottom of a coworker's fax, and when you travel with a notebook, you can get faxes anywhere, for free.

The e-mail-by-phone feature offered through EFax.com and UReach.com, among others, also has its place. True, it reads mail in a grating, robotic voice. But it's undeniably handy if you're going to be sans PC for an extended period. Be forewarned, though, that slogging through a crowded in-box this way is a hassle, and spam is twice as onerous when you listen to it. (The first message I heard via UReach.com was a Teletubbies ad.)

But these services fall short of being true universal in-boxes, primarily because their free voice mail connects only to their providers' own number. That number doesn't ring through to a phone you can answer. Instead, callers are dumped directly into voice mail. UReach.com's UReachMe feature provides a partial work-around by optionally forwarding calls to any phone number you specify—but that leaves you with even more voice-mail accounts than you started out with.

Take note, also, that most of these companies hope to make a buck by upgrading you to fee-based services. EFax.com, for instance, also lets you *send* faxes—for $2.95 per month and a nickel a page. If this financial model doesn't pay off, these services may disappear, presumably taking users' phone numbers and mailboxes with them. And even if they prosper, occasional service outages are a dead certainty. (MessageClick refused to let me log in to my account for most of one weekend.)

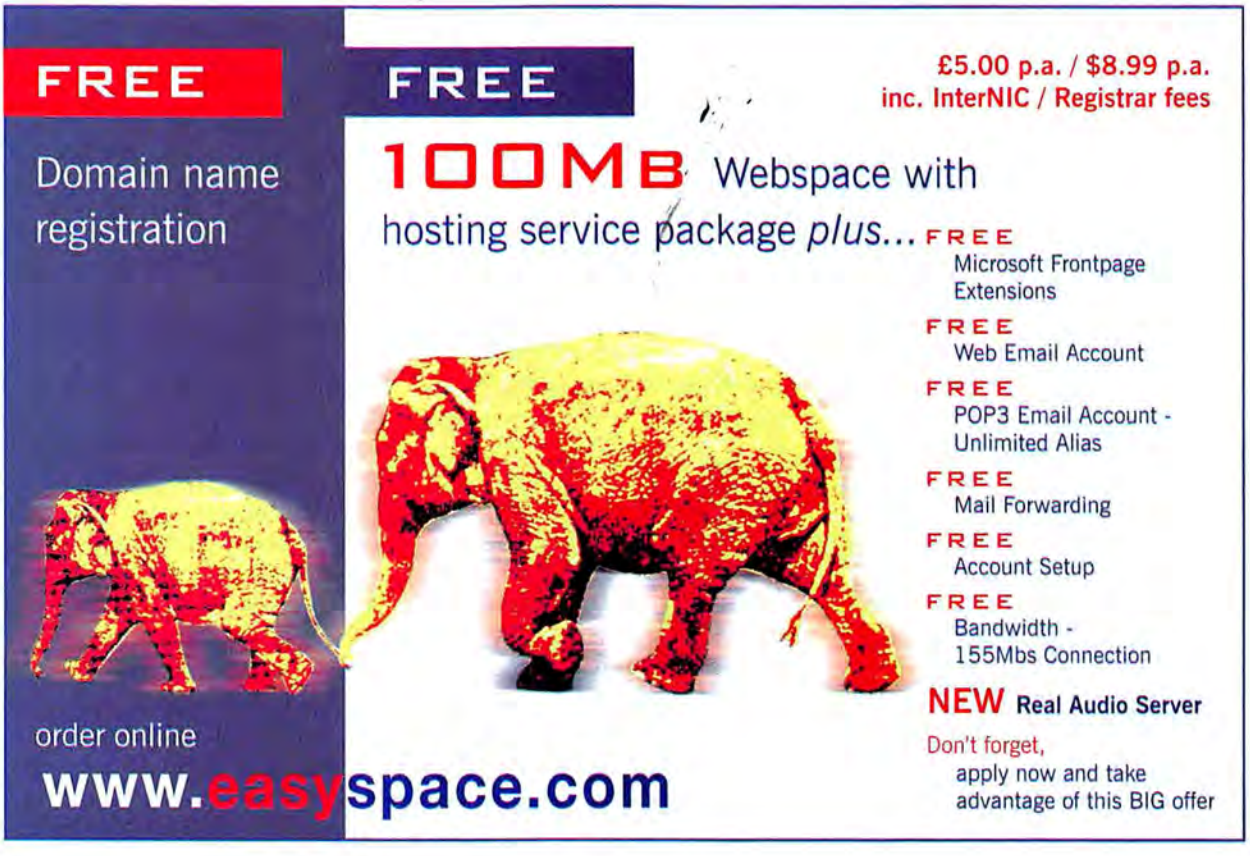
FYI

FIFTY-EIGHT PERCENT of Web shoppers fret about their credit card numbers being purloined online, reports a recent survey—but under 2 percent say they've been victimized.

SOURCE: BIZRATE.COM

For all these reasons, I'm antsy about relying too heavily on any free all-in-one in-box. But I've grown partial to the minimalist—but straightforward—EFax.com. And if my EFax.com phone number's 208 area code leads folks to think I've upped and moved to Boise, well, that's a price I'm willing to pay.

Contact PC World *senior editor Harry McCracken at websavvy@pcworld.com.* ■



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Top award for Web hosting, January, 2000. E-CommerceFirms.com.

A Web host is a Web host is a Web host, right? Wrong. If you've spent any time dabbling in the Web-hosting arena at all, you're probably painfully aware that technical support and customer service can sometimes be, in a word, lousy.

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These Discs Are Made for Burnin'

IT'S THE BASSMAN, *comin' at you live, with his cool sounds of soothing jazz.*

Yep, I finally crawled out of the technological ice age and started burning my own music CDs. My 17-year-old nephew turned me on to it. "It's easy," the whiz kid said. And he was right, of course. I just grab some regular music discs and choose my favorite cuts. In a couple of clicks and just about half an hour, I have a custom CD to play on the stereo at home, in the car, or on my PC.

CD-Rewritables are definitely the way to go these days. Besides letting you record customized music discs, recordable or rewritable CDs do a great job of storing scanned and digitized photos. And I can get an extra measure of security by using CDs to back up my system quickly and cheaply. Compared to Iomega's Zip cartridges, customized CDs are cheaper, easier, and just a heck of a lot more convenient to use.

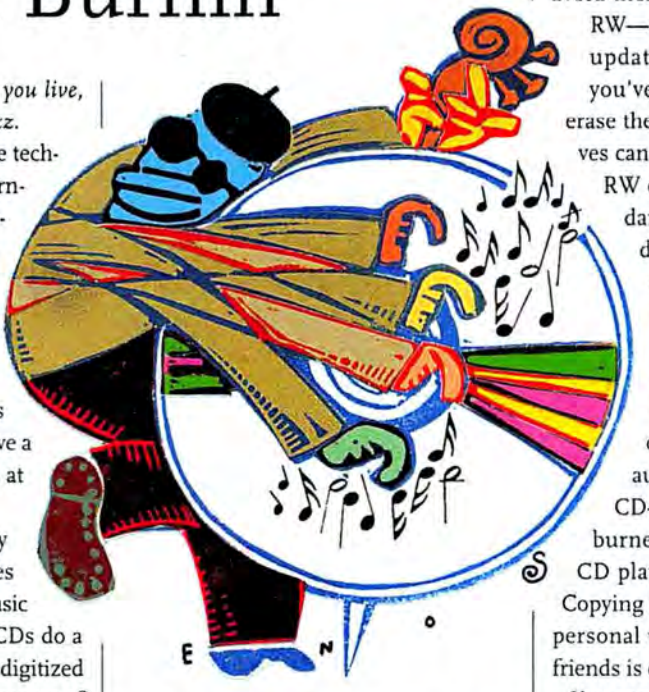

ILLUSTRATION RANDALL ENOS

BURN YOUR MEMORIES

HARD DRIVES ARE flaky and occasionally die, while CDs are stable (if you don't scratch them or leave them in the sun). A recordable CD disc costs about a buck, so I can make quick, cheap duplicate discs for relatives. I can also pop large video files onto a CD to show to my Pasadena users group. And I can play them on any notebook outfitted with a CD-ROM drive.

Easy CD Creator 4 Deluxe
List price: $99; Adaptec; 800/442-7274; cdr.adaptec.com
PRODUCT INFO NO. 634

PlexWriter 8/4/32 (IDE)
List price: $279; Plextor; 800/886-3935; www.plextor.com
PRODUCT INFO NO. 635

Compared to Iomega's Zip cartridges, **customized CDs** are **cheaper, easier,** and just a heck of a lot **more convenient** to use.

One other compelling use for custom-burned CDs is the *Bass Start-From-Scratch Strategy.* Once your PC is working just the way you like it, burn an image of the hard drive onto CD. Then when you hose your PC (oh, no, not *you*), you can restore your system and get rolling again quickly. (The entire hard drive probably won't fit onto a single CD-R disc, but Adaptec's Easy CD Creator 4 Deluxe program allows you to back up your hard disk to multiple CDs.)

READIN' AND A-WRITIN'

LOOKING AT the variety of CD drives currently available, you might find yourself confused. (Read once, write twice? No, wait, it's write once, read twice.) Here's the scoop. Ordinary CD-ROM drives just read CDs (discs with software and music). The CD-R drive lets you record to a CD-R disc once, adding files until the disc is full, about 650MB. But CD-R drives are almost gone from the market, and I suggest you avoid them. A better option is the CD-RW—a rewritable drive—that lets you update files (except music tracks) you've already saved to the disc, or erase the CD and reuse it. CD-RW drives can record on both CD-R and CD-RW discs, and they can read standard CDs. The price for CD-RW discs is low, too: A five-pack runs about $10; preformatted discs cost a few bucks more.

Whichever new drive you choose, make sure that you keep your old CD-ROM drive on your PC so you can copy audio from your regular CDs to a CD-RW. (But fair warning—newly burned CDs may not play on older CD players.) And one friendly note: Copying tracks from your own CDs for personal use is kosher; giving them to friends is copyright infringement.

You can choose from several brands of CD-RW drives, but I'm partial to Plextor. Its drives seem to last for the long haul—a four-year-old Plextor CD-ROM drive is still running in my test PC. I tried a PlexWriter 8/4/32 IDE CD-RW drive (that padlock combination number refers to 8X CD-R, 4X CD-RW, and 32X CD-ROM). For $279, it's speedy, and the documentation and software are excellent. Budget buyers can find decent drives for even less money. Check *PC World*'s CD-RW roundup for some comparative reviews (www.pcworld.com/maroo/cd-rw).

For more information about choosing a CD-R or CD-RW drive, check out Andy McFadden's CD-Recordable FAQ at www.fadden.com/cdrfaq. It's easily the best Internet resource on the subject.

And don't forget to stay tuned to the Bassman, jazz lovers.

online

Contributing Editor Steve Bass is president of the Pasadena IBM Users Group. You can reach him at steve_bass@pcworld.com. ■

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Double trouble with AOL ◆ Online tax updates ◆ **Quicken slowdown**

America Online 5.0: Handle With Care

SOME AOL MEMBERS report that they can't boot Windows 98 after installing AOL 5.0. Users say that resurrecting their systems ultimately requires reformatting the hard disk or restoring the disk from a full backup. AOL acknowledges that a small number of its 20 million subscribers experience this problem; AOL spokesperson Anne Bentley reports that the company is continuing to investigate, but it had no fix at the time of this writing. To play it safe, back up your system before installing AOL 5.0.

ICON: JEFFREY PELO

A second problem seems most likely to affect network users: In an effort to avoid configuration hassles, AOL 5.0 seeks out multiple instances of a network adapter or modem linked to the same protocol, such as TCP/IP, and then deletes all but one of these instances. This behavior could leave you unable to use a network connection, depending on how your connections are configured. If you can't connect, you must uninstall AOL 5.0 and reconfigure the deleted protocol, or revert to your system's pre-AOL state using a backup. AOL's Bentley told us that the problem occurs only when multiple network connections are configured in a way unsupported by Windows. She reported that AOL has helped solve configuration problems affecting most users.

TAX TRAUMA? NO THANKS

TAX SOFTWARE CAN take much of the confusion and drudgery out of filing your returns, but no software package is exempt from the occasional glitch. This year's versions of Block Financial's Kiplinger TaxCut and Intuit's Quicken TurboTax—two of the most popular packages—already have problems. Before you trust your tax preparation program with your financial information, check the company's Web site for last-minute bug fixes. Downloading any updates should also ensure that you receive the final, approved versions of federal and state tax forms.

At press time, Kiplinger TaxCut and TurboTax had patches available for several problems. TaxCut's updates include corrections for faulty calculations, fixes for various printing problems, and final versions of certain federal forms. TurboTax's snarls range from error messages in federal forms to self-employment–tax snafus to installation tie-ups.

Both TaxCut and TurboTax give you the option of automatically downloading updates that incorporate bug fixes and tax form changes in one easy step. Federal forms are usually finalized in January, and final state forms should be posted by mid-February—well before you read this column.

To get an automatic update from TaxCut, choose *Tools•Update*. To do the job manually, find updates for federal and state versions at www.taxcut.com/updates. You can trigger automatic TurboTax updates by selecting the online menu's *One-click Updates*. Or to update manually, just point your browser to www.intuit.com/support/turbotax/updates/ty99/ttax_updates_man99.html.

online

Files from this article are available on PC World Online at www.fileworld.com. Mitt Jones is a contributing editor for PC World. ■

Not So Quicken

IF YOUR PC runs Quicken 99 or 2000 and Norton AntiVirus, Quicken may have been acting lethargic of late. Here's why: Recent changes to the scanning engine in AntiVirus 4.*x*, 5.*x*, and 2000 caused problems when AntiVirus started scanning the Quicken files. The changes were integrated with Symantec's LiveUpdate virus-definition downloads (which update your PC's virus protection), causing Quicken to run slowly. LiveUpdate downloads posted after December 29, 1999, should solve this problem.

A Symantec Knowledge Base article describes a work-around that may help, too. Go to www.symantec.com/techsupp, and once there select your AntiVirus version. Intuit offers a second fix at www.intuit.com/support/quicken/faqs/win3/5142.html.

IN BRIEF

IE 5.01 Insecurity

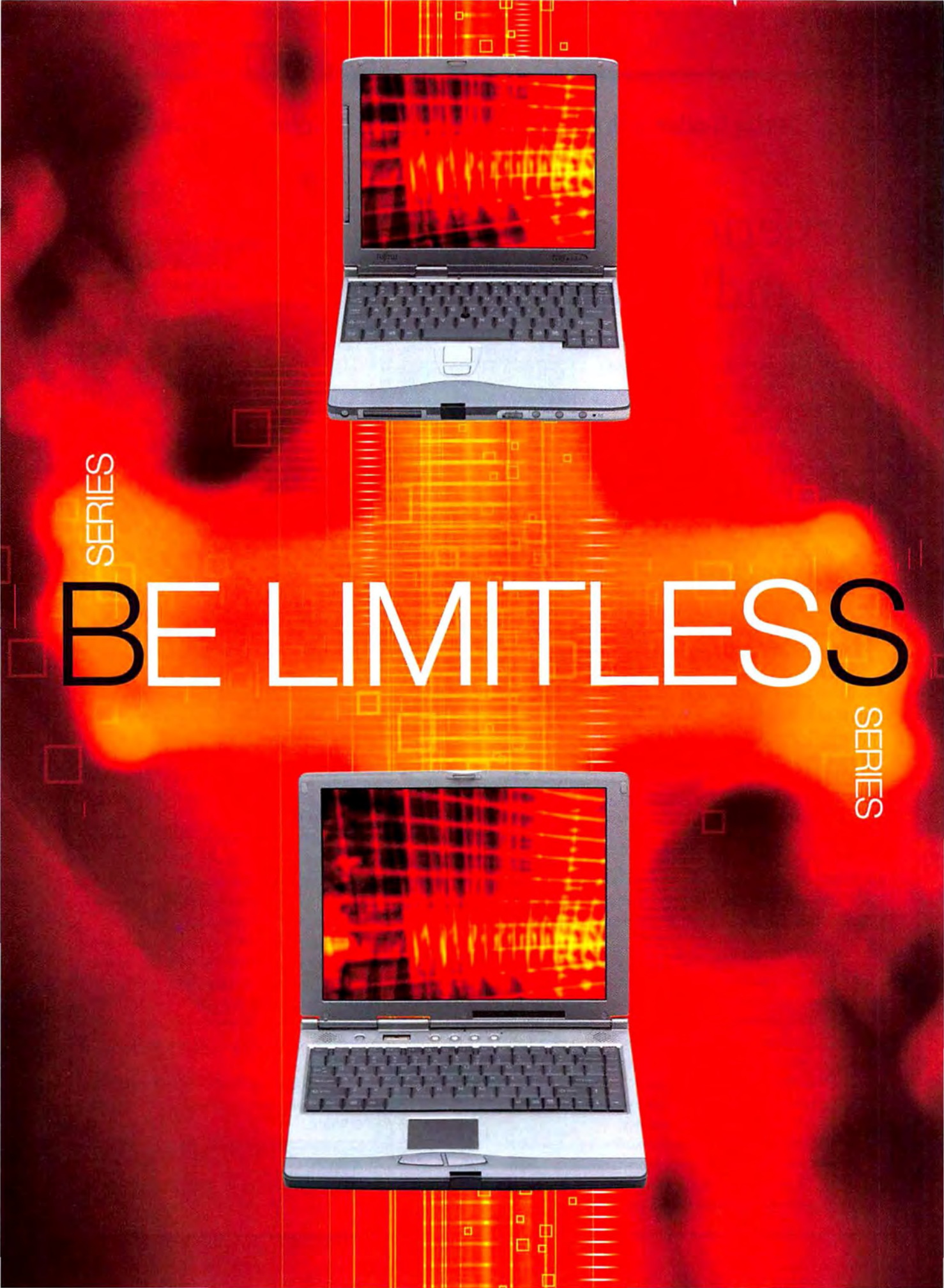
IF YOU'VE HAD problems communicating over secure connections since downloading IE 5.01, you are not alone. To deal with problems that prevent IE 5.01 from working with Web sites that use Secure Socket Layer or Security Support Provider Interface encryption, you need Microsoft's fix. You'll find it at download.microsoft.com/download/ie501/schannel/5.01/W9XNT4/EN-US/q247367.exe.

Rich Text Format Hang-Ups

A SECURITY HOLE in all versions of Windows 95, 98, and NT 4.0 could allow a hacker to design RTF files that crash any application that attempts to read them. For links to separate patches for Windows 95, 98, and NT, go to www.microsoft.com/security/bulletins/ms00-005.asp.

BUGGED?

FOUND A HARDWARE or software bug? Tell us about it via e-mail at bugs@pcworld.com.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Going beyond your expectations (and anywhere else you care to go) are the new LifeBook B Series Mini-notebooks and the LifeBook S Series Ultra-mobile Notebooks. The B Series is barely there at approximately 3 lbs., with buckets of high-performance features like a built-in modem and ethernet, touch screen with stylus and one-touch application launchers. And there's no stopping the light-weight S Series with a scant size, scorching Intel® Pentium® III speed and serious extras like a built-in flexible bay, brilliant 12.1" TFT display and a standard port replicator. With both of these mobile masterpieces, there are no borders. And no slowdowns. Only endless possibilities. Be limitless with Fujitsu Ultra-mobile notebooks.

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- Built-in 56K[1] V.90 modem
- Port Replicator included
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- Microsoft® Windows® 98 Second Edition preinstalled

Starting at $1,799[2]

LifeBook S Series

Truly Innovative for the Way You Work.

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- Up to 128MB SDRAM
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- Flexible bay supports FDD, SuperDisk™ 120 CD-ROM, DVD, CD-RW, 2nd Battery, or weight saver – even a digital camera bay device
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- Built-in 56K[1] V.90 modem
- Port Replicator includes LAN pass-thru
- Less than 1" to 1.25", under 4 lbs.[3]
- Microsoft® Windows® 98 Second Edition or Windows® 2000 Professional[4] preinstalled

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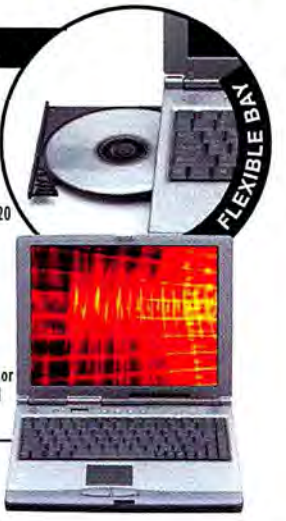

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INSIDE | 50 Fast, Friendly Wireless LAN | 52 A TV/Web Appliance | 54 Net Taxes Are Looming

TOP OF THE NEWS

Your home may soon be as networked as your office. We look at the latest technologies, products, and gizmos to separate the help from the hype.

Wild Wired Home

◆ **By Carla Thornton**

SMART HOME. Wired home. Networked home. Whatever the term, we've been hearing about this mythical abode for years. You know the place: the digital dwelling where your PC talks to the refrigerator, which orders dinner over the Internet, which sends phone messages over your LAN to the TV screen. Well, hold on to your remote control, because some of this technology is finally ready to appear. Over the next six months, PC vendors will push a raft of new products designed to make your home the envy of George Jetson. Some products will come from big names like 3Com, Compaq, and Dell. Others will hail from less familiar companies such as 2Wire, CMi, and Panja.

To separate the wired from the weird, we spoke to vendors and industry analysts, and we also sampled three of these new housewares. We tried the first high-speed wireless LAN for the home; a residential gateway device that connects the Internet to a TV and stereo system; and a portable TV/Internet device designed for your kitchen. The good news: Acquiring and installing some of these products won't require the budget—or staff—of a multinational conglomerate. But other devices will likely suffer from the maladies that afflict many cutting-edge technologies: high price, limited features, and incompatibility with other products.

BETTER HOMES AND NETWORKS

IF YOU OWN two or more home PCs, you've probably thought about connecting them so they can share files, peripherals, and an Internet connection. Traditional wired-network kits have been available for the home for several years. They are relatively inexpensive (about $50 per PC), but installing them can be tricky. And you still have to deal with the ugly cables either by fishing them through walls or by draping them across the floor and behind furniture.

More recently, the budget choice for people whose PCs sit near phone jacks has been a phone-line network. You add an adapter to each PC and plug it into a phone jack; data then travels over your home's existing telephone wiring without disturbing phone calls. The latest phone-line products, based on the HomePNA 2.0 specification, transmit data at a snappy 10 mbps; the adapters for each PC cost less than $80 apiece. By ▶

Product Pipeline

➤ **3.3-Megapixel Cameras:** Canon's PowerShot S20, Nikon's Coolpix 990, and the Olympus C-3030 Zoom will be among the first 3.3-megapixel cameras, appearing by May for close to $1000. Previous cameras maxed out at 2.5 megapixels. The new cameras let photographers produce crisper large prints—but also require costly media.

➤ **Intel InBusiness Small Office Network:** Shipping by the time you read this, Intel's one-box, easy-setup server lets up to 25 people share files, peripherals, and dial-up Net access (no DSL support yet). Powered by either a Celeron-366 ($1499) or a Celeron-466 ($1999), the Intel units are the first to run Microsoft's Windows for Express Networks OS.

Free PCs Update

FORGET FREE FOOD and primo parking spaces: The newest trend in employee perks is free computers. Ford Motor Company and Delta Air Lines will soon offer their workers free systems and cheap Internet access. The goal: To make these employees more Net-savvy.

Will other companies follow suit? "They have got to find some way in this economy of motivating and retaining employees," says Jonathan Eunice, an analyst and information technology adviser at Illuminata.

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

ILLUSTRATION: MATSU; ICON: JEFFREY PELO

A Fast, Friendly 11-mbps Network

IF YOU'VE BEEN considering a home LAN, here's a product that's worth a look: a high-speed wireless LAN boasting top performance and easy installation. I tested one of the first such products—Dell's 11-mbps 4800LT Wireless Network—and had it up and running in less time than it takes to walk my chocolate lab.

Wireless Home LANs

The 4800LT is a peer-to-peer wireless network designed to connect as many as 15 PCs at distances up to 150 feet. It's available as a PCI add-in card for desktops ($179) and as a PC Card for notebooks ($139); bundled Sygate software enables you to share an Internet connection across the network. For now, this setup requires you to use one of the PCs as an Internet server. But this summer Dell expects to ship the 4800LT Base Station, a stand-alone wireless gateway permitting Internet access from any PC that's equipped with the 4800LT wireless LAN card. Pricing on the base station, which will include both a built-in 56-kbps modem and a network card for cable or DSL connections, wasn't available at press time.

CAN-DO LAN: Dell's 4800LT Wireless Network

Dell supplied us with a Dimension desktop PC and an Inspiron notebook, both equipped with preinstalled 4800LT cards and software. The desktop version has a 4-inch flexible antenna, which screws into the rear of the card. The PC Card's antenna is integrated into a small module that extends an inch outside the notebook case.

In my tests, both systems connected to each other automatically after start-up, and I could transfer files, run applications remotely, and access the Internet, all while roaming around inside my home at distances up to about 50 feet. Data transfer speeds were comparable to those of a standard ethernet-wired 10-mbps network. The system is supposed to work outdoors, too. But I hit a snag in attempting to test the LAN at greater distances because the outside air temperature hovered just above zero in my New Hampshire location, and the notebook stopped working within a couple of minutes. It became a truly frozen PC. Perhaps poolside in California, it could display its open-air talents to better advantage.

To test ease of installation, I put the PCI version of the 4800LT into a Quantex desktop PC. Dell has taken a comprehensive approach to simplifying this procedure, providing a how-to video on the setup CD-ROM, and an excellent step-by-step manual. Software setup is to a large extent automatic, and the product takes care of otherwise-difficult network steps such as establishing Internet sharing. And with just a couple of mouse clicks, you choose the drives and printers to be shared. We were up and running about 15 minutes after opening the PC—half the time the job took with other wireless and home phone-line networks we've tested.

Dell has brought the assembling of a high-speed wireless LAN within the grasp of the average PC user. Dell; 800/388-8542; www.dell.com

—Stan Miastkowski

IS WIRELESS BETTER?

OF THE OPTIONS available, a wireless LAN offers the most convenience and freedom—you can share an Internet connection, send files to the PC or printer in the downstairs office, and even read e-mail on your laptop out on the patio without hassling with wall connections. The only negatives: Wireless can be expensive—up to $180 for each PC's adapter. And a standards war is brewing, so you need to understand the pros and cons of the competing technologies and choose wisely.

Last year, the first wireless 2-mbps networks for consumers arrived, based on proprietary schemes from a handful of vendors. This year, wireless networking kits for the home will come from numerous companies in one of two flavors: Wi-Fi (also known as 802.11b) and HomeRF.

Kits based on the heavy-duty Wi-Fi ethernet standard can transmit data at up to 11 mbps, as fast as your office network. By the second half of the year, expect Lucent and others to offer home Wi-Fi products.

We tried Dell's 4800LT kit, one of the first Wi-Fi kits for home PCs. Dell's easy setup and speed wowed us (see "A Fast, Friendly 11-mbps Network" at left).

By June, the first kits based on HomeRF, a competing (and incompatible) wireless standard, are expected to ship from Compaq, IBM, Intel, and Proxim. Like Wi-Fi, HomeRF lets you wirelessly network your PCs at distances up to 150 feet. But HomeRF transfers data at a much slower pace, 1.6 mbps. HomeRF's main advantage is its lower price: Adapters will cost as little as $99 apiece.

So which type of wireless network is for you? If you want to buy now, a Wi-Fi network may be worth the extra the end of the year, this option will look even better: We expect to see 100-mbps kits that should blow away every other type of home network.

This year, Net developments and broadband demand could make a home network more tempting. The Internet will soon supply even more of our information and entertainment. In May, Clickmovies.com will launch the first extensive selection of downloadable, pay-per-view movies. Blockbuster is expected to follow suit by the end of the year. Everyone in your household will be clamoring for separate broadband access. When you shop around for a solution, you may be pleasantly surprised. Home networking kits will be sold in a wider range of speeds, features, prices, and standards than ever before.

PHOTOGRAPHS: ROBERT CARDIN; ICON: MATSU

money, assuming each person in the household has a PC, shares several peripherals, and uses a DSL or cable modem to download and circulate large audio and video files. But if you're on a budget and have less-demanding data needs, consider HomeRF, which can handle most data-sharing chores and costs less.

If you wait until summer, competition will heat up and prices for the high-speed products should drop. That's when vendors are expected to introduce the first HomeRF kits capable of 10-mbps data transfers—almost as fast as Wi-Fi.

GATEWAYS TO THE FUTURE

ONCE YOU HAVE a network and a high-speed Internet connection, you'll probably want to connect them, so everyone in your house can share the broadband wealth. This year computer makers, cable providers, and phone companies will begin offering a device called a residential gateway. This product is a consumer-friendly variation on the complex, heavy-duty routers and gateways used in businesses to connect and manage different types of networks and Web connections.

A start-up called 2Wire will be offering HomePortal, one of the first residential gateways to reach market. This $299 silver-and-black barbell-shaped box incorporates a DSL modem and a port for connecting to a phone-line network. It also has USB and ethernet connections, a firewall, and browser software that links to an online area where you can set up a family calendar. 2Wire says that once the requisite services and appliances are available, the device will include more esoteric features, such as management of home appliances to save on energy costs.

And according to a Cisco Systems spokesperson, in the first half of this year Cisco will provide regional phone company GTE with a residential gateway box for its customers. The box will include a DSL modem along with a phone-line home network connection.

Well-known PC makers will weigh in, too. This summer Dell expects to sell a base station—with a built-in 56-kbps modem and a broadband connection—for its wireless network.

Meanwhile, Panja, a Dallas-based company, is selling one of the first residential gateway products designed primarily to organize and deliver music and video to home enter- ▶

Site to See: GainsKeeper.com

FOR INVESTORS wrestling with their federal tax return, completing a Schedule D that calculates capital gains and losses is a grim ordeal. To ease your pain,

try the GainsTracker service at www.gainskeeper.com: It monitors material changes to U.S. equities and creates a realized capital gain/loss report that you can use to prepare the harrowing Schedule D. As of March, the service will cost $35 a year.

An Early Look at Home Net-Tainment

THE PANJA 1000 arrives in a cardboard package labeled "The Ultimate in Web Lifestyling"—a heretofore unknown mode of existence. The snazzy multipiece system lets you display or play Internet content on your TV and/or stereo. But with costly, tricky setup requirements, a limited range of content, and a $2500 price, the Panja 1000 is not a change in lifestyle most people will be adopting anytime soon. The Panja 1000's hardware includes two 17-by-10-by-1-inch boxes that would look at home in most stereo cabinets. The remote-control unit has a 6-inch color touch screen. The product is designed to let you view news, sports, and stock info on the remote-control unit, or play streaming music and video on your stereo and/or TV.

But caveats abound. First, you must have high-speed Internet access—DSL or better.

And you need multiple IP (Internet Protocol) addresses. This usually means paying extra to your Internet service provider.

You have to plug the product into a router or home network hub via included ethernet cables. Panja's illustrated manual capably guides you through the somewhat complicated installation. After hooking up the power and myriad cables, you must go to Panja's Web site to enter TCP/IP settings and other information.

I found that I could get headlines, sports, and stock prices on my remote-control unit, but I couldn't check the quality of the music and video because Panja's content-provider partner was on the blink. Right now, content consists mostly of rebroadcasts of radio programs, MP3 tracks from small independents, and movie trailers. But we'll almost certainly see more streaming-media offerings in the course of the next few years, and Panja executives expect that the system's price will dip to $1000 a year from now. So while most people will probably pass on the Panja 1000 for the moment, the system may well foreshadow the Internet's impact on home entertainment in the years to come. Panja; 877/370-9598; www.panja.com

–Yardena Arar

PANJA 1000: A glimpse into the future?

Now You're Cooking

I HATE WAITING for my PC to boot just so I can check e-mail. And I would love having a TV in the kitchen. So CMi Worldwide's ICEBox sounded like an Internet appliance after my own heart. How could I resist a 9-inch Samsung TV with a one-button Internet connection, a built-in CD player, and a cooking video thrown in to ice the cake?

I looked at a beta version of the ICEBox, set to ship in July for $499, and found it almost as tempting as dinner out. The petite, putty-colored ICEBox weighs 16 pounds and takes up about a square foot of counter space. The front has buttons for adjusting volume, changing TV channels, and controlling the CD player. The wireless keyboard and handheld remote are encased in food-proof plastic.

Peanut-butter-and-jelly sandwich in hand, I put the ICEBox through its paces. Setup is simple: Plug its cables into a wall outlet, a phone jack, and your cable connection (or use the included TV antenna). Then sit back to control and flip among the Internet, TV, and CD modes.

Pressing the Internet button takes you directly to CMi's portal—a site with six colorful AOL-like channels for e-mail, news, shopping, and culinary tips, among its various topics. You're stuck with the company's portal as your home page, but from there you can venture anywhere you like on the Web.

REALITY CHECK

Infoappliance

The TV picture on my ICEBox looked good, and music CDs sounded fine on the petite 4-inch built-in speakers (the bass might have been deeper). I could easily become addicted to cooking videos. It was très fun watching the chefs in CMi's Essential Techniques CD-ROM prepare dishes like Steak Marchand de Vin.

Would I buy the ICEBox? Maybe. Five hundred bucks seems like a pretty low price to pay for a portable TV, a CD player, and quick Internet access. But I can't see going back to a 33.6-kbps modem, and I'm not crazy about using an Internet service provider somebody else (namely, CMi) chooses and then paying a second subscription fee on top of the one that I pay for service on my primary computer.

It's too bad. E-mailing my friends, catching *ER*, and listening to my favorite CDs was beginning to sound like a painless way to watch the stove. CMi; 800/897-8554; cmiworldwide.com

CMI'S ICEBox keeps the chef company.

–Carla Thornton

tainment systems—without requiring a PC. Though the $2500 product is pricey, it provides a glimpse of where this technology is heading (see "An Early Look at Home NetTainment," page 51).

HOME ENTERTAINMENT

THE INTERNET (or any network) is only as handy as the devices that connect to it. The big news this year will continue to be information appliances. These inexpensive products dispense with boot-up procedures, hard drives, and other sources of standard PC hassles to give you a lightning-fast way to hook up to the Internet or, in the future, to a home LAN.

Some products will focus on entertainment. For instance, by year's end Virgin Entertainment will offer a limited number of Net devices designed for listening to RealAudio sound clips. The Virginconnect Webplayer will have a 10-inch screen, a 56-kbps modem, stereo speakers, and a headphone jack. For $100, you get the device, three years of Internet service, and discounts at the music giant's Web site.

At least two other companies hope that stand-alone Internet radios will soon be as common on countertops as toasters. The $300 Kerbango Radio features an art deco-ish look and plays both streaming audio and MP3 files. AudioRamp.com's $399 IRad has similar capabilities but can also play CDs. Both are expected to ship this spring.

CMi's ICEBox (more formally known as the Information Communication Entertainment Box), expected to ship this summer, is designed for the kitchen. The $499 machine consists of a small portable television, one-button Internet access, a CD-ROM drive, and a food-proof keyboard. (For more on the ICEBox appliance, see "Now You're Cooking" at left.)

A more-expensive version will sport a 12-inch LCD screen that attaches to the underside of a kitchen cabinet like a roll of paper towels. This flip-screen product will include bigger stereo speakers, a DVD player, and an ethernet connection (so you can use a cable or DSL modem instead of the built-in 56-kbps model). The device looks like a slick candidate for upscale kitchens, but it will sell for a jaw-dropping $2200.

By April, Acer is expected to sell an information appliance based on Microsoft's MSN Web Companion specification. The machine, about the size of a laptop, will be preconfigured with MSN, Hotmail (the Web-based e-mail service), and a version of the Windows CE operating system. When turned off, it can display any digital photograph that the user chooses. The Acer device is expected to sell for $199.

The Web Companion has competition. Late this spring look for Web tablets—portable Internet-access devices designed to be carried around the house—that run on the Linux operating system and use processors from start-up Transmeta (see "Transmeta Takes On Intel—Chips to Power Unique PCs," page 62).

And if electronic games are your bag, look soon for your choice of Internet-enabled consoles from such well-known companies as Sega, Sony, and Nintendo. First out

PHOTOGRAPHS: ROBERT CARDIN; ICON: MATSU

of the gate is the $199 Sega Dreamcast, which last fall became the first console users could connect to the Internet for browsing and e-mail. Sega was scheduled to add a head-to-head Internet gaming capability on March 2. Eventually, you'll be able to upgrade the device's 56-kbps modem for broadband. As for Nintendo, its next-generation console, due out by the winter holidays, will feature Net access and a DVD player. Finally, Sony's Playstation2 will debut in the United States by this fall and is expected to add broadband Internet access at a later date.

IT'S A WIRED, WIRED WORLD

IN THE WIRED home of five or ten years from now, futurists predict, all devices—PCs, TVs, utilities, and even kitchen appliances—will be connected (see "Clock to Coffeemaker: Let's Talk," below). But exactly what technology this ubernetwork will use and whether consumers will care seem to be anyone's guess. Microsoft says its Universal Plug and Play protocol, which debuted in the Windows Millennium Edition operating system, will patch together the disparate mini-networks our homes have. Arch-rival Sun Microsystems is developing a competing networking technology called Jini.

> BeComm's routing software will let you take **phone calls on your TV set** or call your VCR and have it show **videos on your PC** at work.

BeComm offers the most intriguing vision. The company's media routing software not only will connect all electronic devices, it also will let them act as conduits for one another. As a result, you'll be able to take telephone calls on your television set, view the contents of your PC's hard drive on your palm-top device, or phone your VCR and have the video appear on your PC at work, says BeComm founder (and ex-Microsoft engineer) Edward Balassanian. The first BeComm-based products are expected by the end of 2000.

For now, shopping carefully can save you time, money, and aggravation. When you are ready to network your home PCs, be sure to buy all your products from a single well-known vendor. That way you won't accidentally mix incompatible networking components. And if you plan to install a broadband connection for your home network, ask your provider which gateway products will involve the least amount of hassle. Remember: Getting broadband up and running is a task in itself; connecting it to a home network can increase the complexity exponentially. If you just want simple, inexpensive access to the Internet from different rooms in your house, you can bypass the LAN altogether and consider an Internet appliance.

Then kick back and enjoy your first foray into the networked home of tomorrow. This summer, your refrigerator may not yet be smart enough to warn you that you are running low on Ben and Jerry's, but checking your e-mail wirelessly from a deck chair is a pretty good start. ▶

Top PC World Downloads

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456KB, 32,882 downloads. Addresses Windows 98 Second Edition shutdown problems for specific PC configurations.

2 WinZip 8.0
944KB, 31,514 downloads. Newest version of the popular compression/decompression utility.

3 RAM Booster
9.25MB, 30,041 downloads. Free utility lets you monitor the amount of RAM in use and alerts you to some memory problems.

4 All Icons
3.66MB, 23,768 downloads. More than 4000 full-color icons for Windows 95.

5 Internet Explorer 5.0, 5.01 Beta
586KB, 23,453 downloads. New Version includes expanded support for Dynamic HTML, Java, and Channel Definition Format.

Download files can be found on www.pcworld.com/fileworld/top5.

Clock to Coffeemaker: Let's Talk

O, BRAVE NEW WORLD, where alarm clocks have modems, and microwaves surf the Web! That's right: appliances that connect to the Internet will be in stores within 12 months.

Sunbeam, maker of the esteemed Mr. Coffee, has announced the most impressive lineup. The company plans nine interconnected appliances, led by a smart alarm clock called TimeHelper. Among its other talents, TimeHelper can beep when Sunbeam's Smart Coffeemaker runs low on water. TimeHelper can also use Internet-derived traffic reports to set your alarm to an appropriate hour and automatically turn off your electric blanket. The appliances communicate over your home's electrical wiring using built-in chips. TimeHelper will cost between $40 and $80.

Electrolux, GE, and Whirlpool are betting that the fastest way to convert families to Net-surfing kitchenware is through their stomachs. Their Internet-enabled refrigerators will track grocery lists, monitor diets, and shop online. Wireless touch screens on the fridge door will let families surf, watch TV, and listen to music. Truly lazy cooks will love Samsung's $600 Intelligent Microwave. Using an onboard database that reads the bar-code labels on packaging, it will download instructions from the Internet and "cook food to absolute perfection."

TIMEHELPER TRACKS coffee, traffic, and your electric blankey.

Still not convinced? One likely selling point is easier maintenance. Companies can monitor their appliances' performance over the Internet and have a repair person at your door with parts in hand before you can shout, "The dishwasher's leaking!"

Nice, but whether you'll want to pay for such convenience is an open question.

–Carla Thornton

Attention Net Shoppers: Cybersales Taxes Loom

ANALYSIS

I RAN UP plenty of bills shopping online this holiday season; I didn't miss the sales tax. That said, I don't want to lose speedy response times from my local fire and police departments, reasonably prompt repaving of my local roads (this century, please), and other local services.

Unrelated issues? No. Increased online spending by consumers has state and local governments worried that a significant drop in a major source of revenue—local sales taxes—will prevent them from delivering the services we all expect. And many government agencies are clamoring to end the ban on interstate Internet sales taxes that we've enjoyed for the past few years.

But taxing the Net will literally take an act of Congress. A 1992 U.S. Supreme Court ruling held that it would be too burdensome for businesses if states enforced sales taxes for out-of-state purchases. The 1998 Internet Tax Freedom Act put a three-year moratorium on Net access taxes (but not on sales taxes). And it created an advisory committee to study electronic commerce and recommend action on various issues, including online sales tax; the committee is due to give its final report April 21.

A PIECE OF THE PIE

HERE IN THE United States, we spent about $20 billion on cyberpurchases last year, according to Forrester Research, more than double the figure for 1998. Projections for the future vary, but nobody doubts that online spending will continue to grow—and state and local governments want a piece of the fiscal action.

Some states aren't waiting for Congress to act. Residents of Michigan and North Carolina are getting a surprise on their 1999 state income tax forms: a line asking them to calculate how much they spent online and pay the appropriate local sales tax. Florida and other states are mulling similar action. These states are merely applying existing laws that let them recoup sales tax revenue lost to out-of-state purchases. Such laws are common; the new twist is enforcing them with consumers. Businesses have paid the fees because it's easy for states to track their purchases; consumers are another matter. Now growing cybersales are prompting some states to try.

> Although **banning Internet taxes** in the short run sounds like a **good idea,** in the **long run** our towns and cities will **pay dearly.**

Have you kept all your online receipts? Probably not—and you have no incentive to do so. That's one reason this approach won't work very well and why Congress may ultimately have to intervene to get money to the states.

Proponents of Internet taxation argue that the Net is the same as any other sales channel and shouldn't be exempt from sales taxes. In fact, we *do* pay sales tax on some Internet purchases. Laws originally created to cover catalog sales require a business to collect the corresponding sales tax if it has a sufficient physical presence, or *nexus,* in a state.

WHY NOT TAX THE NET?

NOT SURPRISINGLY, many Internet businesses go to great lengths to avoid nexus status in high–sales tax states. That is one reason Amazon.com keeps many of its warehouses in Nevada (no sales tax), instead of California (up to 8.5 percent), where more of its customers reside. It's also a reason some brick-and-mortar franchises like Barnes and Noble create separate companies to do business online. Otherwise, with stores in virtually every state, Barnes and Noble would have had to process sales taxes on all its online transactions.

Some argue that not taxing Internet sales widens the digital divide. Because the wealthier Americans make more purchases online, does forgoing cybersales tax benefit most those who don't need the break? This won't be the case for long, argues economics professor Alan Auerbach of the University of California at Berkeley. If the wealthy already shop online, where's the growth market? The middle and lower economic classes, he says; ▶

ILLUSTRATION: MATSU

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so imposing taxes now would eventually affect everyone.

But sales taxes are often the most significant source of income for state and local governments. We all rely on local services, and we will all suffer if the regional governments are not able to meet their budgets, argue proponents of Internet sales taxes, such as Republican Governor Michael Leavitt of Utah, who serves on the U.S. Advisory Commission on Electronic Commerce.

LEAVE THE NET ALONE

ADVOCATES OF A continued ban on Internet sales taxes are at least as vocal. They include most of the presidential candidates (see "Where the Candidates Stand," above) as well as Virginia's Republican Governor Jim Gilmore, who heads the electronic commerce advisory committee. Some opponents of Internet taxes favor maintaining the status quo for a few more years; others want a permanent ban.

Those urging a complete and permanent ban argue that government regulation will stunt e-commerce growth and hamper the innovations that caused it to blossom. Governor Gilmore argues that state and local governments suffer no significant revenue loss as a result of online sales. According to a spokesperson, Gilmore also believes that e-commerce bolsters other areas of the economy, enlarging state and local governments' take from such existing revenue sources as income and property taxes and even stimulating local economies so that offline sales tax revenues increase. And Gilmore expects such trade-offs to continue, offsetting future sales tax losses. Economist Shane Greenstein of Northwestern University's Kellogg Business School, however, considers Gilmore's view shortsighted. Tax-free online sales will eventually cut into state revenues, he says. Recent research by fellow economist Austan Goolsbee of the University of Chicago supports Greenstein's view.

LEAVE THE NET ALONE—FOR NOW

ECONOMISTS Greenstein, Auerbach, and Goolsbee agree that a permanent ban is not the answer, and given the revenue potential from Internet transactions, it is politically unlikely. They suggest maintaining the status quo for a few more years.

Hindering Internet growth would hurt the overall economy, which benefits from tech businesses. Online sales figures may seem big, but they represent less than 1 percent of all retail sales and probably won't grow much beyond 2 percent before 2004, Goolsbee says. Imposing Internet sales taxes now, before cybershopping has become widely established, could cause online sales to drop by as much as 24 percent, according to a study Goolsbee conducted.

Also, the bulk of online and offline buying—services ranging from financial transactions to dry cleaning—is already exempt from sales tax. Auerbach and Goolsbee also note that the strongest U.S. economic growth is occurring in the service sector. Taxing services will require a major overhaul of the tax system. That's not on the table—yet.

Maintaining the status quo may give policy makers a chance to examine the issue and various proposals in depth. One plan—supported by many members of the tech community—suggests creating a simplified sales tax system, likely with a single nationwide rate. That solution would streamline the collection task for business, which currently have to deal with 7000-plus tax rates in different regions. Another proposal, supported by Governor Leavitt and the National Governor's Association, would create a set of databases like those used in processing credit card orders, so all businesses could easily calculate the appropriate sales taxes for any order. Regional governments have plenty of incentive to build such databases. But either plan would take time to implement.

NET RESULT

THE PROBLEM isn't simple, and it will only grow more complex as the economy becomes increasingly global. The e-commerce committee is deeply divided over specific proposals and will probably recommend a simple three- to five-year extension of the current moratorium—which means the issue will be left for Congress to resolve or to defer further. The candidate we vote into the White House this year will also significantly influence the course of Internet taxation. We can stall for only so long: As online sales grow, states will demand their fair share. Now is a pivotal time, before we reach a crisis. Consumers probably have one or two more "free" Net shopping seasons left. But as the saying goes, there are only two things in life we can count on: death and taxes (even online).

—Anush Yegyazarian ▶

Where the Presidential Candidates Stand on Net Taxes

Gov. George W. Bush

Awaiting report from committee on Internet taxation; favors extending current moratorium.

REPUBLICAN

Sen. John McCain

Favors a complete ban on Internet taxes.

REPUBLICAN

Vice President Al Gore

Awaiting report from committee on Internet taxation; favors extending current moratorium.

DEMOCRAT

Former Sen. Bill Bradley

Awaiting report from committee on Internet taxation; does not favor imposing taxes immediately.

DEMOCRAT

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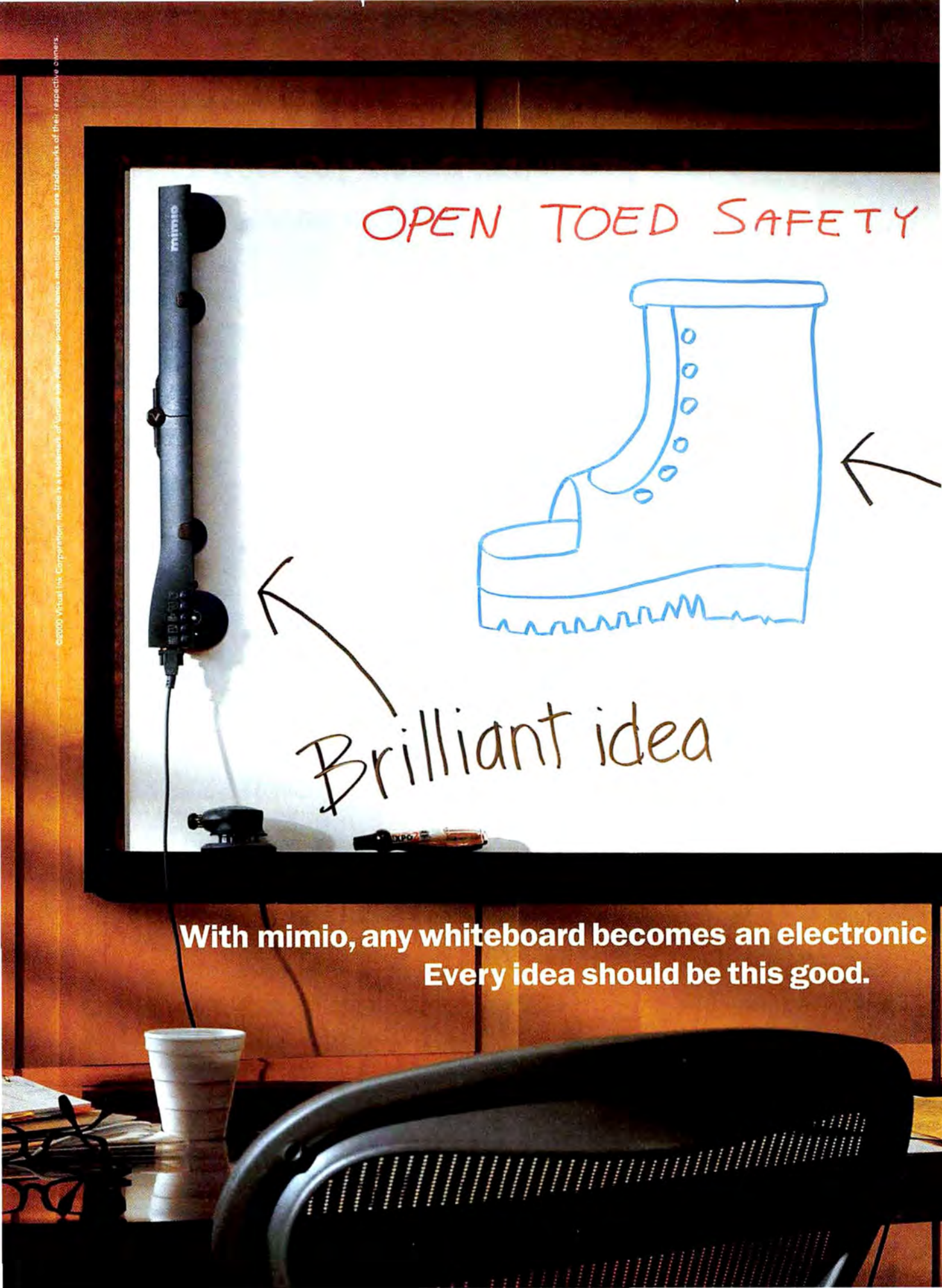

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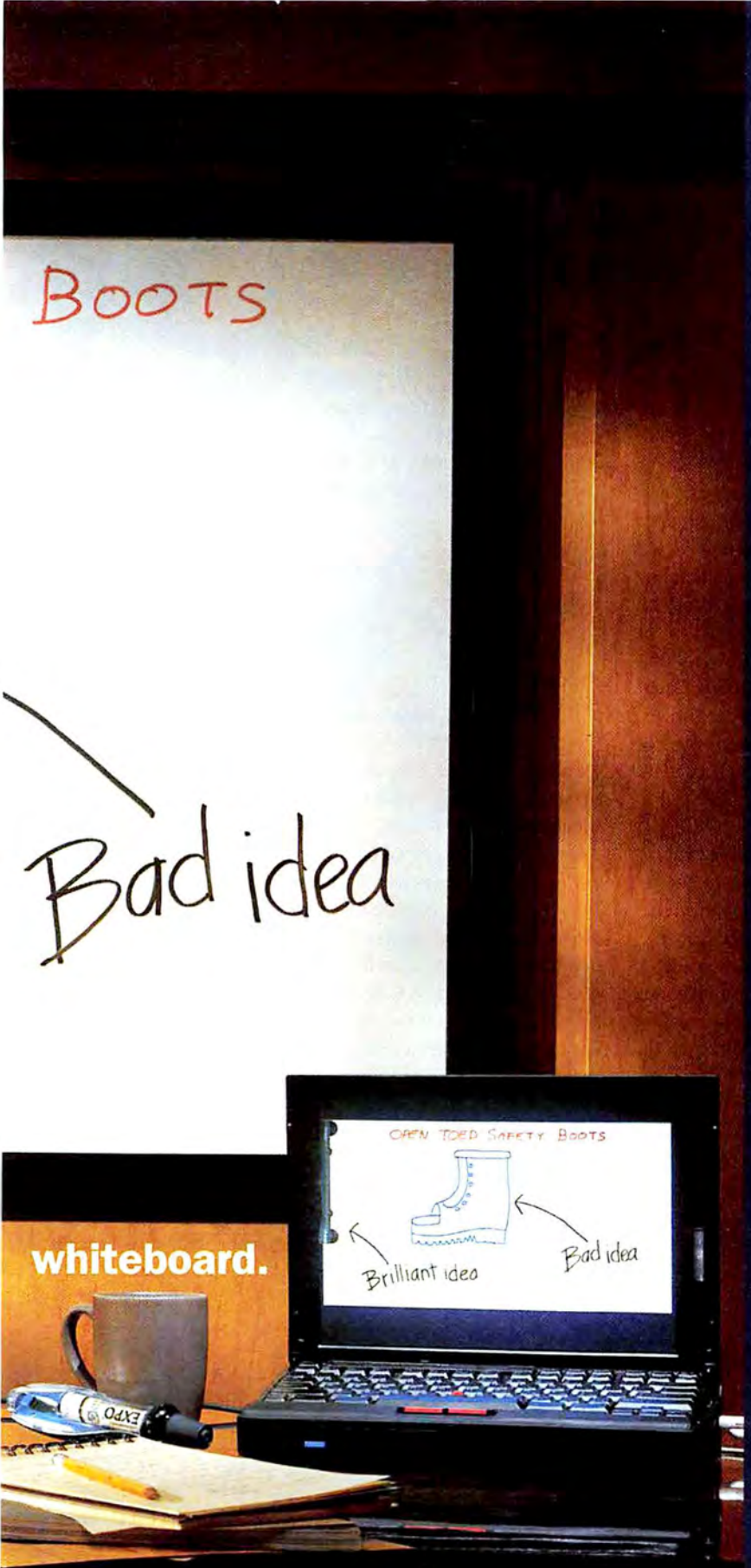

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Off-the-Rack DSL Not a Good Fit Yet

PREVIEW

YOUR SHOPPING LIST: milk, butter, coffee beans, and broadband. Don't laugh. Already, you can pick up a Digital Subscriber Line bundle with a modem and service at some retail outlets. Upcoming deals promise to save time and reduce aggravation by letting you install DSL yourself. And do-it-yourself cable modems are also in the works. But temper your excitement: The reality we experienced was far from trouble-free.

Several national retail chains let you order DSL from their stores. Since November 1999, 3Com Home Connect modems bundled with Bell Atlantic DSL service have been available from some Best Buy, Staples, and CompUSA stores. You can get one of these 3Com modems for $229, or $99 after a rebate. The bundled DSL service costs $50 monthly.

Despite its seeming convenience, the arrangement turned into a fiasco when we put it to the test. The CompUSA clerk said we qualified for service; after we installed the modem, Bell Atlantic said nope—but then changed its tune a week later, an omen of the muddles to come. Two months and 40 exasperating phone calls later, the service still didn't work. The phone line itself went dead for a week and a half. Bell Atlantic dispatched technicians only after we identified ourselves as *PC World* journalists. Company techs arrived the next day and fixed the problem. It was an "isolated incident," says Colson Hillier, Bell Atlantic marketing manager, but DSL installation problems are not uncommon across the nation.

FUTURE OPTIONS

OTHER DSL SERVICES are venturing cautiously into retail. US West has had a retail presence since November at five Denver-area CompUSA outlets, where customers can see a DSL demonstration and order service from a kiosk. Then US West will ship a modem that the customer can install independently. US West spokesperson Barry Hawkins says 93 percent of the service's retail DSL customers save up to $150 by installing the modems themselves—and 86 percent finish the job. US West won't charge for a technician if you've made a good-faith effort to do it yourself.

America Online and Gateway have joined forces to sell do-it-yourself AOL Plus DSL service. The program began in December, though it is available through only two Gateway Country stores thus far. The staff checks whether you qualify for DSL, records your service order ($42 a month), and ships you the $99 USB modem. Free installation help is available by telephone.

Microsoft, NorthPoint Communications, and Tandy (Radio Shack) intend to bundle DSL modems and DSL-equipped PCs with MSN Internet Access and NorthPoint service. They'll announce pricing when the service debuts in early spring. Activation initially will include installation, but "ultimately we will have user installations," says NorthPoint Communications' Jim Monroe.

Retail broadband still has a long way to go. For now, do-it-yourself installation remains chancy. "There's no guarantee that you can install DSL on your own," says Laurie Falconer, DSL analyst at TeleChoice. As with any new technology, patience and realistic expectations are advised.

—*Eric Brown* ▶

ILLUSTRATION: JEFF BERLIN

Beware of New No-Cost Broadband Options

THE CHEAPEST DSL service costs $42 monthly, but soon you may get it for free—or more precisely, in exchange for sharing demographic information and looking at ads.

In January, Broadband Digital Group opened registration on FreeDSL.com. In exchange for the free service, you accept a permanent browser window containing advertisements on your screen. Southern California Internet service provider Staruni is launching a similar free, ad-supported DSL service via its whattup.com portal this year. In New York, INYC (inyc.com) plans a free DSL service based on reward coupons—you click on banner ads. And free dial-up vendor Smart World Technologies (freewwweb.com) introduced an ad-supported service, FreeXDSL.

Analysts are skeptical about free broadband. The services seem like marketing gimmicks to get consumer information, says Joe Laszlo of Jupiter Communications. Moreover, the viability of free DSL services remains a question. If the service goes under and disappears, that's no bargain.

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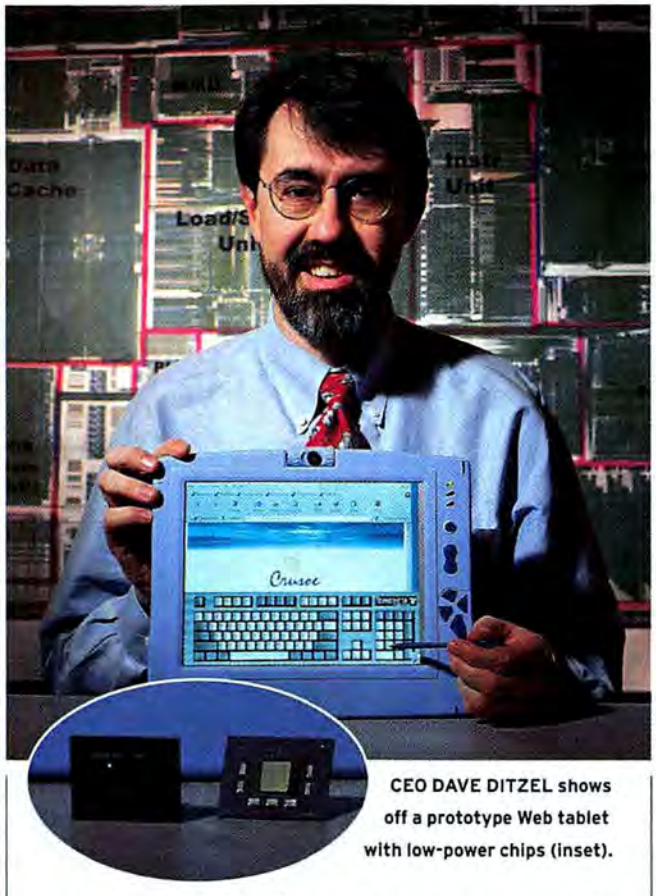
Transmeta Takes On Intel—Chips to Power Unique PCs

NEW TECHNOLOGY

FOR ALMOST FIVE years, Transmeta has been a Silicon Valley enigma. The well-funded start-up firm said virtually nothing about its product plans. But in January the company lifted the veil on two innovative, low power microprocessors for notebook PCs and Web appliances. If Transmeta keeps its promises, you'll soon be seeing some very interesting machines.

Transmeta's new line, codenamed Crusoe, begins with the TM3120, a chip designed to fuel the emerging category of Web tablets—inexpensive Net-access devices. Not surprisingly, since Linux developer Linus Torvalds is an employee, Transmeta has also developed a mobile version of that OS. Transmeta-based Web tablets, running at about 400 MHz, should appear soon: S3's Diamond Multimedia group plans to ship a product by midyear.

The Transmeta 700-MHz TM5400 will power thin and light notebook PCs with exceptional battery life—one benefit of Transmeta's radical approach to CPU design.



CEO DAVE DITZEL shows off a prototype Web tablet with low-power chips (inset).

THE DESIGN SECRET

RATHER THAN design a chip like Intel's Pentium III or AMD's Athlon that directly executes x86 instructions, Transmeta created a very-long-instruction word processor. Code-morphing software translates x86 instructions into the VLIW chip's instruction set. From the PC user's perspective, a Transmeta chip is simply an x86 chip that runs today's standard applications. But from the processor designer's and manufacturer's perspectives, this approach has several advantages.

The complexity of the x86 instruction set is shifted to software, allowing the chip to remain small, which reduces cost and power consumption. This approach also lets Transmeta improve its instruction set later, while retaining compatibility with existing apps.

Software translation isn't a new idea, but prior products have been plagued by poor performance. Transmeta's design emphasizes quick, efficient software translation. Some speed is sacrificed, but the company claims that its 700-MHz chip will perform at least as well as a PIII-500.

The Crusoe CPUs will use far less power than their peers. Transmeta says its chips will consume only 1 to 2 watts, compared with 8 to 16 watts for other mobile x86 processors in the same performance range. The simpler microprocessor core helps, as does an integrated DRAM controller and PCI bus interface. Perhaps most notably, the chip uses an advanced form of power management that Transmeta calls LongRun.

LOW, LOW POWER

LIKE INTEL'S SpeedStep technology, used in the recently launched mobile Pentium-III chips, LongRun reduces the chip's power-supply voltage and its clock frequency to cut power consumption—but in a much more sophisticated way. SpeedStep has two modes, low power and high performance, and it switches from one to the other based on whether AC power is available (unless the user intervenes). LongRun dynamically chooses among as many as 16 voltage and speed levels.

The code-morphing software helps determine how much performance is needed. When you work in an e-mail program, for example, the processor is usually simply waiting for you to press a key, so the Crusoe automatically drops to its lowest voltage and speed during this time. When you play a DVD movie, a relatively demanding task, the processor moves to a higher power level. Transmeta's power advantage will translate into longer battery life, systems without fans, and lighter systems with smaller batteries.

Unlike AMD, which is trying to challenge Intel across the breadth of the PC market, Transmeta has picked a market segment—low power—where its technology promises a dramatic advantage. If all goes well, the all-day notebook should arrive this fall.

—*Michael Slater*

Michael Slater (michael@mslater.com) is founder and principal analyst at Cahners MicroDesign Resources (www.mdronline.com), where he serves as executive editor of Microprocessor Report. ▶

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Two Ports in a Storm: FireWire and USB 2 Vie to Replace Stodgy Parallel, Serial Hookups

THE SPEEDY port technology known as IEEE 1394 or FireWire is not exactly a household name: Digital video camera vendors quickly adopted the standard, but mainstream PC peripherals (such as scanners) that incorporate it are only now shipping. The impending release of USB 2 products–which will work faster than today's USB peripherals–pits the two technologies against each other. Which is right for you? We examined two new 1394 scanners from Epson and Umax, and checked in on the standards battle.

As expected, the 1394 scanners we tested outran SCSI models. If you're a graphics pro or if you edit video, 1394 devices make sense. They're plug-and-play but offer more speed than USB. However, USB devices cost less.

Perhaps as soon as March, the USB 2 specification will be final; products will ship by the year's end. This spec brings transfer speeds up from the current 12 mbps to a whopping 480 mbps. The spec for an improved version of 1394, called 1394b, will be ready at about the same time as USB 2; it raises transfer rates to 800 mbps—double the rate of current 1394 devices.

DIFFERENT STRENGTHS

WHICH TECHNOLOGY will PC and peripherals makers prefer? USB enjoys an advantage because it's already ubiquitous in new desktop and mobile PCs. The greater cost and complexity of 1394 limit its appeal to use with peripherals that need speed desperately, such as external hard drives, scanners, digital camcorders, and digital cameras. (And the cost of the technology isn't likely to drop soon.)

Business peripherals like printers and speakers simply don't require 1394's speed. Given USB 2's improved power and USB's installed base, camcorder makers and others may be swayed to offer USB 2 versions of their products.

But 1394 has its advantages. First, 1394 transfers don't have to pass through a PC. You can directly connect 1394 devices—say, hook up a stereo to a DVD player to a TV and a set-top box. The consumer electronics market is taking note, and such devices are a natural fit with camcorders that already use 1394. Some vendors showed new FireWire products such as high-end speakers and audio receivers at January's Consumer Electronics Show in Las Vegas.

THE 1394 TEST

THE $1399 Epson Expression 1600 Pro FireWire and $999 Umax PowerLook 1100 scanners we tested aren't for casual home use. We compared both with Umax's $799 PowerLook III, a SCSI-2 model. (SCSI, an interface that works at 5 MBps, is the current standard for high-end scanners.)

SCANNERS, MAKE WAY FOR 1394: Epson's FireWire scanner zips through complex pages.

Using a system equipped with 128MB of RAM and Windows 2000, we scanned four images with each scanner's bundled software, at resolutions ranging from 75 dpi to 1200 dpi. The 1394 models took 4 or 5 minutes to scan a high-resolution, 8.5-by-11-inch color page with text and graphics; the SCSI model took about 7 minutes. The 1394s finished a few seconds faster than the SCSI on a 75-dpi, 5-by-7-inch color photograph—the kind you might put on a Web site. On two other scans, the SCSI model completed the job more quickly; that result may be related to software and driver optimization.

YOUR BEST STRATEGY

USB 2 WILL show up in desktop computers no later than December. Since the technology costs approximately the same as USB 1.1, printer and scanner vendors will quickly upgrade. USB 2 is backward compatible with today's USB peripherals.

As for 1394, a few more home PC vendors are using it. Compaq, Sony, and Apple already do. Look for 1394 ports in Dell Dimensions and HP Pavilions within the next few months. People anticipating connecting PCs to audio and video consumer electronics products should look for a PC with a 1394 port ($100-range 1394 add-in cards are also available). The rest of us can simply look forward to USB 2, which many machines (including Dell's and HP's) will sport as soon as it's ready.

—*Anush Yegyazarian* ▶

Epson Expression 1600 Pro FireWire
Street price: $1399; Epson; 800/463-7766; www.epson.com

Umax PowerLook 1100
Street price: $999; Umax Technologies; 800/562-0311; www.umax.com

PRODUCT INFO NO. 701

PHOTOGRAPH: ROBERT CARDIN

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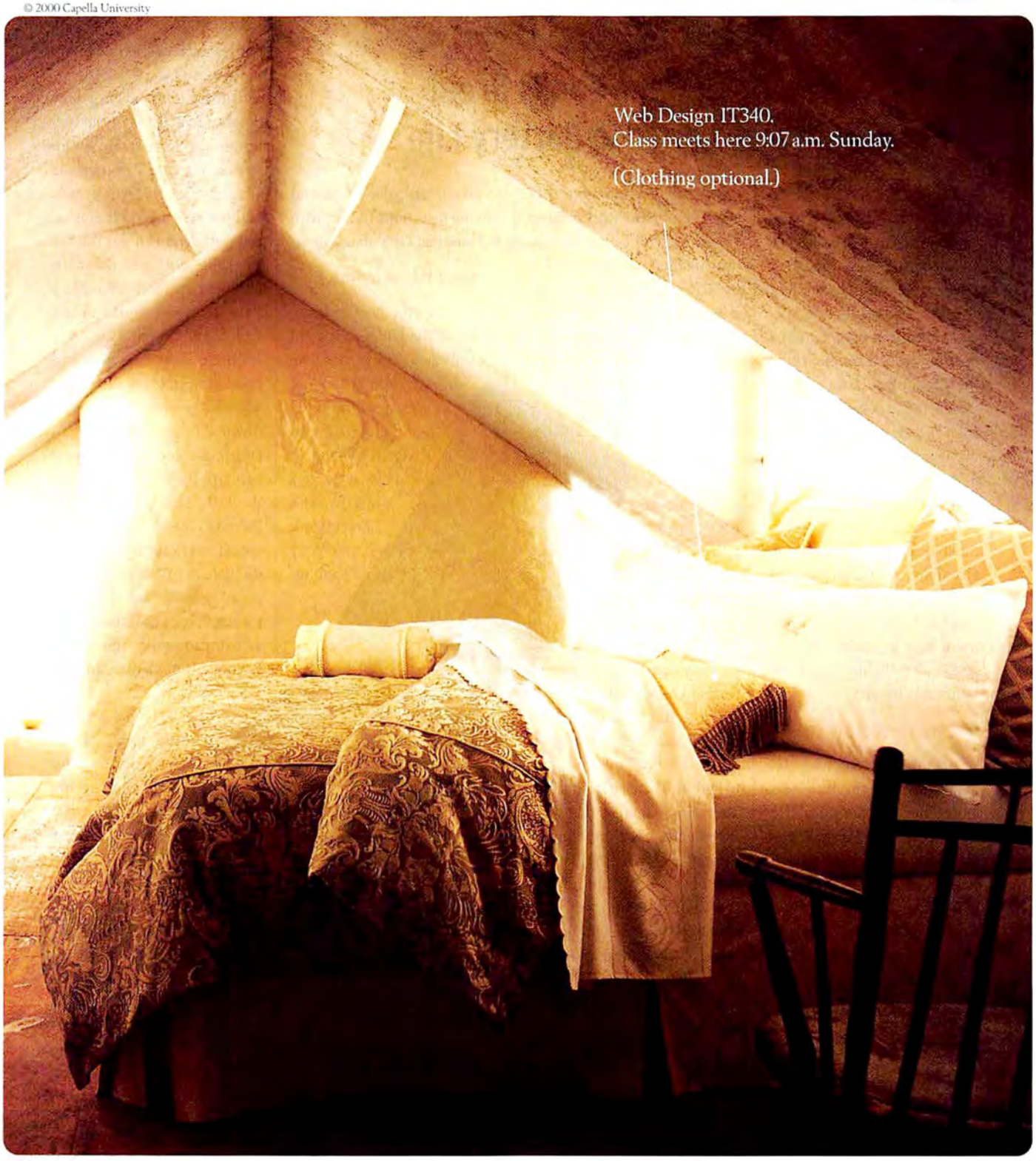

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New Color Palm Looks Great But Pays a Price in Battery Life

PREVIEW

PALM PERSONAL digital assistants already cram a date book, an address book, a calculator, an expense report generator, and an e-mail reader into a device not much bigger than a deck of cards. What else could these popular PDAs remove from your pockets? Try the color photos in your wallet.

The latest, greatest addition to the 3Com Palm family, the Palm IIIc sports a 256-color active-matrix screen that's much brighter and more readable than displays on previous monochrome units. But at $449 list, the Palm IIIc costs more than any of its siblings, and is also slightly larger and noticeably heavier.

BETTER POWER

YOU'LL NO LONGER be able to buy replacement batteries at any corner drugstore: The IIIc, like the svelte Palm V and Palm Vx, uses a rechargeable lithium ion battery instead of the AAAs that power other Palm IIIs and older Palms. And 3Com estimates that the IIIc can go only two weeks between charges, compared with four weeks for the Palm V. (Other Palm IIIs run about six weeks before the AAAs must be replaced.)

Palm IIIc, IIIxe Handheld Computer

List price: Palm IIIc $449, IIIxe $249

Palm

800/881-7256

www.palm.com

PRODUCT INFO NO. 700

But users who frequently sync their Palms with desktop PIMs may not mind the battery-life hit: Like the Palm Vs, the IIIc recharges during synchronization, with power coming from an AC adapter that's hooked up to the HotSync cradle's serial port plug.

The IIIc's software bundle includes a backgammon game and a calculator with color-coded keys. A photo album app has a desktop component for converting images to Palm's proprietary compressed file format before you transfer them to the Palm IIIc. Images on the 160-by-160-pixel display are bright and pleasant to look at. The size is right too: The sample images that were included in my shipping unit occupy less than 50KB each. Of course, multiple images can soak up memory quickly. Fortunately, however, the IIIc packs 8MB of memory—twice as much as the Palm IIIx and four times more than most other models.

You'll soon be able to use the IIIc to take pictures, too: Kodak's $149 PalmPix digital camera, due to ship in April, , will snap onto the Palm IIIc's HotSync port to let you take pictures on the fly—a feature insurance adjusters and realtors might like. And for getting around, Rand McNally's upcoming $179 StreetFinder GPS will allow Palm IIIc users to download color maps and driving directions for use with the bundled GPS attachment.

NEW PALM TRICKS

COLOR IS THE central innovation of the IIIc, but it's not the only one. The device also boasts Palm OS 3.5, an incremental upgrade that delivers several useful tweaks. A new Agenda view for the Datebook lists your appointments and to-do items for the day. You can quickly duplicate address entries (useful if you want to add contact info for several people from the same company). You can access drop-down menus within Palm apps by tapping the top of the screen (before, you had to tap an icon at the bottom to see the menu bar).

PUT A RAINBOW IN YOUR POCKET: The Palm IIIc's bright 256-color screen looks great but shortens the PDA's battery life.

You now have the ability to password-protect individual entries such as memos or appointments, access context-sensitive command strokes by tapping new icons at the bottom of the screen, and set up snooze alarms. The upgrade supports fast HotSync speeds and hot-syncing via the infrared port. You can get the OS upgrade without color in another new model, the $249 Palm IIIxe—essentially a IIIx with 8MB of memory.

These new Palms—and price cuts in older devices—address the competition. Windows CE palmtops began sporting color screens a year ago, but they're heavier than the IIIc. And Handspring's Palm OS–based Visor made a splash last fall by undercutting the Palm's prices while incorporating some of the improvements Palm just added, such as extra memory, the sharp-looking off-black case, and the Agenda view.

The IIIc and IIIxe should satisfy Palm aficionados who had been eyeing competitors' innovations with envy—and who have deep enough pockets to satisfy their every gadget urge. But for owners of other recent Palms, unless they work with photos in the field, need extra memory, or want a more readable screen, neither the IIIc nor the IIIxe is a must-have (especially since a free OS upgrade to version 3.5 is coming for most Palm IIIs and both Palm Vs). Still, it's comforting to know that even with a PDA market share in excess of 75 percent, the folks at Palm aren't taking their loyal following for granted.

—*Yardena Arar* ■

PHOTOGRAPH: ROBERT CARDIN

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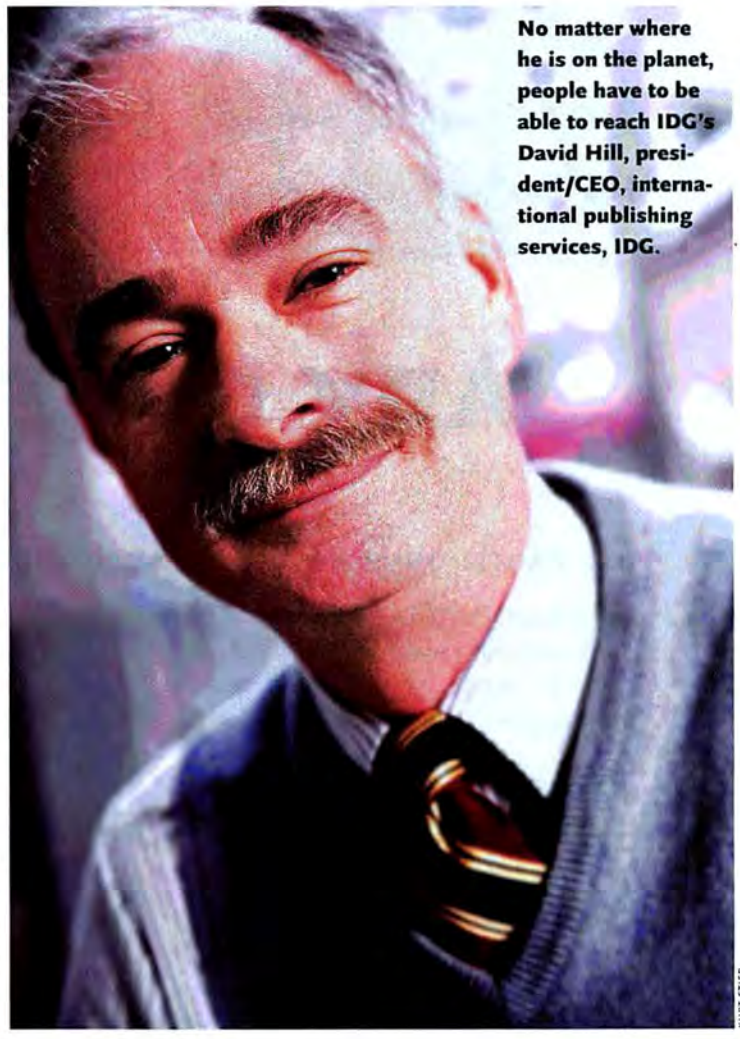
When today's professionals find themselves abroad, they must confront a unique set of mobile computing challenges



No matter where he is on the planet, people have to be able to reach IDG's David Hill, president/CEO, international publishing services, IDG.

KURT STIER

ALTHOUGH IT'S BECOME easier than ever before to fetch e-mail and stay connected in foreign lands, there are still many potholes along the way. Doing your homework ahead of time can save a lot of hassles later on.

The most pervasive problem, veteran road warriors explain, is getting connected from the hotel room to the Internet Service Provider (ISP), or to whatever outside server or telephone line you need to access your e-mail and stay in touch with co-workers and clients.

"The most frustrating thing I've experienced is when you can't make the connection," says Martyn Roetter, vice president of communications technology at Arthur D. Little in Cambridge, Mass., and a road warrior who travels about half-time. "The quality of the circuit is so bad—it's very variable," he says.

DO YOUR HOMEWORK

So, how do you connect on the road? The best advice is to have researched multiple access points: local ISPs in whatever city you're traveling to; local phone numbers provided via your multinational ISP such as AT&T, CompuServe, Sprint, and America Online; or the direct-dial phone number of your company's e-mail serv-

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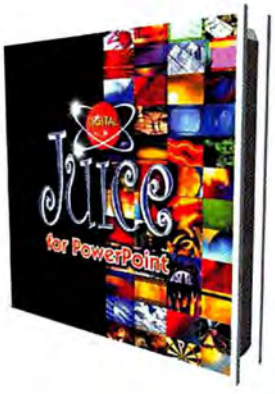

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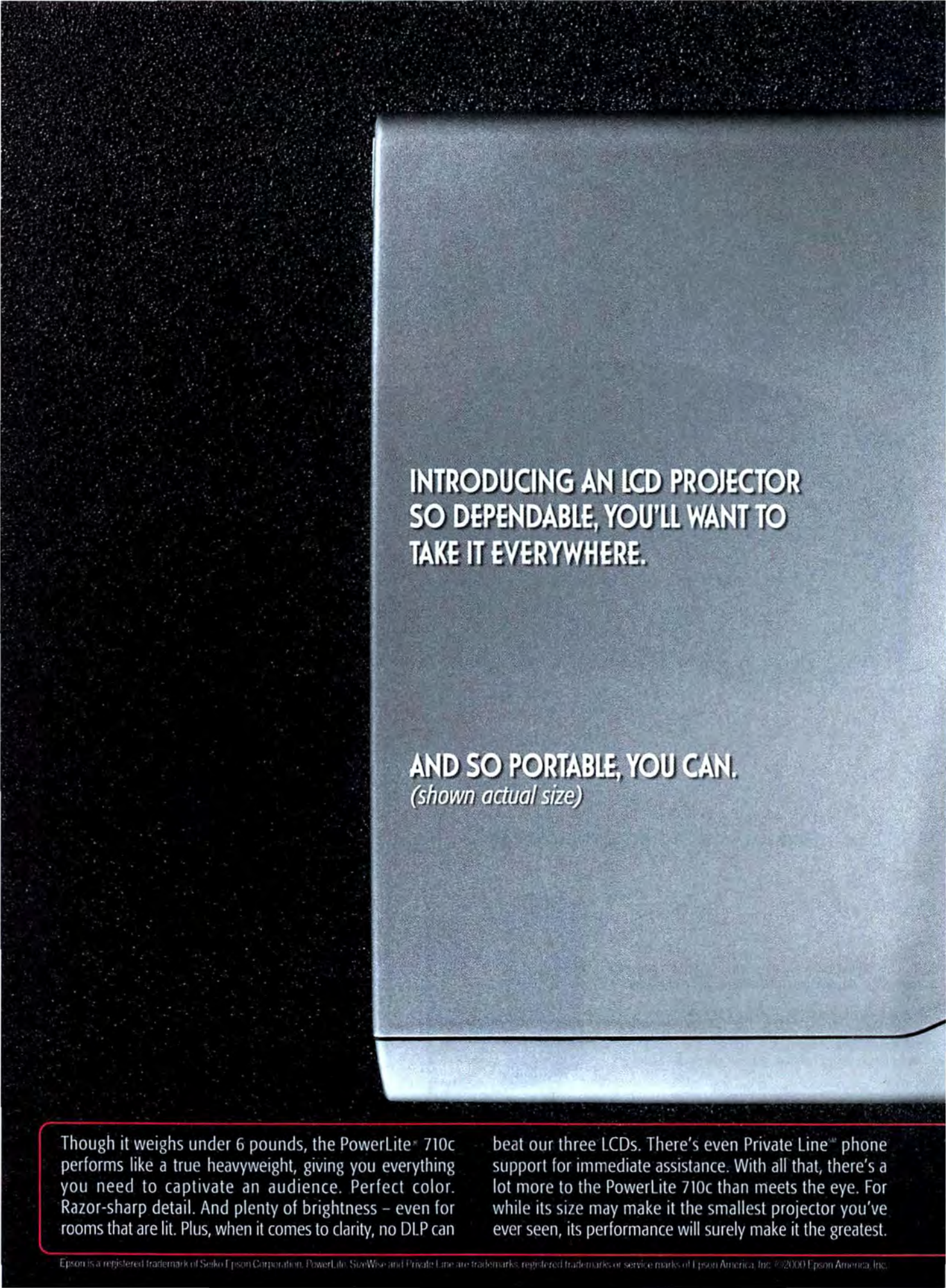
Internet: www.ViewSonic.com *Users who purchase a LiteBird PJL1005 between January 1, 2000 and June 30, 2000 will receive a free full copy of Digital Juice upon completion of a registration at LiteBird.com or register via phone at 909-444-8800, option 2. All requests must be received by July 31, 2000. PJL1005 serial number required. • Specifications subject to change without notice. • Copyright © 2000 ViewSonic Corporation, all rights reserved. • Corporate names and trademarks are the property of their respective companies.



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For more information or a free demo, visit www.projectors.epson.com or call 1-888-446-5538 (Oper. 3102).

er. If you have multiple options, one of them is bound to work. Hopefully.

Most important: Forget what you think you may know about 800 numbers—even if they still physically work from wherever you are going, they will almost definitely **not** be toll-free.

Deborah Kluge is a Columbia, Md.-based independent consultant in the international development field. She's traveled to 25 countries, Romania most recently. Before she left, she used the Web to investigate local ISPs, as well as to see what her AOL and CompuServe accounts provided in the way of local access numbers. So, before she even landed in Romania, Kluge had set up a temporary account with a local ISP as well as had gathered several local numbers for AOL and CompuServe.

Back up data and increase PC storage with the ORB drive and 2.2 GB disks from Castlewood Systems.

Kluge also gets help from her membership in the Association for International Business *(www.aib-world.org)*. Before leaving for Romania, she posted a query on the organization's newsgroup—and received lots of tips about how to access the 'Net from there as well as other travel advice regarding the country.

Another tip from road-warrior PC users: Try the overseas local access numbers from your home or office before you leave. If you can get into that West African ISP from here, chances are decent that things will work when you actually land in West Africa, too.

ADAPTERS, PLUGS, AND CORDS

Most people traveling overseas make sure to take along an extra battery (or two) for their PC; a surge protector; airplane plug adapters; an extension cord; extra telephone cords (in case the phone is on one end of the room and the electric socket is on the other), and, of course, the obligatory power and modem adapters. Just make sure you've packed enough adapters for all the devices you'll need to plug in (PC, external modem, Zip drive, printer, etc.)—that's a common mistake.

In other words, you'll need to have plugs with different sizes and shapes, depending on the country you're going to and the type of hotel you're staying at. Some hotels have RJ-11 jacks in every room; others may not. Best to be prepared.

The shape and size of the electrical plug is one matter—transforming the electricity coming out of the plug so that it doesn't fry your device is an entirely different issue. Most countries around the world provide electrical power at 220 volts; most devices here in the United States run at 110 volts. So to run your Zip drive, or hair dryer, you'll need to have both a power transformer and

continued on page 9

LIGHTEN YOUR LOAD

Bring along Epson's PowerLite for presentations overseas

IF YOU'RE MAKING the presentation of your life on your next overseas trip, you should consider the PowerLite 710c, an ultra-portable projector from Epson America Inc., Long Beach, Calif. The PowerLite 710c boasts the superb sharpness of 1,000 lumens yet weighs only 5.8 pounds. With Epson's own SuperWise™ technology, the PowerLite 710c supports resolutions up to 1600 x 1200.

Other features include picture-in-picture, electronic zoom, on-screen help, USB mouse port, full-featured remote control, and a retractable projection lens for added protection while on the road. Setup of this powerhouse is made simple by a four-button control panel and an on-screen 3D menu system.

Also, the 710c makes use of a three-LCD projection system to help boost image quality when compared to single-LCD systems. The 710c uses a separate LCD to create the different shades of red, green, and blue that blend to produce a projected image. With a separate LCD for each color, the result is brighter and truer colors with sharp black text. And the lamp can last up to 2,000 hours.

The 710c is available now and lists for $7,999.

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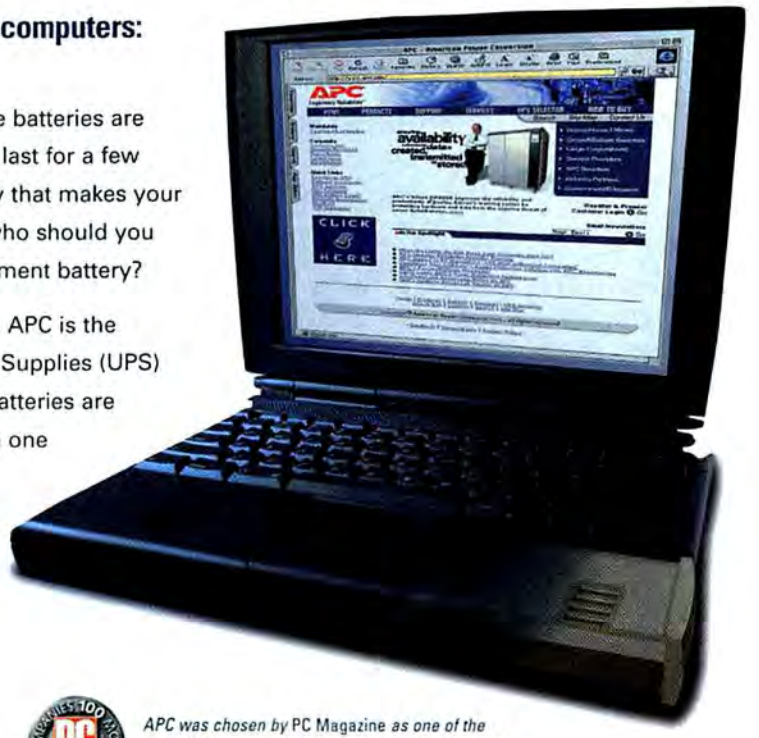

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ROaD WARRIOR'S GUIDE TO THE GALaXY

Whether you're looking for travel tips, advice on cultural etiquette, news, or equipment, you can find it for free or near-free on the Web

TO CHECK OUT THE latest scoop on the places you're visiting, head to the cyber-newsstand. There are many truly excellent English-language papers. One of the best is the *World News* site *(www.worldnews.com)*, where you can link to several dozen English and foreign-language periodicals and info sites. The *International Herald Tribune (www.iht.com)* is focused mostly on Western Europe, and tells you about travel delays and airline changes. Not only can you find out what's going on in the news, but you can also get leads about great places to eat, cultural events, and cybercafés.

Want to get smart about Slovakia (or any of around 90 other countries) in a hurry? Head on over to the Export Hotline (www.exporthotline.com). It lets you do searches by industry category and/or country—all for free, although registration is required for some functions. Printing multiple reports costs a nominal fee, but it's worth it. The country reports are in-depth looks at the major industries, trading environment, trade barriers, and many other issues.

There are literally dozens of travel sites. But even if you're not ready to go the e-ticket route, many of these sites offer a host of other reasons to visit: world maps, trip planners, currency converters, tips for frequent travelers, etc. Among the better business sites are: Atevo *(www.atevo.com)*; Biztravel.com *(www.biztravel.com)*; Flifo (www.flifo.com); Expedia *(www.expedia.com)*; Preview Travel *(www.previewtravel.com)*; The Trip *(www.thetrip.com)*; and Travelocity *(www.travelocity.com)*.

The International Small Business

www.worldnews.com

Consortium *(www.isbc.com)* exists to help small and medium businesses cash in on the globalization megatrend. On this site, you'll find tips for how to globalize your business and/or hook up with similar businesses in other countries; a moderated chat group and a list of other related sites where you can find lists of U.S. embassies around the world; and country commercial guides, which are reports prepared by U.S. embassies that look at the different business environments in certain countries.

ACCESSORIZING ON THE ROAD

On the hardware front, check out the LineStein Digital Adapter ($120) from Hello Direct *(www.hello-direct.com)*. It converts digital lines to analog ones.

A mobile surge protector is a must-take item, and the SurgeArrest Notebook Pro Surge Protector from American Power Conversion Corp., West Kingston, R.I., fits the bill. It works with just about any portable PC you can name, and supports power supplies from 100 to 240 volts. Prices begin at $59.99; learn more at APC's site *(www.apcc.com)*.

Need portable storage? With 2.2 gigabytes of storage capacity and an impressive data-transfer rate of 12.2 Mbytes/second, the ORB from Castlewood Systems Inc., Pleasanton, Calif., offers endless possibilities for graphic design, CAD/CAM, publishing and multimedia presentations, among other uses. The price for the ORB drive and a disk is $199.95, and each 2.2-gigabyte disk sells for only $39.95. Find out more on Castlewood's site *(www.castlewood.com)*.

Looking for a way to access your e-mail while on the road? Two free services are Hotmail *(www.hotmail.com)* and MailStart *(www.mailstart.com)*. You can send and receive e-mail from any PC equipped with an Internet browser, from any ISP in the world. MailStart also helps you to translate your messages into French, Spanish, and Norwegian.

Coming soon to a Web site near you will be a way to help you keep all your various data sources in sync. Called Intellisync *(www.intellisync.com)* from Puma Technology, it promises to help you automatically update information across your mobile devices—cell phone, handheld computer, laptop, etc.—free-of-charge.

Another free service for travelers is called MyWebOS *(www.mywebos.com)*. The premise is: Anywhere you have Web access, you can also have access to your applications. The advertisement-free service provides a full range of productivity applications—word processing, e-mail, calendar, contact manager, online store builder—which you can access from any browser-enabled PC. The service also provides 20 Mbytes of free storage space. +

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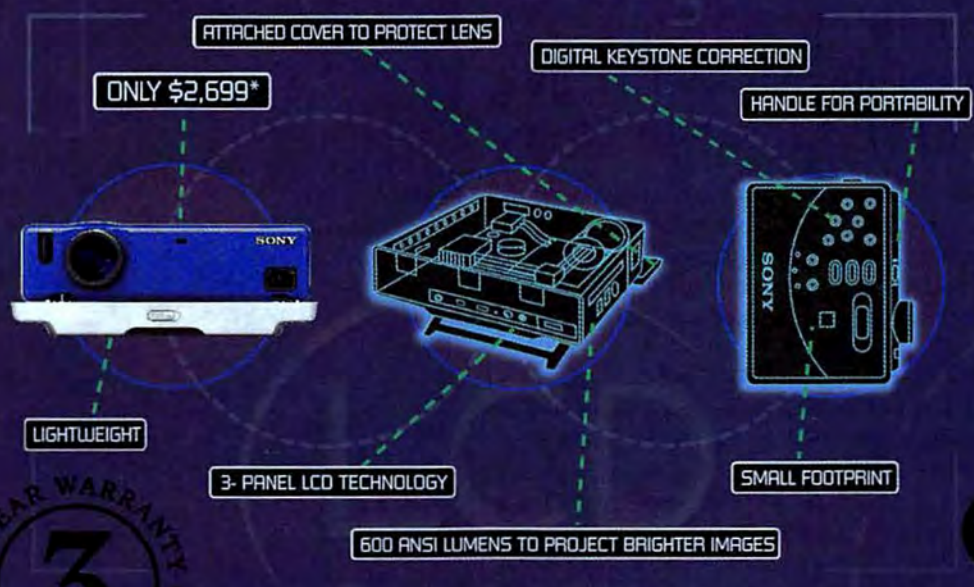

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continued from page 5

the plug adapter in the right size and shape.

If your laptop is of relatively recent vintage—three years old or newer—it will likely be able to handle the different voltage requirement overseas. But with something so costly and essential as a PC, it's well worth checking the manufacturer's Web site or calling the help-line to see if you may need to order a special power cord for the laptop to work overseas.

And don't forget to pack a portable projector. Chances are that whatever you're doing will involve a presentation of some sort. Two great choices are the VPL-CS1 SuperLite from Sony Electronics Inc., Park Ridge, N.J., and the Litebird from ViewSonic Corp., Walnut, Calif. Thanks to its three-panel LCD technology, Sony's SuperLite provides 600 lumens—enough to display images even with the room lights on. The SuperLite supports SVGA graphics and weighs 6.4 pounds. It's also super-quiet, and you can launch a presentation with the touch of just one remote-control button.

The VPL-CS1 SuperLite from Sony Electronics features three-panel LCD technology and provides 600 lumens.

ViewSonic's Litebird, also called the PJL1005, weighs 5 pounds and features over 850 lumens. It uses Digital Light Processing to make it as small and as effective as possible, with excellent brightness even in the corners. The micro-portable projector supports XGA resolution and up to 16.7 million colors; it also sports a wireless remote control with a built-in mouse. Prices begin at $5,795.

Check the rules of the country you're visiting before you go, to see if you need to register your gear.

Another tip is to bring along a second modem card—older, if possible. So if you do wind up damaging the modem, it at least is the 28.8 version and not the more expensive 56.6 variety.

A great source for business travelers heading overseas is Magellan's International Travel Corp., on the Web at *www.magellans.com*. (Look for the "Taking care of business" section of the home page.) They sell just about any PC-related gadget needed for foreign travel, including a $15 kit to check whether a telephone line is digital or analog (and thus avoid frying your modem) as well as a full line of electrical adapters. If you're not sure what you need, there's a part of the site that lets you search by the name of the country you're going to: *www.magellans.com/lm_learnmore.html*.

Some people swear by portable printers; others say that you can print out most anything you need at the hotel business center. The bottom line is that it depends on

continued on page 13

HaVING GOOD CONTaCTS

Susteen's DataPilot is a cell-phone-to-PC contact manager for keeping addresses organized

HAVE YOU LONGED for a quick and easy way to enter, store, access, and edit digital cell phone addresses without having to use that small phone keypad? Dream no more. Los Angeles-based Susteen *(www.susteen.com)* has introduced DataPilot, a cell-phone-to-PC contact management software package that has anticipated the needs and demands of the next-generation wireless crowd. With DataPilot, users create a backup for digital cell phone address books on the PC, storing up to 10,000 address book entries.

Once stored, these addresses can be managed effortlessly to track names, phone numbers, e-mail addresses, and other vital contact information, all with simple point-and-click ease. Then this data can be easily transferred as selectively as the user likes between the PC and the cell phone with just two mouse clicks. Priced at $69.95, DataPilot also allows users to import data from other applications such as Microsoft Outlook, or from any text or .csv file.

Version 2.0 of DataPilot is due the second quarter of 2000 and will feature a USB modem, a wakeup tool, and ringer-tone editing functions.

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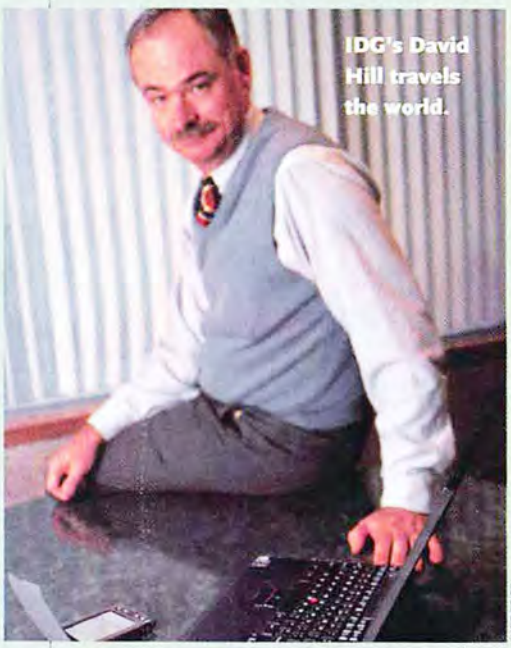
TRAVELIN' MAN

IDG's David Hill logs 300,000 miles a year covering the planet, with laptop in tow

IF YOU THINK you've had issues computing on the road, imagine the challenge of computing in Romania on Tuesday, Bulgaria on Wednesday, and Switzerland on Thursday. That's the kind of challenge David Hill faced in one recent week.

Hill is president and CEO of international publishing services for International Data Group (IDG), Framingham, Mass., the largest producer of computer trade publications in the world (and the publisher of *PC World*). He logs around 300,000 miles each year, toting his laptop every step of the way.



IDG's David Hill travels the world.

KURT STEIN

Hill's group handles licensing for IDG, and as such he is responsible for business in 47 countries. "I cover the whole planet," Hill says, "and I work with every single piece" of the company.

To Hill, e-mail is essential. "No matter where I am on the planet, people have to be able to reach me. When my partner in Korea has a problem, he doesn't have to know or care where I am. He e-mails me, and I answer if I'm in Zurich or wherever I may be."

Also, keeping in touch remotely is a huge part of the day-to-day business operations of Hill's group, which consists of 45 employees in 15 offices around the world.

By his reckoning, life on the road with his PC has gotten a whole lot easier. "When I first started doing this, 14 years ago, it was a nightmare just getting the PC connected into the wall." He recalls having a major dispute with a hotel in Copenhagen because "I took half the wall apart" trying to get the so-called alligator clips to connect his laptop to the hotel's phone setup.

Nowadays, Hill says, it's not a problem getting the laptop physically connected to the phone jack. "Most business hotels anywhere in the world have RJ-11 connectors built into the wall," he says.

HOTEL PHONES: THE WEAKEST LINK

The biggest problem he faces is going the next step—getting from the hotel's phone system to the local Internet Service Provider (ISP), or to the local number of the international ISP he may be using.

"That remains the weakest link," Hill says. "Even if you're going into some CompuServe link, you have to go through the hotel phone. And many [hotel phones] are of abysmal quality—they move data very slowly." Or they may have "dirty" lines—meaning there is so much interference on the phone line that data can't get through very easily.

"If you're sending short, text-based e-mails, it's not so much a problem," Hill says. "But if you're sending an image, or you're attaching a spreadsheet, it can drive you nuts. You need to start your machine, take a shower, and go have breakfast" before it's done.

> **"I don't know anyone who really enjoys sitting on a plane to Jakarta. But when you get there, the work is fascinating."**
>
> —David Hill, president and CEO, international publishing services, International Data Group

Cell phones are not a viable option for Hill, he says, because they're "slow and extraordinarily expensive." So when he can't get out on the laptop from his room, Hill heads down to the hotel's business center and uses its PCs instead.

The good news, he says, is that "in most reasonable-size cities today, you can get online." The weakest infrastructure remains in Africa, with Latin America improving but stilly iffy, Hill says.

All in all, Hill says, life is good. "I don't let the grass grow under my feet. Life is a series of tradeoffs; I don't know anyone who really enjoys sitting on a plane to Jakarta. But when you get there, the work is fascinating. And either you connect, or you don't—it's pretty simple."+

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the type of work you do, and if you are doing a lot of heavy lifting on the document or spreadsheet front.

TAKING CARE OF BUSINESS

Most serious travelers will stay only at hotels with business centers. "You'll pay for it, but it's worth it," says Louis Emond, a principal of Shamrock Consulting in Nashua, N.H. The firm consults in the area of international marketing, and Emond has traveled a great deal to Europe and the Middle East.

One way to avoid the rush at the business center is to make use of your contacts at client sites. If you're doing work for a major company, they've already got the computer and network infrastructure up and running—plug into that. Before you leave, get the OK (and any necessary security passwords) to work out of their local office. An important side benefit is that you'll meet up with locals who can either show you around or at least direct you to the best places to eat.

If you're bereft of large-company contacts, check out the scene at the local cybercafés.

Rick Nelson, vice president of worldwide sales and marketing for a Netherlands-based medical equipment company, recently went to the Middle East. Thanks to cybercafés, he didn't even bring his PC—but he didn't miss a beat on his e-mail. "At certain times of the day it can be a bit funky to get in," Nelson says. "But if you can adjust the times you read your e-mail, it's no problem."

Most population centers of any size have cybercafés now, and the PCs there are all ready to roll. One source is a book called *Internet Café Guide* (1999; Ernst Larsen), which you can order for $16.95 at *www.netcafeguide.com*.

The SurgeArrest Notebook Pro Surge Protector from American Power Conversion supports power supplies from 100V to 240V.

"Plan before you go. Once you're there, you're on your own."—Louis Emond, principal, Shamrock Consulting, Nashua, N.H.

Or use the site to look up the information online; it lists 2,500 'Net cafés in 126 countries. Another source is *www.triple1.com/services/cybcafes.htm*, which has a searchable list of 1,000 Internet cafés in 74 countries. However you locate the café in the country of your choice, remember to double-check that the café is still doing business before you leave.

Also, check the rules of the country you're visiting before you go, to see if you need to register your gear (particularly if you're bringing a lot of it—laptops, cameras, etc.). Check with the U.S. embassy in the country you're visiting, and with the U.S. State Department *(www.state.gov)*.

ViewSonic's Litebird weighs 5 pounds, features over 850 lumens, and uses Digital Light Processing technology.

The most important thing you can do is "plan before you go," Emond says. "Once you're there, you're on your own."+

MAKING CONNECTIONS

Xircom's RealPort2 keeps notebook connectivity reliable

USERS OF PC CARDS have long tolerated lost cables and broken pop-out jacks. But the innovative and intelligently engineered RealPort2 Integrated PC Cards from Xircom, Thousand Oaks, Calif. *(www.xircom.com)*, have put an end to these troubles.

RealPort2 cards come with built-in connectors, so the connections stay fixed like they are supposed to, allowing reliable notebook connectivity to the information you need, when you need it and where you need it. And RealPort2 cards can be used alone or mixed and matched to meet varying communications requirements, from modem to 10/100 Ethernet LAN to wireless data access via mobile phones to ISDN and more.

Long-time Xircom customers have come to expect nothing less than innovation and value from the company, now in its 12th year of making PC cards, port expansion gear, and now a line of wearable information accessories. Xircom is also developing new products and refining existing lines to leverage the wireless connectivity revolution just ahead.

RealPort: Because things that stick out get busted.

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NEW PRODUCTS

Pentium III-800s: A Bit More Speedy, a Lot More Pricey

POKY PAVILION: HP's 9690c trades speed for home-user features.

PHOTOGRAPHS: JOHN GREENLEIGH

DESKTOPS

INTEL HAS UPPED the ante in the high-stakes megahertz game with its new PIII-800. We tested two of the first PIII-800–based systems—a Dell Dimension that set a new PC WorldBench 98 record and a slower, home-oriented Hewlett-Packard Pavilion. These systems are only a couple of percentage points faster than their PIII-700 or PIII-733 siblings, making it difficult to justify their price premiums of several hundred dollars.

ONE HOT NUMBER

OUR PREPRODUCTION Dell **Dimension XPS/B 800r** was priced at $3399. Running Windows NT 4.0 with 128MB of PC700 RDRAM, the Dell turned in a WorldBench score of 388. That's 4 percent higher than the previous speed records set by PIII-700 and Athlon-700 systems also running NT. You probably won't notice this small margin on normal business applications, but it might matter for workstation-oriented tasks like 3D graphics, CAD, or software development. Serious gamers may also value the speed difference. Otherwise, you can save $410 by buying a similarly configured PIII-733 Dimension XPS B733r.

Our unit came with a 20GB hard drive, a handy 8X CD-RW drive; NVidia's respected GeForce 256 graphics card with 32MB of RAM; an exceptionally crisp and bright 19-inch Trinitron monitor; and an Iomega Zip 100 drive. Business users will appreciate the combination G.lite DSL/V.90 modem-10/100 ethernet card and the ample software bundle: Corel WordPerfect Suite 8, Micrografx Suite, Simply3D, Webcharter, Adaptec EZ CD Creator, Direct CD, Norton Utilities, and Microsoft Excel, Word, and PowerPoint. And Dell's top service and reliability are of further appeal.

Dell includes a coupon for a free Windows 2000 upgrade, but be prepared to pay dearly for extra memory: 128MB of RDRAM goes for $880.

TRY THIS AT HOME

TARGETED SQUARELY at the home user, HP's sleek, slate and cobalt-blue **Pavilion 9690c** comes with a gargantuan 40GB hard drive, 128MB of SDRAM, CD-RW and DVD-ROM drives, and nice-sounding Polk Audio speakers. The 17-inch monitor in this $2798 package is adequate, if not outstanding. The Pavilion also comes with both DSL and V.90 modems. Software includes Microsoft Works and Money, Trellix Web authoring, and Microsoft Encarta.

HP also provides multimedia drivers, Internet Center software, Adaptec's DirectCD Wizard, McAfee VirusScan, and a multimedia keyboard

DELL'S DIMENSION XPS/B 800R, running Windows NT 4.0 with 128MB of PC700 RDRAM, set a new PC WorldBench 98 record.

Dell Dimension XPS/B 800r

PRO: Fastest system we've tested; top-notch 19-inch monitor; multiple connection options.

CON: 4 percent speed hike costs over $300; pricey RDRAM upgrades.

VALUE: Expensive powerhouse for demanding business users.

Street price: $3399

Dell Computer

800/388-8542

www.dell.com

Hewlett-Packard Pavilion 9690c

PRO: Lots of multimedia software, gargantuan hard drive.

CON: Slower than some PIII-750-based systems.

VALUE: Worthwhile for home users who value convenience and storage.

Street price: $2798

Hewlett-Packard

800/742-6631

www.hp.com

PRODUCT INFO NO. 686

TEST PC WORLD CENTER THESE PRODUCTS have been evaluated using tests designed by the PC World Test Center.

with a volume knob and one-touch buttons for launching applications or Web browsing.

But many of these extras run in the background and drag down performance. Our shipping model, running Windows 98SE, turned in a PC WorldBench score of 300. That's 9 points lower than the Polywell Poly 800K7-800, an Athlon-800 system running Windows 98 SE; and it's only 12 points higher than the similarly configured PIII-733–based Pavilion 8595c, which costs $300 less. Furthermore, HP's home PCs were rated only Fair in our last Reliability and Service survey.

These two systems are built for very different types of customers. But they both demonstrate that Intel's latest CPU delivers, at best, a very modest performance improvement over its predecessors. Most users will not find the barely detectable speed gains worth an extra few hundred dollars.

—Michelle Campanale-Surkan

82 Dell Dimension XPS/B 800r, Hewlett-Packard Pavilion 9690c PIII-800 desktops
83 Ricoh MediaMaster MP9060A
84 HP DeskJet 1220C; Tektronix Phaser 850
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90 Sony SDM-N50 LCD monitor; OmniSky wireless bundle for the Palm V
94 Electronics for Imaging EBeam, Virtual Ink Mimio
99 E-on Software Vue d'Esprit 3; Panasonic PalmCam PV-SD4090
100 Creative Technology WebCam Go, X10.com XRay Vision Kit; Fuji DS-260 HD digital camera
101 Belkin BusStation; Oxford English Dictionary Online

Ricoh Delivers Two, Two, Two Drives in One

DVD/CD-RW

WANT YOUR DVD and your CD-Rewritable, too? Until now, this meant buying two separate drives. But no more: Ricoh's $399 **MediaMaster MP9060A** gives you 6X/4X/24X CD-Rewritable technology and a 4X DVD-ROM player in the same drive. However, you'll pay for the space-saving combination—in both performance and price.

Installing this internal ATAPI drive in a Micron Celeron-400–based PC went quite smoothly. The bundled Adaptec Easy CD Creator 4.01 and DirectCD 3.0 software installed easily, as well. But attempts to play a movie on the included Ravisent CineMaster DVD player software resulted in a program lockup. (Ricoh acknowledges that the software doesn't work well with all video cards, and it lists the 15 or so models that do pass its tests.) When we tried Cyberlink's PowerDVD 2.5 software (not included with the unit), the 9060A played movies flawlessly.

In other tests, the MP-9060A wrote 430MB of data to CD-R in 9 minutes and 17 seconds. Read ratings using Testa Labs CD Tach 98 and DVD Tach 2.52 were 15.4X CD-ROM and 2.1X DVD-ROM, respectively. All these results are slightly below par. Writing 100MB to CD-RW took 3 minutes and 31 seconds—about on target for a 4X drive. More important, the 9060A had no trouble reading all the CD-R, CD audio, CD-RW, CD-ROM, and DVD-ROM discs we threw at it.

Ricoh provides a one-year warranty for the MP9060A, with toll-free telephone support 15 hours on weekdays and 9 hours on weekends. The multilingual documentation is sparse but adequate.

DYNAMIC DUO: Ricoh's MediaMaster MP9060A is both a DVD-ROM and a CD-Rewritable drive, but it costs more than two separate units.

online FOR MORE PRODUCT news and the latest announcements, check out the PC World Daily News Service at www.pcworld.com/news.

When you consider that the MP9060A replaces two drives, its $399 price tag isn't exorbitant. But unless you're hard up for drive bays, you can save money—and get better performance—by purchasing separate CD-RW and DVD-ROM drives.

—Jon Jacobi ▶

Ricoh MediaMaster MP9060A

PRO: Plays DVD, writes and reads all CD media in the same drive.

CON: Slightly slower, and more expensive, than buying separate CD-RW and DVD-ROM drives.

VALUE: Worthwhile if you don't have extra bays.

List price: $399

Ricoh

877/742-6479

www.ricohdms.com

PRODUCT INFO NO. 687

Broad Is Beautiful: HP's Wide-Format Ink Jet

PRINTER

IN THIS ERA of economic expansion, even printers are getting wider. Now Hewlett-Packard's $499 **DeskJet 1220C** lets you print on pages up to 13 by 19 inches—for a price.

Like other wide-format printers, the 1220C operates almost silently, can be externally networked (for an additional $170), runs on USB, and accepts a broad range of paper sizes—from postcards to posters. It measures about 2 feet wide, 15 inches deep, and less than a foot high; and its paper tray extends straight out the front (instead of rising up from the back of the unit) to save headroom.

THE BIG, SLOW PICTURE: Hewlett-Packard's DeskJet 1220C prints handsome, oversize color documents—but at a leisurely pace.

But the 1220C offers many extras, starting with its snazzy gray-and-charcoal case. Its driver provides advanced on-screen controls in a simple format that echoes the company's home-oriented DeskJet 900 series. Most important, the HP produces high-quality output on plain paper, with sharper edges on text and richer colors on graphics than many other ink jets manage.

The 1220C's biggest drawback: It can be slow, especially on graphics. In my informal tests, a full-page color image took twice as long (2 minutes) and a glossy photo nearly three times as long (almost 14 minutes) to print than did similar pages on other wide-format units. (A page of text took the standard 30 seconds.) Even so, this printer is fast enough for most uses; and for many people, the luscious photo quality will be worth the wait.

The 1220C has strong competition in Epson's $449 Stylus Color 1160 (see March *New Products*, www.pcworld.com/maroo/epson). For a lower price and quicker print speeds, go with the Epson. But for style, more features, and the option of printing on cheaper paper, spend an extra $50 on the HP.

—Karen Silver

HP DeskJet 1220C

PRO: Good output quality on plain paper, snazzy design, strong software features.

CON: Expensive; can be slow.

VALUE: For those who want style and like to print on plain paper, the HP may be worth its high price.

Street price: $499

Hewlett-Packard

800/752-0900

www.hp.com

PRODUCT INFO NO. 688

Tektronix's Speedy, Thrifty Color Printer

PRINTER

TEKTRONIX'S newest laser, the **Phaser 850,** really tears through color documents: For graphics, we clocked it at 2.4 pages per minute—double the average for current color lasers, and 14 percent faster than the speed champ on our latest laser chart (see *Top 10 Printers*, March). But it loses its lead when printing plain text: At 6.8 ppm, it's a half-page per minute slower than the average color laser.

The output quality of our shipping unit was also mixed. We really liked the 850's even, clean black text and its bright, accurate colors on nonphotographic images. But color photos were dark and grainy (although quality improves on the Enhanced setting).

The Phaser 850 uses crayon-like blocks of resin-based ink instead of the toner powder or liquid inks most corporate color printers use. To entice customers, Tektronix (now a Xerox subsidiary) offers free black wax for the life of the unit. Color wax costs about 10 cents per page—in line with most color lasers. The printer's other principal consumable—a maintenance kit—adds only a negligible tab.

Our network-ready 850N costs $2495, several hundred dollars more than competitors such as the Xerox DocuPrint NC60 and NEC SuperScript 4200N. For $3295, the Phaser 850DP comes with additional memory and a duplexer, while the $4295 850DX adds a 500-sheet paper-feeder and a hard drive that allows for collating or caching documents.

The Phaser 850 is more expensive than its rivals, but you'll quickly make up the difference with savings on consumables. The fast graphics speed makes it a good choice for offices that print lots of spot color, and the free black ink will make the unit appealing to people willing to sacrifice text-printing performance.

—Dan Littman ▶

Phaser 850

PRO: Fast on graphics; inexpensive to operate.

CON: Slow on text; only middling photo quality.

VALUE: A good deal when you consider total operating costs.

Street prices: $2495 (850N); $3295 (850DP); $4295 (850DX)

Tektronix

800/835-6100

www.tek.com/Color_Printers/

PRODUCT INFO NO. 689

TEST PC WORLD CENTER THIS PRODUCT has been evaluated using tests designed by the PC World Test Center.

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[1]CD-ROM speeds are variable. Maximum speed shown. [2]Maximum data transfer rate may vary due to the particular modem you are communicating with, telephone lines and communication protocols. [3]Upgrade from CD-ROM Drive.

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Ontrack's Well-Integrated SystemSuite

UTILITIES

AS PCS BECOME more powerful and complex, comprehensive utility suites become increasingly useful for diagnosing problems, preventing crashes, and recovering from disasters. Network Associates' McAfee Office 2000 and Symantec's Norton SystemWorks 2000 are the best-known packages, but **Ontrack SystemSuite 2000** is an impressive newcomer. Priced competitively at $60, Ontrack does not eclipse its rivals, but it boasts some unique and useful features that should appeal to a wide range of users.

Ontrack Data International acquired Mijenix last year and has basically combined the company's stand-alone utilities—Fix-It, Easy-Uninstall and ZipMagic—plus an antivirus program into a suite. Mijenix consistently produced clever and powerful packages that, in my experience, seldom exhibited the system incompatibilities that can often plague its competitors.

Aside from a few small tweaks, most of the components that make up SystemSuite have not changed since their last releases. But Ontrack integrates its components better than competing packages do, so you never get the feeling (especially common with McAfee's suite) that the package is just a bunch of disparate utilities baled together with a common interface. SystemSuite 2000 has a unified look and feel, including one-click access to Internet-based updates for the entire suite.

Experienced users will appreciate SystemSuite 2000 because several of its features—notably system diagnostics—go farther under the hood than its competitors do. It's also the only suite that supports Windows 2000, as well as Windows 95, 98, and NT (however, Norton and McAfee are expected to add Win 2000 support shortly). The Crisis Center offers different levels of help, depending on experience level. And the NT Lifeline feature lets users boot into a command line to diagnose and recover from problems. I particularly liked WinCustomizer, which lets you tailor Windows' appearance and settings *à la* TweakUI. Another unusual and welcome feature is a global undo that turns back the clock on system changes.

My one big complaint about SystemSuite: Unlike competing suites that automatically activate most key features during setup, SystemSuite 2000 requires some manual intervention. For example, you must enable full-time virus protection at startup.

I tested SystemSuite 2000 on three different PCs and didn't encounter any problems. If you are a first-time utility-suite buyer or an advanced user who is seeking the most sophisticated tools, it could be an excellent choice for you. But if you're already a happy McAfee or Norton user, switching may not be worth the trouble, especially since those suites can often be difficult to uninstall.

—Stan Miastkowski ▶

UNITED THEY STAND: Ontrack SystemSuite 2000 organizes its numerous component applications into logical categories.

Ontrack SystemSuite 2000

PRO: Excellent integration, advanced features.

CON: Setup doesn't automatically enable needed features.

VALUE: A good choice for new or advanced users.

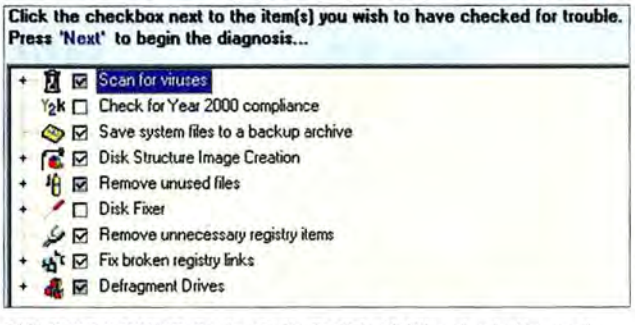
Street price: $60

Ontrack Data International

800/872-2599

www.ontrack.com

PRODUCT INFO NO. 636



ONE-STOP SERVICE: SystemSuite 2000's FixWizard puts the most critical diagnostics just a click away.

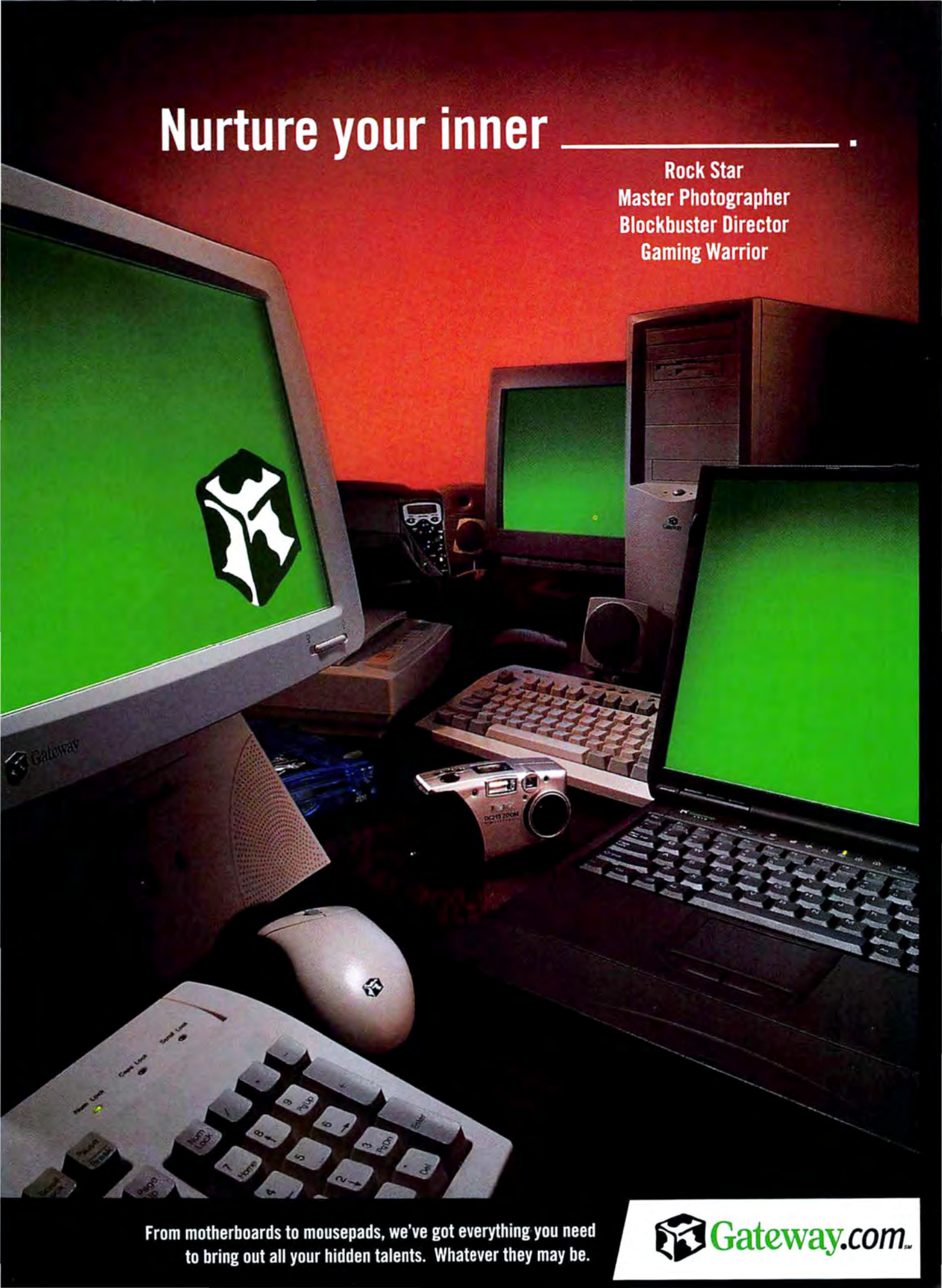
QUICK TAKES

WinZip Gets a Facelift

A NEW VERSION of Nico Mak Computing's popular WinZip compression program promises enhancements in both appearance and convenience. The downloadable beta version of WinZip 8.0 offers an improved alternative wizard interface that will step you through more tasks than previously. The program also behaves more like Windows Explorer: When you right-click files, for example, you get file options like Print or Edit. Perhaps the best new feature lets you compress and e-mail a file in one easy step—if you're using a MAPI-compliant e-mail program such as Outlook or Outlook Express. Nico Mak Computing warns that some of the beta features may not make it into the final release, due before summer. WinZip 8.0 will cost $29 for new customers; the upgrade is free for registered users. Nico Mak Computing, 877/724-4600, www.winzip.com.

PRODUCT INFO NO. 637

—Lincoln Spector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3. Offer expires March 31, 2000.

The Skinny on Sony's Less-Is-More LCD

LCD MONITOR

ALL LCD MONITORS are slim, but the **Sony SDM-N50** takes skinny to a new level: It's a scant 0.75 inches thick—half the depth of most competitors. However, this petite 15-inch LCD comes with a full-size $1499 price tag.

Sony slimmed down the coal-black panel by putting most of its circuitry into a 7-inch-square block that connects to the back of the panel via a 7.5-foot cable. You can use the box as a base for the screen or tuck it away beneath your desk. The arm connecting the panel to its circular pedestal is as flexible as a yoga instructor, so you can easily tilt the panel and adjust its height. The panel and pedestal weigh about 6 pounds, light enough to move the unit around a desktop or table during small-group presentations. Crescent-shaped speakers built into the pedestal pump out above-average sound.

SLIM FORM, BIG TICKET: Sony's $1499 SDM-N50 is 0.75 inches thick.

One unusual touch is a built-in sensor that detects ambient light levels and automatically adjusts the screen's brightness—convenient if you work in changing natural light (near a window, perhaps), but irrelevant in offices where light levels remain constant. Another sensor is intended to automatically turn off the LCD's backlight if you haven't been in front of the panel for over 20 seconds. This feature should help extend the life of the unit, but it did not always work in my tests (a spokesperson from Sony says the company is still tweaking the feature).

At its native 1024 by 768 resolution, my preproduction unit rendered image quality comparable to that of other 15-inch panels (although colors didn't seem as bright on the Sony as on some competing models). But you can easily find good 15-inch LCDs going for $1000 to $1100, so check this one out only if you're willing to pay the hefty price of high style.

—Mick Lockey

Sony SDM-N50

PRO: Ultrathin, stylish LCD monitor delivers good image quality.

CON: Very expensive, even by LCD standards.

VALUE: Stylish choice for executive suites or well-heeled home offices.

Street price: $1499

Sony Electronics

888/476-6972

www.sony.com/displays

PRODUCT INFO NO. 637

OmniSky's the Limit: Palm V Wireless Service

PALM ACCESSORY

OKAY, I ADMIT IT: I love my sleek, chic Palm V organizer, but I covet the wireless communication capabilities of the Palm VII. So I was excited to learn that **OmniSky**, a nationwide wireless network, is bundling a Novatel Minstrel V wireless modem with software and network access that will allow the Palm V to use the same wireless Web applets as the Palm VII.

I tested a preproduction version of the OmniSky bundle. Apart from some nasty installation hassles (which the company says will be fixed in the shipping version), I found the wireless services—from POP3 e-mail to Palm-optimized Web content—useful and easy to access. With the included AvantGo applet, I was able to browse *any* Web page—as long as I was willing to scroll a lot and had enough free RAM to hold the content.

Unfortunately, this second requirement is a potential problem. The OmniSky software uses 1MB of memory, but the Palm V has only 2MB. I had to remove several applications to make room for OmniSky. This would be less of a problem with the Palm Vx, which is essentially an 8MB Palm V.

Other caveats: To access OmniSky service, you must be in an area served by its CDPD protocol (check OmniSky's Web site for details). The Novatel Minstrel doubles the Palm V's weight and thickness, negating the slim-and-light form factor that made the V so appealing in the first place. And the modem costs $299, on top of the $329 you have to pay for the Palm V.

Fortunately, at an expected $40 per month, OmniSky's unlimited access is a better deal than the $40 limited plan you get from Palm.net (the service Palm VII owners must use). If you already own a Palm V and plan on using wireless connections a lot, investing in OmniSky's bundle is worthwhile. But if you're still shopping for a handheld, and you're looking for wireless access, the $449 Palm VII is a better way to go.

—Michael S. Lasky ▶

OmniSky

PRO: Convenient and reasonably priced wireless modem and service for the Palm V.

CON: Takes up half the Palm V's memory while doubling its weight and thickness.

VALUE: Worthwhile for heavy wireless users, especially if they already own a Palm V.

List price: $299 for modem; $40 estimated monthly fee for unlimited service plan.

OmniSky

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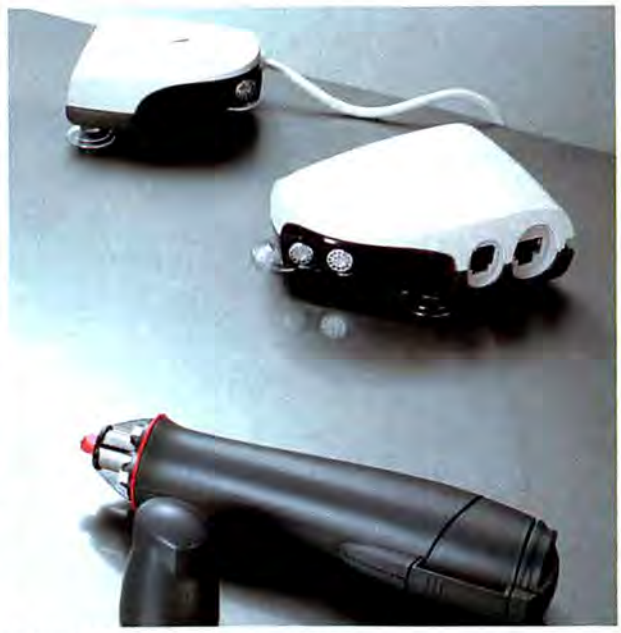
Electronic Whiteboard Kits on the Go

WHITEBOARDING

HOW MANY times have you looked back on a meeting and wished you'd taken better notes? Electronic whiteboards can help by recording the scribbling of you and your colleagues, but they're expensive (more than $2500 for a 4-by-6-foot board) and too heavy to tote from room to room. Virtual Ink's **Mimio** and Electronics for Imaging's **EBeam** address both of these issues: Each unit costs about $500, fits inside a briefcase, and attaches to any conventional whiteboard with dimensions up to 4 by 8 feet.

Both products use sonic receivers to track movements on a conventional whiteboard. Regular marker pens fit into special holders that emit a very faint buzzing sound at a specific frequency whenever you press down to draw on the whiteboard. A special eraser works in a similar fashion.



CARRY-ON LUGGAGE: EBeam's hardware—two small pods and sheaths for markers—captures scribbles on conventional whiteboards.

Product setup and use are remarkably straightforward. Both Mimio and EBeam connect to a free serial port on your PC (EBeam offers an optional USB adapter). Both come with software for recording pen and eraser strokes, playing back or printing whiteboard sessions, attaching notes, and exporting screens to several file formats. You can even share your meetings with remote users via the Internet. There are a few hitches—pen holders sometimes require a lot of pressure to activate, and changing the angle at which you hold the pen will slightly alter how a line appears on screen. But these devices generally work quite well.

Mimio's receiver is a 28-inch bar that uses two large, lever-released suction cups to clamp onto the left side of your whiteboard (the bar folds in half for transporting). This product's capture software is better than EBeam's, with multiple levels of zoom, configurable pen colors, and a slicker overall presentation. For data sharing, Mimio's free software links with Microsoft's NetMeeting conferencing package to display whiteboard contents in real time. A software update (which should be available by the time you read this) will let Mimio write directly to the NetMeeting whiteboard. Also on tap are a $50 USB adapter and a $99 handwriting-recognition plug-in to convert your scribbles into editable text documents.

EBeam's more compact hardware—two small pods that attach to the top corners of your whiteboard—makes it the natural choice for travelers. The capture software lacks some of Mimio's polish, but it gets the job done. Remote users can obtain full-featured meeting access by downloading a free copy of the software, and a handy Java client permits anyone who has a Java-enabled Web browser to look in on the meeting.

NetMeeting users may prefer Mimio's more robust software, while people on the go should favor EBeam's more compact hardware and Java client. Either product offers an economical, portable alternative to an expensive, heavy electronic whiteboard.

—Eric Dahl ▶

EBeam

PRO: Slick, compact capture hardware, helpful Java client.

CON: Capture software offers fewer features than Mimio's.

VALUE: Easily portable alternative to an electronic whiteboard.

Street price: $499

Electronics for Imaging

877/463-2326

www.e-beam.com

PRODUCT INFO NO. 639

Mimio

PRO: Robust capture software.

CON: The hardware is bulkier than EBeam's; no Java client.

VALUE: Full-featured electronic whiteboard alternative.

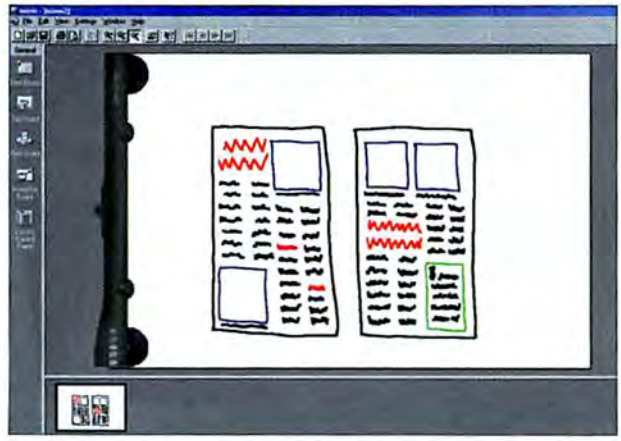
Street price: $499

Virtual Ink

877/696-4646

www.mimio.com

PRODUCT INFO NO. 640



VIRTUAL WHITEBOARD: Mimio's PC software displays an image of your whiteboard (including Mimio's receiver bar, at the left).

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September 9, 1997 Best Internet Service Provider

* Camera offer requires you to maintain your EarthLink Sprint Internet access membership at $19.95 a month, for a minimum of three months. Camera is non-returnable, unless defective. EarthLink reserves the right to substitute another camera of equivalent value. Camera not shown to scale. Should you cancel your EarthLink Sprint membership within the first three months, you will be billed an $89 cancellation fee. This offer is for new members only and only while supplies last. This offer cannot be redeemed in conjunction with any other offers. Valid with major credit card orders only. Please allow 10-14 business days for camera delivery upon camera type selection. Camera is available for Windows 95/98 computers with 100 MHz or faster Pentium Processor, CD-ROM drive, 16MB or more RAM, 200MB free hard disk space (video files may require more). Camera is also available for Macintosh computers with USB ports and Mac OS 8.6 or higher. Offer ends July 31, 2000. ©2000 EarthLink, Inc. and Sprint Communications Company, L.P. Trademarks are property of their respective owners. Sprint and the Sprint logo are trademarks of Sprint Communications Company, L.P. EarthLink and the EarthLink logo are trademarks of EarthLink Network, Inc. All rights reserved.

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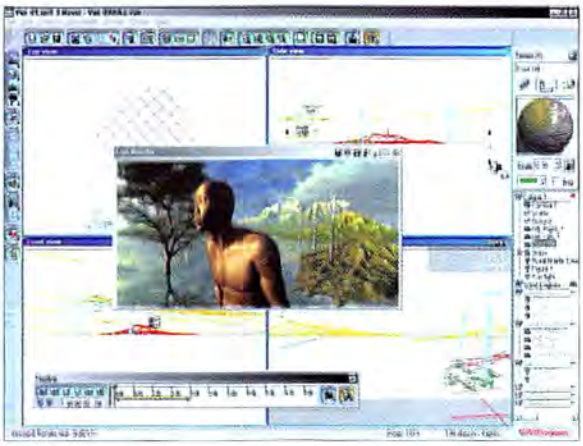
Vue d'Esprit 3: Divine 3D Creations

3D GRAPHICS

HAVE YOU ever daydreamed a beautiful scene? The French call this image a *vue d'esprit*, a view of the mind. And that's the name of a powerful 3D application from France. The latest version, **Vue d'Esprit 3,** lets anyone create and animate stunning 3D scenes of nature. It lists for $199, while upgrades are $99.



BEST TOOLS: Vue d'Esprit 3 lets you create lush 3D landscapes and animate imported figures, such as this man from Poser.

Vue d'Esprit 3

PRO: Impressive 3D landscapes, motion blur, camera focus, and foliage feature.

CON: No text tool, unrealistic sun.

VALUE: Outstanding 3D scenery creation for a low price.

List price: $199 ($99 upgrade)

E-on Software

www.e-onsoftware.com

www.i-us.com (U.S. distributor)

PRODUCT INFO NO. 641

Vue 3's primary rival, the $199 Bryce by MetaCreations, sports a more playful interface, more ample preview screens, volumetric lighting (to simulate dust particles, for example), and a more realistic sun. But Vue 3 is just as accessible, and it beautifully mimics nature with soft shadows, wispy clouds, and blurry reflections. The 18 plant species look amazingly real, even on close inspection.

The application's Terrain Editor lets you carve lakes, mountains, and meadows. You can import photos or U.S. Geological Survey maps. A Texture Editor lets you mix and select materials.

Animation tools accurately simulate motion blur and camera focus. A Motion Wizard helps you make anything in the scene look as though it were moving, using ten styles (such as pedestrian or airplane). To populate your world, Vue 3 can import 3D models of figures saved in DXF, 3DS, LWO, or OBJ format. You can save 3D scenes in Vue 3's native VOB format or export rendered images and animations. However, only terrain can be exported to other 3D applications, via nine standard formats.

Vue d'Esprit 3's superb foliage, animations, and natural scenes make it a fine, affordable choice for 3D newbies or nerds.

—John Goddard

Panasonic's PalmCam: Shoot 'Em Up

DIGITAL CAMERA

WANT A DIGITAL camera that won't run out of room before you run out of inspiration? The built-in LS-120 drive on Panasonic's **PalmCam PV-SD4090** ($840 street) lets you capture photos on roomy, 120MB SuperDisks (or on 1.44MB floppies).

That bulky SuperDisk drive makes the PalmCam about the size and shape of a Hi8 camcorder. But it's surprisingly easy to handle. A bright, high-res, 2.5-inch LCD screen doubles as viewfinder and on-screen controls display. The oversize, rechargeable lithium ion battery lasts for 175 to 200 shots (assuming you use the built-in flash about half the time).

The PalmCam features a 3X optical zoom lens and time-lapse capability. You can manually adjust brightness and white-balance.

The 1.3-megapixel CCD element yields a maximum resolution of 1280 by 960 pixels. Overall image quality is very good. And you can capture as many as 1500 images at the highest of three compression settings and the lowest of three resolutions. Alternatively, a SuperDisk can store 90 single 10-second, 320-by-240-pixel multimedia clips (although the camera captures this video at a jerky 10 frames per second). It has a speaker, and a built-in microphone allows you to record up to 5 seconds of audio.

At $10 apiece, the 120MB SuperDisks are much cheaper than the $200, 80MB CompactFlash media used in most digital cameras. And if your PC doesn't have an LS-120 drive (but does have USB), you can download images using an included USB cable.

You can find cheaper cameras that match the PalmCam's image quality and feature set. But for roomy, inexpensive storage, this is the way to go.

—Daniel Grotta

PalmCam PV-SD4090

PRO: Inexpensive, 120MB SuperDisk media can store hundreds of photo images.

CON: Bulky, not cheap for a 1.3-megapixel digital camera.

VALUE: Worthwhile if you want to shoot a large number of images without changing media.

Street price: $840

Panasonic

800/211-7262

www.panasonic.com

PRODUCT INFO NO. 642

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ıe billion bytes when referring to hard drive capacity. Accessible capacity may vary. [5]Variable read rate. Actual playback speed will vary and is often less than the maximum possible. [6]These Actual speeds depend on many factors and are often less than the maximum possible. [7]Prices shown are prices available from IBM directly; reseller prices may vary for ThinkPad Model rt #02K6545; PC 300 Model #6288-50U, Monitor Model #65460AN, CD-ROM Drive Part #33L5001, Adapter Part #34L0401; PC 300 Model #6564-53U, Monitor Model #65460AN, Adapter ice. [8]SuccessLease is offered and administered in the US and Canada by third-party providers of business financing approved by IBM Global Financing; amount of monthly lease payments ıs are available. Offer may be withdrawn or changed without notice. Options must be leased with system unit. [9]Includes battery; weight may vary due to vendor components, manufacturing 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. Microsoft,

Web Cameras That Offer More

W E B C A M S

DESKTOP CAMERAS for sending images over the Internet come cheap these days—you can find a whole bunch for $50 to $100. But two new, higher-price USB camera systems—Creative Labs' $150 **Video Blaster WebCam Go** and X10.com's $130 **XRay Vision Kit**—justify their premium price tags by offering additional capabilities.

The WebCam Go earns its keep by doubling as an untethered digital camera. When not connected to a PC, this shirt-pocket–size camera runs on two standard AAA batteries (included) and has 4MB of internal RAM for storing up to 90 shots at 640 by 480 resolution (or 200 images at 320 by 240). It also includes an adjustable focus ring for close-up (within 6 inches), mid-range, and infinity settings, plus a built-in LCD control panel for setting the timer or choosing the capture mode (single or multiple shots). But since the WebCam Go lacks a built-in flash, you'll get the best results using it in well-lit settings.

XRAY VISION: View remote sites with X10's wireless kit.

My production model was easy to install and use. The included software has simple tools for downloading images from the camera's memory, taking snapshots, and capturing video clips. The unit comes with the MediaRing Talk '99 Internet voice communication program, Microsoft NetMeeting videoconferencing software, and Polaroid's easy-to-use PhotoMax by ArcSoft image-editing tools. The WebCam Go produced both snapshot and video images that were bright and sharp, with reasonably good color.

What distinguishes X10's XRay Vision Kit is its potential for security surveillance. A bundled wireless communication system lets the miniature camera transmit full-motion video to your PC from up to 100 feet away, even through walls. At one end is the thumb-size camera, which has a built-in 2.4-GHz wireless transmitter and comes with its own mounting bracket and screws (to mount it on a wall, for instance). At the other end, a USB cable connects a wireless receiver to your PC. The kit also includes AC power adapters required for both the transmitter and the receiver.

Using the XRay Vision software (available for download from X10's Web site), you can remotely view camera images live over the Internet. You can also automatically capture and store images on your hard drive at preset intervals that range from every few seconds to every few hours.

PC OPTIONAL: You can use Creative Labs' WebCam Go as a stand-alone or desktop camera.

It took me quite a while to set up a shipping unit, but it eventually performed quite well. I placed the camera 75 feet from my PC (the entire length of my home) and got fairly good 640 by 480 images—adequate for monitoring security in a home or business. But despite the manual's claim that you can use the camera outdoors, the vendor recommends indoor use only.

The XRay Vision Kit is an affordable tool for security around remote locations. But for a good Web camera you can take on the road, the WebCam Go gets my vote.

—Richard Jantz

Video Blaster WebCam Go

PRO: Functions as both Web camera and portable digital camera.
CON: No built-in flash.
VALUE: Affordable dual-purpose digital camera.
Street price: $150
Creative Labs
800/998-5227
www.creative.com
PRODUCT INFO NO. 643

XRay Vision Kit

PRO: Wireless Web camera system, good surveillance features.
CON: Cumbersome setup, so-so image quality.
VALUE: Low-cost security system.
Street price: $130
X10.com
800/675-3044
www.x10.com
PRODUCT INFO NO. 644

QUICK TAKES

One Tough Camera

ARE YOU THE sort of photographer who routinely puts a camera in jeopardy? Whether you shoot on the high seas or you're just a klutz, Fuji's DS-260 HD digital camera, aka Big Job, may be the answer to your prayers—if your wallet can stand the $1099 street price. The ruggedized product is about the size and weight of a conventional 35mm single-lens reflex camera. It sports lots of rubberized trim for easy gripping, and its controls are large enough for a person wearing gloves to operate. While not quite intended for scuba diving, Big Job can be splashed and even briefly immersed in up to about a foot of water without damage. A 2-inch LCD viewfinder magnifies captured images up to four times for close inspection. There are some drawbacks: The 1.5-megapixel resolution is a tad low for cameras in this price range, and the vendor says that the rechargeable lithium ion battery will run for only about an hour between charges. But if durability is your paramount need, the Big Job may be a good choice.
Fujifilm, www.fujifilm.com, 800/800-3854
PRODUCT INFO NO. 647

—Daniel Grotta

Belkin's Stacked USB Station

CONNECTIVITY

THE UNIVERSAL Serial Bus isn't just for adding USB peripherals to your PC anymore. New USB docking stations also let you add a host of legacy ports—including serial and 10-mbps ethernet—to a single USB connection on your PC. Belkin's $99 **BusStation** has the latest modular approach, allowing you to mix and match as many components as you need. These versatile devices reduce cable clutter and eliminate the problem of having too few ports or IRQs—especially good news for notebook users.

The BusStation starts out as a seven-port hub—with four fixed USB ports on the base and three additional single USB ports that you can swap out for legacy port modules. The rounded, purple units are slightly cheaper than those in Xircom's competing PortStation (reviewed in February's *New Products;* see www.pcworld.com/feb00/xircom). And the unit stands vertically, so its desktop footprint is smaller than that of the horizontally expanding Xircom.

However, Belkin's unit has only three removable modules, compared to the maximum of six on a PortStation (you can daisy-chain extra stations on both products). And the current selection of additional modules is less extensive, consisting at press time of a $70 four-port USB hub, a $90 DB-9 serial/mini DIN-8 (Mac) serial module, and a 10-mbps ethernet module for $80. In the works are modules for SCSI, ADB (the connector used on older Apple mice and keyboards), PS/2 ports, and 56-kbps modems.

The BusStation has no parallel port module (Belkin's only USB-to-parallel connection is a $60 unidirectional cable), and some serial devices won't work with USB-based serial ports. Since the USB's 12-mbps bandwidth is slower than SCSI's, Belkin's upcoming SCSI module won't perform as well as an add-in card.

But if you need only the connections it offers, the BusStation's space-saving design and slightly lower cost make it the best choice currently available.

—Jon L. Jacobi

BusStation

PRO: USB expansion modules stack vertically to save space; good price.

CON: Limited port selection.

VALUE: Good solution to some—but not all—legacy connection problems.

Street price: $99 plus $70–$90 per module

Belkin Components

800/223-5546

www.belkin.com

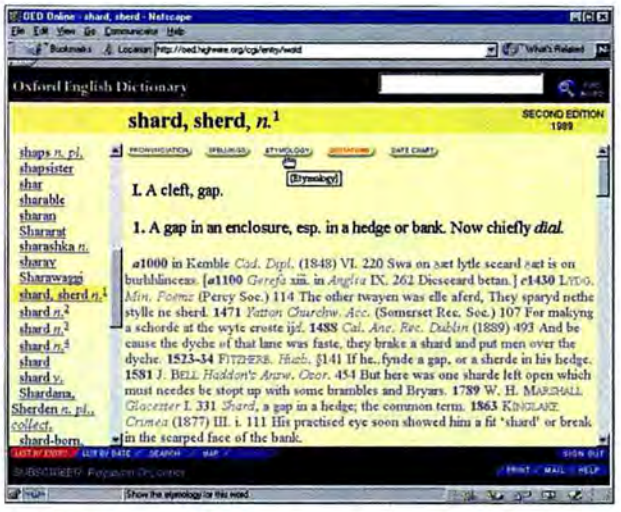
PRODUCT INFO NO. 645

Oxford English Dictionary Online—For a Price

WEBSITE

THE FINAL WORD on the English language is coming soon to your browser—if you can afford it. Set for a mid-March launch, the **Oxford English Dictionary's** new Web site is part of a $55 million revision project intended to fully update the 116-year-old dictionary for the first time since 1928. OED editors expect to add approximately 1000 new words to the site every three months, along with updated and supplemental definitions of older words.

I found the search tools on a beta version of the site intuitive and easy to use. Like most online dictionaries, it provides a word's definitions, pronunciation, and etymology. But the OED adds variant spellings, historical quotations, and a timeline charting when the word was used. You can choose to display or hide these features by clicking buttons in the search results frame. A separate pane lets you list entries alphabetically or chronologically by date of their first recorded use. Another tool enables you to search for words within definitions or quotations.



SAY, WHAT? At $550 a year, the online (and updated) version of the definitive English-language reference work isn't for casual users.

While these features set the OED apart from other online dictionaries, so does the price. At $550 per year for individual subscribers, the OED Online might be worthwhile only for academics and other professionals who do extensive research. But for the average user in search of a definition, free competitors—like Merriam-Webster (www.m-w.com) and Lexico (www.dictionary.com)—will do just fine.

—Kalpana Narayanamurthi ■

Oxford English Dictionary Online

PRO: Good search tools for the authoritative reference source on the English language.

CON: Expensive, especially since adequate alternatives are free.

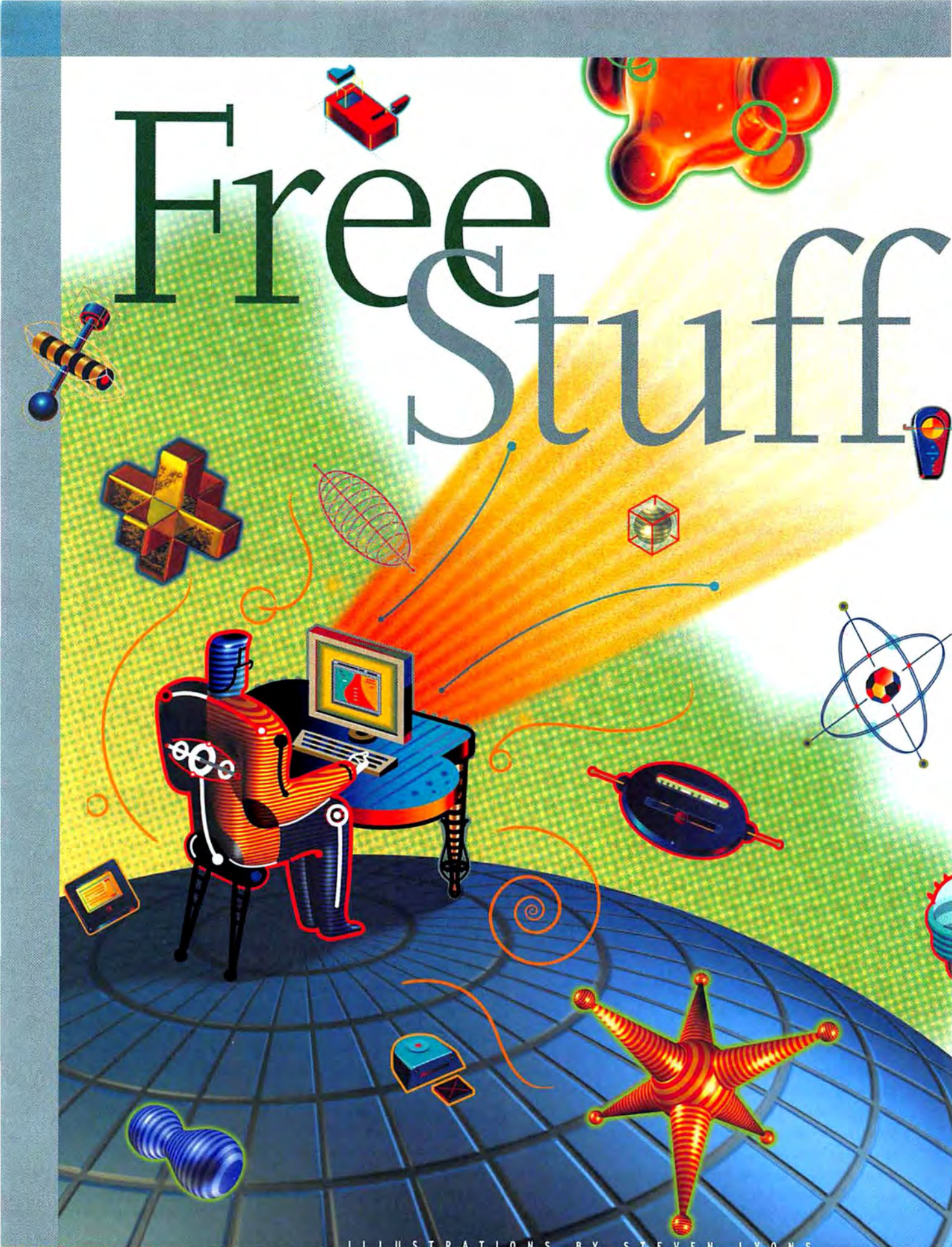
VALUE: Could be worthwhile for academic researchers.

List price: $550 per year for individual subscribers

www.oed.com

PRODUCT INFO NO. 646

Free Stuff



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SECTION EDITOR
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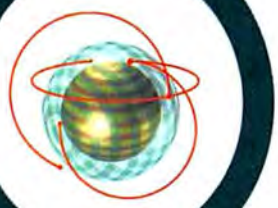


free (frē), *adjective.* Provided without, or not subject to, a charge or payment: *free parking; free sample; free ride.*

These days, *free* is the word that makes the Web—and the computing world—go round. Free e-mail, free PCs, free advice, free shipping...free almost anything. Everyone, it seems, wants to give us something for nothing.

But freedom has a price—lots of them, actually. That nifty free service you signed up for may pelt you with spam. The real price of that free computer might be an unhappy marriage with the wrong ISP. And an alarming percentage of freebie merchants won't fork over the goods until we reveal our buying habits, financial wherewithal, and other highly personal matters.

Which is why we've assembled this one-stop guide to shopping the free economy. First up is the "5th Annual Best Free Stuff Online," our latest yearly roundup of the Web's greatest giveaways. This time, we spotlight new and lesser-known items, as well as a few old favorites.

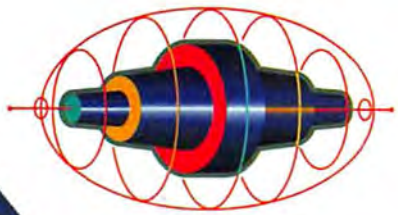
A computer for $0.00? That's what "free PC" vendors claim to provide. Read "Free PCs: The Price You Really Pay" to get the straight scoop. No, the systems aren't really free; and buying the wrong one could be a costly mistake.

Many PC users would pay any price for good technical support. But now, some services offer it for nothing. "Free Support Free-for-All" reports on new third-party tech-support megasites that promise to troubleshoot your thorniest computer problems online—at no cost.

In "Beyond Free-Mail," we review 20 ad-supported Web-based services—everything from e-mail to ISP connections to virtual hard drives. Concerns about security and privacy are legitimate, but the best of these services are real deals.

Then there are those free services with an entrepreneurial edge. "Running Free" examines the pros and cons of Web tools that assist with two basic tasks of every small business: effective teamwork and money-making.

Throughout the issue, look for our "Gotcha Watches" that expose hidden catches connected with free stuff. You need to be careful out there, since some things *are* too good to be true. But if you shop smart, it's a great time to be a freeloader. ▶



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Free Stuff 2000

5th Annual Best Free Stuff Online

SPANNING THE WEB TO BRING YOU THE BEST THAT MONEY CAN'T BUY—FROM THE THRILL OF FAST NET ACCESS TO THE AGONY OF FREE STOCK QUOTES.

BY GLENN MCDONALD AND GREG HOLDEN

SO MUCH FREE STUFF, SO LITTLE TIME. It's no secret that a tremendous number of freebies—applications, services, and sites—are available on the Web, with more offerings cropping up all the time. There's a real noise problem out there, and it's only getting worse.

The trick is to tune out all the promotional chatter and get to the valuable stuff quickly. But to find the good giveaways, you often have to waste time rummaging through heaps of ill-conceived, poorly executed, and just plain useless stuff. (Well, sometimes we like the useless stuff—we kiss you, too, Mahir!) In fact, we did a fair bit of slogging to find the items listed here. This time around, we searched for innovative or little-known free stuff that leverages the Net's strengths ▶

ILLUSTRATIONS BY CALEF BROWN

of interactivity and multimedia capabilities. Evite.com, for instance, offers a simple new way of performing a previously tedious "offline" task (managing invites for group gatherings). Other offerings include downloads of free business apps and a service that lets you access your medical records from anywhere in the world. (Advertising supports most of these services.) But who says the Internet has to be all work? Sometimes we just want to waste time on the Net. So we also offer a few of the best online time-killers—diversionary enterprises like the brilliant TrailerVision and the bizarre masterpiece What's Inside Jeremy's Wallet? We think of *everything*.

FREEWARE

● RAM CHARGER

RamBooster This is an ingenious little program that sits quietly in your system tray, monitoring RAM usage as you work. When available memory dips below a user-defined level, RamBooster clears out trash from applications you've closed—speeding up performance and helping prevent system crashes. It works as well as commercial competitors and is very compact—only 618KB once installed.
www.saunalahti.fi/%7Eborg/rambooster

● OPEN SESAME

PassKeeper Having trouble keeping track of all the passwords you use to access Web sites and e-mail accounts? This convenient program gives you a secure place to store all your log-in information. In addition, it encrypts passwords and IDs so that no one can peek at them, and the program itself requires a password for entry.
www.passkeeper.com

● WEB CALL FORWARDING

CallWave If you have only one phone line and don't want to miss calls while you're surfing the Net, try out CallWave. An advertising-supported freeware program, CallWave forwards incoming calls to a toll-free number when you're online. Callers leave a voice-mail message that is then converted to an audio file and sent to you immediately via the Internet. CallWave alerts you that a message has arrived by flashing its on-screen ad window, which you must leave open while you're online. You can choose to either play the message while you're still on the Internet or log off to return the call. One catch: Although the application is free, you have to subscribe

Sharing the Wealth

FILEWORLD'S 10 MOST POPULAR DOWNLOADS

FREE SOFTWARE: It's the greatest thing since coffee refills. PC World Online's own FileWorld library offers over 4000 free programs for everything from business apps to screen savers. You won't ever see Windows on this list, but there are plenty of free Windows enhancements. Below is a list of the ten most popular downloads in our library. For complete information, visit us at www.pcworld.com/apr00/free_files.

1 WINAMP This high-fidelity music player supports WAV, MP3, CD, WMA, Audiosoft, MOD, and other audio formats. It features a playlist editor and a ten-band graphic equalizer.

2 ALL ICONS Over 4000 full-color icons for Windows 9*x*. Categories include cartoons, games, rock stars, sports, and art.

3 INTERNET EXPLORER 5.01 & 5.5 BETA The latest versions of Internet Explorer feature a smaller footprint, faster rendering, and automatic Web form completion. They include Outlook Express, NetMeeting, and FrontPage Express. Version 5.5 beta also offers better support for DHTML and vertical text. Plus, it has a print preview feature.

4 STAR WARS PREQUEL SCREEN SAVERS These two screen savers include sound, pictures, and animations from *The Phantom Menace*, George Lucas's prequel to *Star Wars*. The Phantom.zip file also includes behind-the-scenes photos.

5 REGREPAIR 2000 Have you ever had to reformat your hard drive after a crash? This utility can help save you from that fate. It systematically repairs and corrects problems with Registry files, corrupt font files, and more.

6 CLEAN SYSTEM DIRECTORY This program scans your hard drive for .dll files and identifies those that are no longer referenced by any programs. You can then delete these files—saving disk space and improving system performance.

7 JAMES BOND SCREEN SAVERS Display the classic James Bond opening sequence and watch Agent 007 blow bullet holes through your desktop. You'll also see the requisite Bond girls, gadgets, heroes, and villains.

8 X-FILES DESKTOPS The conspiracy is out there; and now it's on your computer, too. The *X-Files* desktop theme includes wallpaper, icons, and .wav file sound effects for tasks such as emptying your Recycle Bin or exiting Windows.

9 DIRECTX Download the latest version of Microsoft's multimedia technology for Windows, and you'll be ready to rock with the next generation of media apps and 3D games. These drivers update the application programming interfaces for Windows 9*x*. The components include DirectPlay, DirectDraw, DirectSound, DirectInput, and Direct3D. Version 7.0 offers enhanced graphics and audio capabilities, as well as faster frame rates.

10 NETSCAPE COMMUNICATOR 4.6 This popular Internet communications suite lets you browse and create Web pages, send e-mail, and chat. The latest version also allows you to access local information (weather, movie times, and so forth). It features RealPlayer G2, PalmPilot Synch tools, and 56-bit cryptography for secure transactions. **–Max Green**

to your local telephone company's call-forwarding service—and that means paying a monthly fee of $3 to $5.
www.callwave.com

COMMUNICATION FACILITATORS

● FIGHT FOR YOUR RIGHT TO EPARTY

Evite This Web tool puts the RSVP into HTML. Using a simple Web-page form, you can send out e-mail invitations to numerous recipients, who are then directed to your Evite RSVP page. There are standard templates for more than a dozen types of events, such as movies, dinner parties, happy hours, or even online functions—such as a fund-raiser or group chat. Recipients reply by checking off a box, and they can also add extra messages or comments. Discriminating partyers can view a list of other attendees before committing. Plus, Evite provides maps, door-to-door directions, weather forecasts, and the all-important BYOB option.
www.evite.com

● MAKING A LIST

Onelist Mailing lists—which allow ongoing digital correspondence among any number of participants—were among the first Internet tools to take off, and for good reason. With little effort, you can design a list for one-step e-mailing and event posting among friends, business colleagues, or groups with common interests. There are many good list-hosting services out there, but Onelist has the best overall design and features, including file sharing, message archives, and calendar functions. Once your list is up and running, members can send mail to its address, and their messages will be forwarded to all other members of that list. You can also join any of Onelist's more than 280,000 public lists (which are arranged by category). Commercial services pay the bills for Onelist by placing inconspicuous text ads at the bottom of e-mail dispatches. Onelist will be merging with EGroups in May, but you can still access the site through the Onelist URL.
www.onelist.com

● WHO LOVES YA, BABY?

Egreetings What better way is there to send a message to your significant other than using Barry White as your emissary? Like other card sites, Egreetings offers a number of free electronic messages in various categories; but this site also includes cards with popular music, such as the mood-setting number that features an animated log fire and Barry White singing "I Get Off on You." For that other demographic in your household, there are also cards featuring teen crooner Christina Aguilera or the alternative band Garbage.
www.egreetings.com

SOMETHING TO CELEBRATE: Evite lets you send electronic invites to everyone on your party list and tallies the RSVPs automatically.

HEALTH AND MEDICAL

● TO YOUR HEALTH

AllHealth Ever found yourself in an emergency room on Bora Bora in dire need of your medical records? Now you can have access to this information no matter where you happen to be. AllHealth, formerly known as BetterHealth.com, will store your medical history online for retrieval from anywhere in the world. Information is encrypted for privacy, and AllHealth states that your data will never be shared with others.
www.allhealth.com

● MEDICINE MAN

Ask Dr. Weil Stop spending money on alternative health-care books by the renowned Dr. Andrew Weil (author of *Spontaneous Healing* and *8 Weeks to Optimum Health*). Now you can ask the good doctor directly about the best natural methods for healing psoriasis or treating your colitis. The easy-to-navigate site features a question of the day, plus various community forums and an extensive, searchable database of archived Q&As. If you've lapsed on all those New Year's resolutions you made in January, consider signing up for Dr. Weil's eight-week natural health overhaul program. There's also a useful "herbal medicine chest" glossary at the site for those who can't tell their echinacea from their eucalyptus.
www.pathfinder.com/drweil

● SURVIVE AND THRIVE

ThriveOnline Part of the expanding Oxygen network's resources for women, Thrive Online is a well-designed women's health information hub that covers it all. You'll find daily health and fitness features, message boards, chat forums, and an Ask the Experts section. Other interactive tools include a Body Mass Index (BMI) calculator, pregnancy calculator, and various health and fitness questionnaires.
www.thriveonline.com

CAREER, FINANCE, AND LEGAL ADVICE

● CLASSIFIEDS, EXPONENTIALLY

CareerPath CareerPath isn't exactly an unknown source of online job listings, but it has recently added new features that make it one of the best places on the Internet for employment searches. In addition to its hundreds of thousands of job listings culled daily from the classified sections of nearly 90 publications nationwide, CareerPath now offers a résumé ▶

posting feature, as well as company profiles. In sheer numbers, it remains the biggest online job listing service.
www.careerpath.com

THE BILLFOLD THAT ATE YOUR BROWSER, Jeremy's Wallet offers an amusing diversion for a dreary day.

● TAILORED TUITION

FastWeb College applicants are used to getting a lot of unwanted mail solicitations. But who would mind receiving notices about scholarships and discounts tailored to their geographic location, interests, and background? FastWeb will match you up with both well-known and obscure scholarship programs that are based on such criteria as whether your great-grandfather fought in the Civil War or whether you were once a golf caddy.
www.fastweb.com

● QUOTABLES

Money.net Some sites offer delayed stock quotes for free but charge for real-time prices. Money.net, however, offers free real-time quotes on any stock that you specify in your personal portfolio. You'll have to register with the site to open a portfolio (don't be fooled by the ticker on the home page; those quotes are 20 minutes old). But Money.net's online form is far shorter than rival Datek Online's, and it doesn't ask detailed financial questions. The home page also gives you recent financial headlines and news on the day's most active stocks.
www.money.net

● POWER OF ATTORNEY

FreeAdvice Attorneys from over 25 law firms around the country have contributed to this site's extensive information on over 100 topics—including immigration, estate planning, and personal injury. The site also offers scheduled, real-time question-and-answer sessions with a lawyer and a good dictionary of legal terms. It's almost enough to make you forswear telling all those lawyer jokes in the future.
www.freeadvice.com

● PAPER CHASE

Legaldocs Why pay a lawyer big bucks to prepare simple legal forms that you can fill out yourself? This site offers free forms, indexed by category, to help you with such tasks as creating a living will, renting property, or authorizing child care. Simply submit the requested data, and the site presents you with a completed form that you can print out or save as an electronic file. Other documents, such as real estate deeds and partnership agreements, are available for a fee.
www.legaldocs.com

REFERENCE AND DO-IT-YOURSELF TIPS

● HAIL BRITANNICA

Britannica.com Go ahead and slam your front door on the encyclopedia salesman. Cross the multimedia CD-ROM off your shopping list, and forget about paying Microsoft Encarta $40 a year for its online reference work. Britannica.com is everything an online encyclopedia should be—plus it's free. A remarkable amalgamation of Internet search engine, encyclopedia, news service, and independent content provider, Britannica.com buries the competition when it comes to providing information on the Net. Type in a search and receive unabridged encyclopedia entries and current articles from more than 75 periodicals, as well as from books and relevant Web sites. No other reference work of comparable quality offers as much.
www.britannica.com

● LEARN YOUR LESSON

PC Show and Tell You won't need naptime after viewing the brief, 1-minute video lessons on this site, but you will advance to the next grade in using software applications. PC Show and Tell offers some 6000 visual lessons on how to master such applications and Internet services as PowerPoint, Excel, Windows 98, and ICQ. Each video focuses on a specific task in an application, so you can jump quickly to a precise problem, such as learning how to add an outside text box to your Excel chart. You will need to download the free 500KB player from the site in order to view the videos.
www.pcshowandtell.com

● MYSTERY SOLVED

HowStuffWorks Ever wonder why potatoes turn brown when you cut them? Are you trying to figure out how the light sabers in *Star Wars* work, or how a gas turbine operates? Then you could spend hours sifting through this interesting site. Illustrated with crisp photos and detailed diagrams, the well-organized articles explain the many mysteries of the world in simple, straightforward language.
www.howstuffworks.com

● HOME REPAIR HELPERS

DoItYourself Your roof is leaking, your drain is clogged, and your toilet is overflowing. Roll up your sleeves, grab your mouse, and search this site's extensive database of tips, FAQs, and instructions on home repair. If you're stumped, the site features handy discussion forums where you can ask other do-it-yourselfers

for advice. Or you can pose questions to professional contractors and home inspectors who moderate the discussions.
www.doityourself.com

CONSUMER GOODS

● CONSUMER RETORTS

Productopia If you want buying advice on a wide range of products, you could subscribe to the venerable *Consumer Reports*; or you could get equally good free tips from your peers on Productopia. This site offers a plethora of straight talk from consumers who have road-tested the electronics, software, and appliances you're thinking about buying. But what sets Productopia apart from other product review sites is its combination of individual consumers' opinions with evaluations and background information written by its own staff. The site is easy to navigate, with links to related product categories on every page. If you're looking at digital cameras but also want to check out video cameras, for instance, you don't need to run another search; simply click on the link.
www.productopia.com

● DIGITAL COUPON CLIPPERS

MyCoupons Coupon clippers, drop your scissors. No registration is required to access this site's grocery and shopping coupons, which you can print out and take to stores for discounts on everything from organic toothpaste to kosher poultry. There are also offers of the day and an Internet coupons page that provides special codes you can use for discounts on such products as perfume, books, and videos from participating online vendors.
www.mycoupons.com

● CUSTOM COUPON

CoolSavings This site personalizes coupon clipping by providing special offers on items that you specify. Once you register, you're asked to choose products from categories such as automotive, grocery, gifts and flowers, hardware and garden, and pets. The site then gives you "coupon codes" for discounts from participating online retailers. Download the site's Coupon Manager software and you can print out coupons for local retail stores, restaurants, and travel providers.
www.coolsavings.com

PHONE AND MAIL FREEBIES

● SEE ME, HEAR ME

Visitalk Less than a year old, Visitalk is an online switchboard designed to let you see, hear, and talk to people anywhere in the world via your PC. When you sign up for Visitalk's free services, you're issued an Internet phone number that allows you to send and receive instant voice messages while online, using Visitalk's free software. You can also set up direct, one-on-one videoconferencing using existing programs such as Microsoft NetMeeting or White Pine's CU-SeeMe. The Buddy-Chat feature allows voice or video calls for up to four people. You'll need a sound card, speakers, and a microphone, plus a videocam for videoconferencing.
www.visitalk.com

● FOLLOW YOUR CALLING

EVoice Like other Web-based voice-mail messaging services, EVoice can collect phone messages while you're on the Internet, then e-mail them to you as WAV audio attachments. But EVoice can also be set up to work with your local phone company's voice-mail feature. Messages will continue to go into your voice-mail box, but you'll also receive notice via e-mail when they arrive. Callers can either leave messages at your regular phone number or at the 800 number that EVoice assigns you. Then you may check messages by phone using your EVoice access number, collect them from the EVoice Web site, or have them sent to your e-mail account as audio files. You'll need a computer with a sound card and speakers to listen to the audio files, plus RealAudio or Microsoft Windows Media Player. The only ▶

GOTCHA WATCH

CASH COW OR WHITE ELEPHANT?

IT PAYS TO SURF...SOMETIMES. AllAdvantage promises to pay you money for active surfing online while its viewbar flashes you ads. But the viewbar tracks your movements across the Net, and the payback is less than staggering—unless you recruit thousands of referrals whose surfing earns you only 10 cents an hour (see "Power Surfing" on page 116).

ALLADVANTAGE'S EVER-PRESENT VIEWBAR monitors the sites you visit (unless you turn it off), and then translates that information into targeted ads.

drawback (there had to be one): Before you receive your batch of messages, you have to listen to a 15-second advertising spiel.
www.evoice.com

● GO POSTAL

Postage4Free Franking (sending mail for free) isn't just for members of the U.S. Congress anymore. Fill out a detailed marketing survey at this site (requesting information such as the car you drive, your long-distance phone service, hobbies, and annual income) and you'll receive ten envelopes, each with 33 cents of postage attached. You'll also receive coupons tailored to your survey answers. You can reorder another set of prepaid envelopes every two or three months when you verify or update the marketing survey. What's the catch? In exchange for surrendering that personal information, you get envelopes with ads printed on them. They may not be ideal for job applications or letters to your sweetheart, but you could use them for paying bills.
www.postage4free.com

Clicking for Dollars

MANY ONLINE STORES have taken a cue from the wildly successful frequent flier programs. Vying for consumer attention in the cluttered Web mall, vendors have begun to offer points for purchases—usually one point per dollar spent—as well as special bonus point offerings. This past Christmas, I did most of my shopping on the Web and came away with much more than I had purchased. By shopping at sites I would have visited anyway, I racked up thousands of points for frequent flier and lodging programs. Plus, I was also able to convert points into charitable donations for the organizations of my choice.

The plans are managed through point-provider partners such as Clickrewards and MyPoints, or through charity point sites such as GreaterGood.com and IGive.com. Once you register with them, you can shop online as usual, except you must enter the Web stores through links on the point provider's site. (Note: If you want points *and* privacy, don't be lured by bonus offers that require you to provide a lot of personal information.)

ClickRewards This site gives ClickMiles for purchases from partner e-merchants (as well as subscriptions to magazines like *PC World*). You can easily monitor the accumulated points in your account, and you can apply the miles to the frequent flier programs for any of ten major airlines. You'll need a minimum of 250 points before you can redeem them, but that's not a problem. You can easily rack up points quickly with the numerous bonus incentives offered for purchases.
www.clickrewards.com

MyPoints This program seems especially eager to give you bonus points. But almost all of them come at the cost of divulging personal information about you and your buying habits. MyPoints has the best-organized redemption page of these services, with QuickLists of awards broken down by number of required points or by participating partners. A minimum of 500 points can earn you gift certificates for retail stores, airlines, restaurants, and even gas stations. As an added incentive, the MyPoints links to Eddie Bauer, Tower Records, and Sharper Image earn you a $10 discount—one you would not get if you went to these vendors' sites directly.
www.mypoints.com

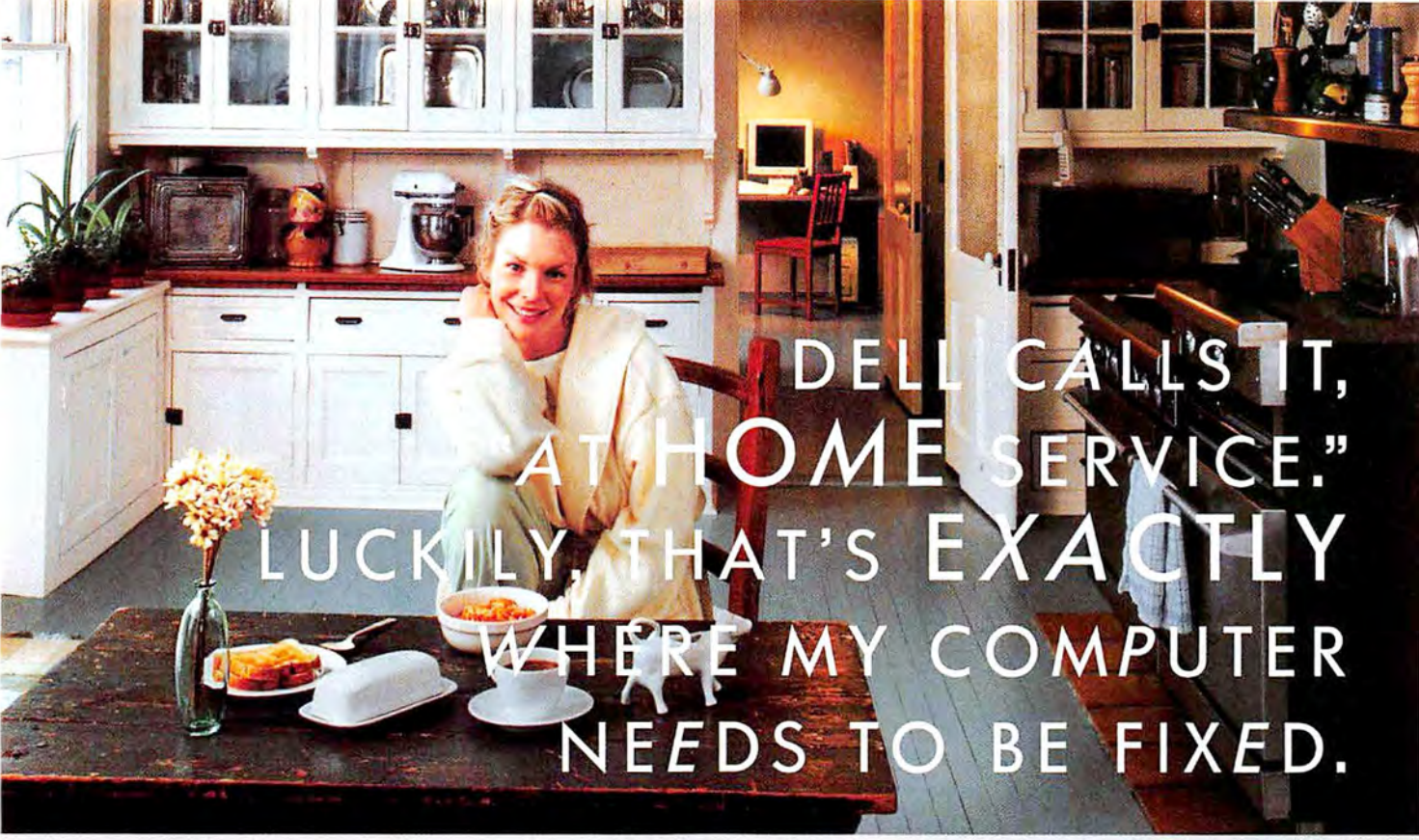
GreaterGood.com You get a $5 certificate to Amazon.com for registering and a $2 donation to your favorite charity for each friend you refer to the site. You can list only one nonprofit cause or charity in your profile at a time, but the site notes what percentage (3.5 and up) of your purchase price is donated. If you return an item, the donation does not change. By linking to merchants from GreaterGood.com, you also get discounts not otherwise offered.
www.greatergood.com

IGive.com You donate money (3.5 percent and up) to charities each time you buy or even browse the IGive shopping mall, which consists of links to hundreds of e-stores. Some merchants offer first-time discounts for shopping via IGive. While a pre-selected list of charities is provided, you can add your own causes to the roster. The site even offers to route the completed donation check to you first, so you can ensure that the funds are really distributed.
www.igive.com —Michael S. Lasky

GAMES AND ENTERTAINMENT

● PLAY NICE, NOW

Sandbox Remember playing in the sandbox when you were a kid? Well, you don't have to give up everything as you get older. This Sandbox, however, is decidedly for grown-ups—with more than 30 interactive sports and financial games to choose from. You can take a crack at stock market simulations to experience the heady thrill of day trading without worrying about all those tiresome Chapter 11 repercussions. Or you can go to the free fantasy sports area to walk a few exciting miles in the sneakers of an apoplectic sideline coach.
www.sandbox.net



For the Fourth Consecutive Year Dell™ Desktops Received an "A" Rating for Service and Support — *PC Magazine*, 7/99

Any computer company can offer you service and support. At Dell™, we're offering you a living, breathing certified technician who will actually come to your house (and into your kitchen if need be). If you have a problem with your system, give us a call 24x7 for a tech to troubleshoot with you over the phone. If hardware support is needed, a technician can be sent to your home. It's called Next-Business-Day At-Home Service[4] and it's available with every Dell Dimension™ desktop we sell. Of course, chances are you'll never need someone to drop by. But if you ever do, just put on a fresh pot of coffee. A certified technician to fix your system at home. It's one more benefit of the Dell4me™ total ownership experience. A complete resource for products and services that make it easy for you to get the most out of technology.

DELL4me™ YOUR THOUGHTS EXACTLY.

***NEW* DELL™ *DIMENSION*™** L550r Desktop
Affordable Desktop Solution
- Intel® Pentium® III Processor at 550E MHz ■ 64MB SDRAM
- 4.3GB[5] Ultra ATA Hard Drive ■ 15" (13.8" vis) E550 Monitor
- Intel® 3D AGP Graphics ■ 40X Max CD-ROM Drive
- SoundBlaster 64V PCI Sound Card with MusicMatch® Jukebox Standard[10]
- PC Speakers ■ V.90 56K Capable® PCI DataFax Modem for Windows®[6]
- *NEW* Microsoft® Works Suite 2000 with Money 2000 Basic
- Microsoft® Windows® 98, Second Edition
- 3-Year Limited Warranty[2] ■ 1-Year At-Home Service[4]

$999 As low as $27/Mo., for 48 Mos.[11]
E-VALUE CODE: **03738-500309s**

Dell Recommended Upgrades:
- Premier 3-Year At-Home Service[4], add $99
- Altec Lansing® ACS-340™ Speakers with Subwoofer, add $40

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[11]Includes 150 hrs./month, plus $1.50/hr. (or fraction) over 150 hours. #800/888/877 access charged $4.95/hr. extra. Excludes taxes and telephone charges. Additional $1.00/hr. surcharge in HI and AK.[12] Monthly payments based on 13.99% APR. APR FOR QUALIFIED CUSTOMERS VARIES BY CREDITWORTHINESS OF CUSTOMER AS DETERMINED BY DELL FINANCIAL SERVICES L.P. Taxes & shipping charges extra, and vary; they are due with 1st payment unless included in the amount financed. Purchase Plan from Dell Financial Services L.P. to U.S. state residents (including D.C.) with approved credit, excluding AR and MN residents. Availability may be limited or offer may vary in other states.

THE LATEST OF THE LATEST FROM DELL.

NEW DELL™ *INSPIRON*™ 5000 Notebook

Performance and Mobility

- *NEW* Intel® Pentium® III Processor at 600MHz featuring Intel® SpeedStep™ Technology[12]
- 15" SXGA+ Active Matrix Display
- 64MB 100MHz SDRAM
- 52WHr Lithium Ion Battery
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- Modular 24X Max CD-ROM Drive
- 2X AGP 8MB ATI RAGE Mobility™-P 3D Video
- Internal 56K Capable[4] V.90 Fax Modem
- 3-Year Limited Warranty[2]
- *NEW* Standard 3-Year On-site Service[4]

$2899 As low as $79/Mo., for 48 Mos.[11]
E-VALUE CODE: **03737-800328h**

Dell Recommended Upgrades:

- 1-Year Dellnet™ Internet Access[10] with 20MB of Online Backup[12], add $99
- 2nd 52WHr Lithium Ion Battery, add $99
- Leather Carrying Case, add $89

Inspiron™ Notebooks include:

- **Microsoft® Windows® 98, Second Edition**
- ***NEW* Microsoft® Works Suite 2000 with Money 2000 Standard**
- **Norton AntiVirus™ 2000**
- ***NEW* Dell™ Proactive Support by Attune™**

NEW DELL™ *INSPIRON*™ 3800 Notebook

Design and Affordability

- *NEW* Intel® Celeron™ Processor at 450MHz
- 12.1" SVGA Active Matrix Display
- 32MB 100MHz SDRAM
- 4.8GB[3] Ultra ATA Hard Drive
- Modular 24X Max CD-ROM
- 2X AGP 8MB ATI RAGE Mobility™-M1 3D Video
- 32WHr Nickel Metal Hydride Battery (NiMH)
- 1-Year Limited Warranty[2]
- *NEW* Standard 1-Year On-site Service[4]

$1599 As low as $44/Mo., for 48 Mos.[11]
E-VALUE CODE: **03737-800315**

Dell Recommended Upgrades:

- Upgrade to 14" XGA Active Matrix Display, add $249
- Upgrade to 64MB SDRAM, add $99

DELL™ *INSPIRON*™ 7500 Notebook

Mobile Desktop

- *NEW* Intel® Pentium® III Processor at 650MHz featuring Intel® SpeedStep™ Technology[12]
- 64MB 100MHz SDRAM
- 6.0GB[3] Ultra ATA Hard Drive
- Removable Combo 24X Max CD-ROM and Floppy Drive
- 2X AGP 8MB ATI RAGE Mobility™-P 3D Video
- Internal 56K Capable[4] V.90 Fax Modem
- 79WHr Lithium Ion Battery
- 3-Year Limited Warranty[2]
- *NEW* Standard 3-Year On-site Service[4]

$3299 As low as $90/Mo., for 48 Mos.[11]
E-VALUE CODE: **03737-800332s**

Dell Recommended Upgrade:

- *NEW* Inspiron™ 7500 Advanced Home Base Bundle (Advanced Port Replicator, Midnight Grey Keyboard, and Mouse), add $289

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64MB DDR GRAPHICS CARD: Get Double Data Rate technology and twice as much memory as a 32MB graphics card for awesome gaming. Check out www.dell4me.com/64MBddr

NEW DELL™ PROACTIVE SUPPORT BY ATTUNE™: This software recognizes and helps prevent many potential problems with your system. For more information go to www.dell4me.com/proactivesupport

WIRELESS NETWORKING: Get the latest information on Home Networking Solutions by visiting www.dell4me.com/homenetworking

NEW 5000 NOTEBOOK: Take a virtual tour of our newest Inspiron™ notebooks, powered by Intel® Pentium® III processors up to 650MHz, combined with Intel® SpeedStep™ Technology and up to a 15" SXGA+ screen. Visit www.dell4me.com/5000tour

intel inside
pentium® III

[10]Includes 150 hrs./month, plus $1.50/hr. (or fraction) over 150 hours. #800/888/877 access charged $4.95/hr. extra. Excludes taxes and telephone charges. Additional $1.00/hr. surcharge in HI and AK. [11]Monthly payments based on 13.99% APR. APR FOR QUALIFIED CUSTOMERS VARIES BY CREDITWORTHINESS OF CUSTOMER AS DETERMINED BY DELL FINANCIAL SERVICES L.P. Taxes & shipping charges extra, and vary; they are due with 1st payment unless included in the amount financed. Purchase Plan from Dell Financial Services L.P. to U.S. state residents (including D.C.) with approved credit, excluding AR and MN residents. Availability may be limited or offer may vary in other states.

[1]Prices, specifications, and availability may change without notice. Taxes and shipping charges extra, and vary. Cannot be combined with other offers or discounts. U.S. only. [2]For a copy of Guarantees or Limited Warranties, write Dell USA L.P., Attn: Warranties, One Dell Way, Round Rock, Texas 78682. [4]At-Home or on-site service provided via third-party contract with customer. Availability varies. Technician will be dispatched if necessary following phone-based troubleshooting. To receive Next-Business-Day

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- Intel® 3D AGP Graphics ■ 40X Max CD-ROM Drive
- SoundBlaster 64V PCI Sound Card with MusicMatch® Jukebox Standard[22]
- harman/kardon Speakers
- V.90 56K Capable[6] PCI Telephony Modem for Windows®
- 1-Year Dellnet™ Internet Access[16] with 20MB of Online Backup[12]

$1299 As low as $35/Mo., for 48 Mos.[17]
E-VALUE CODE: **03737-500312**

Dell Recommended Upgrades:

- 8X Max DVD-ROM Drive, add $60
- MS® Natural Keyboard Pro, Dell™ Edition, add $59

DELL4me™

The Dell4me™ total ownership experience; a complete resource for products and services that make it easy for you to get the most out of technology.

SOFTWARE: Dell™ offers a variety of software multipacks designed for work, education or play. ■ Choose from one of four Education Packs[14], $79

PRINTERS: Dell™ simplifies your life and ensures compatibility by pre-installing drivers for select printers[18] on your *NEW* Dell PC. Just turn it on, attach the printer cable, it just takes seconds. ■ HP® DeskJet® 952C Printer, $299 ■ Other brands and models available, starting at $99

CAMERAS AND SCANNERS: Dell™ offers you the tools you need to take pictures and archive images on your hard drive instead of in a shoebox. Send pictures and video to friends and family via e-mail. ■ HP® ScanJet® 4200 Cse, $179 ■ Intel® PC Camera ProPack, $129 ■ Kodak DC 215 Zoom Millennium, $349

SERVICE AND SUPPORT: Dell™ offers you the help you need when you need it, via phone or online. ■ 24x7 phone and online tech support ■ Dimension™ Premier 3-Year At-Home Service[4], $99 ■ Inspiron™ 5000 and 7000 notebooks now come with 3-Year On-site Service[4] ■ Support.dell.com for innovative online support tools

INTERNET ACCESS AND SERVICES: Dell™ offers you access to the Internet as well as online services and resources designed to help you make the most of your PC. ■ 1-Year Dellnet™ Internet Access[16] with 20MB of Online Backup[12] $99 ■ Simple drag and drop website creation tool with 12MB homepage storage space ■ Over $350 worth of special offers for Dell customers with popular online retailers

PAYMENT SOLUTIONS: Dell™ offers several payment options designed to fit a wide range of customer needs. ■ Dell Platinum Visa® Card ■ Dell Purchase Plan[17] ■ Dell E-Check (automatic checking withdrawal)

SPECIAL OFFERS: Learn about the latest discounts and promotions at www.dell4me.com

Dimension™ Desktop Systems include:

- Keyboard ■ Mouse ■ 3.5" Floppy Drive
- Microsoft® Windows® 98, Second Edition 2000
- *NEW* Microsoft® Works Suite 2000 with Money 2000 Standard
- 3-Year Limited Warranty[2] ■ 1-Year At-Home Service[4]
- *NEW* Dell™ Proactive Support by Attune™

DELL™ *DIMENSION*™ L466cx Desktop

Affordable Desktop Solution

- Intel® Celeron™ Processor at 466MHz
- 64MB SDRAM ■ 4.3GB[5] Ultra ATA Hard Drive
- *NEW* 15" (13.8" vis) E550 Monitor
- Intel® 3D AGP Graphics
- 40X Max CD-ROM Drive
- SoundBlaster 64V PCI Sound Card with MusicMatch® Jukebox Standard[22] ■ PC Speakers
- V.90 56K Capable[6] PCI DataFax Modem for Windows®

$899 As low as $25/Mo. for 48 Mos.[17]
E-VALUE CODE: **03737-500308**

Dell Recommended Upgrades:

- 10GB[5] Ultra ATA Hard Drive, add $70
- 1-Year Dellnet™ Internet Access[16] with 20MB of Online Backup[12], add $99

NEW DELL™ *DIMENSION*™ XPS T700r Desktop

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- 32MB NVIDIA TNT2 M64 AGP Graphics
- 48X Max CD-ROM Drive
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- Altec Lansing® ACS-340™ Speakers with Subwoofer
- V.90 56K[6] PCI Telephony Modem for Windows®
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$1899 As low as $52/Mo., for 48 Mos.[17]
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- 8X Max DVD-ROM Drive
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- V.90 56K Capable[6] PCI Telephony Modem for Windows®

$2799 As low as $76/Mo., for 48 Mos.[17]
E-VALUE CODE: **03737-500327m**

Dell Recommended Upgrades:

- *NEW* 64MB DDR NVIDIA geFORCE Plus 4X AGP Graphics Card, add $240
- 1-Year Dellnet™ Internet Access[16] with 20MB of Online Backup[12], add $99

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service, Dell must dispatch technician before 5pm (customer's time). Other conditions apply. [5]For hard drives, GB means 1 billion bytes; accessible capacity varies with operating environment. [6]Download speeds limited to 53Kbps. Upload speeds are less (about 30Kbps) and vary by modem manufacturer and online conditions. Analog phone line and compatible server required. [12]Online backup services provided by third-party agreement with the customer. Limited to 20MB of storage; additional space available at additional charge. Dell is not responsible for lost data. [14]Software, packaging and documentation differ from retail versions. [16]For select Hewlett Packard printers. [17]Limited time offer. Includes one (1) DVD title (max. $20.00 value, including tax and shipping) with purchase of a new Dell system with a DVD-ROM drive. See details at www.dell.com/dellzone. Offer must be redeemed over the internet within 60 days from invoice. Limit one per customer. [22]Includes one (1) upgrade and online technical support from MusicMatch. AC power operation only. [23]Based on Intel AGP 4X Graphics Test and Platform Bandwidth Test. [24]The processor may be reduced to a lower operating speed when operating on battery power. Intel, the Intel Inside logo, and Pentium are registered trademarks; Intel SpeedStep, and Celeron are trademarks of Intel Corporation. MS, Microsoft, IntelliMouse, and Windows are registered trademarks of Microsoft Corporation. HP and DeskJet are registered trademarks of Hewlett Packard Corporation. Trinitron is a registered trademark of Sony Corporation. ©2000 Dell Computer Corporation. All rights reserved.

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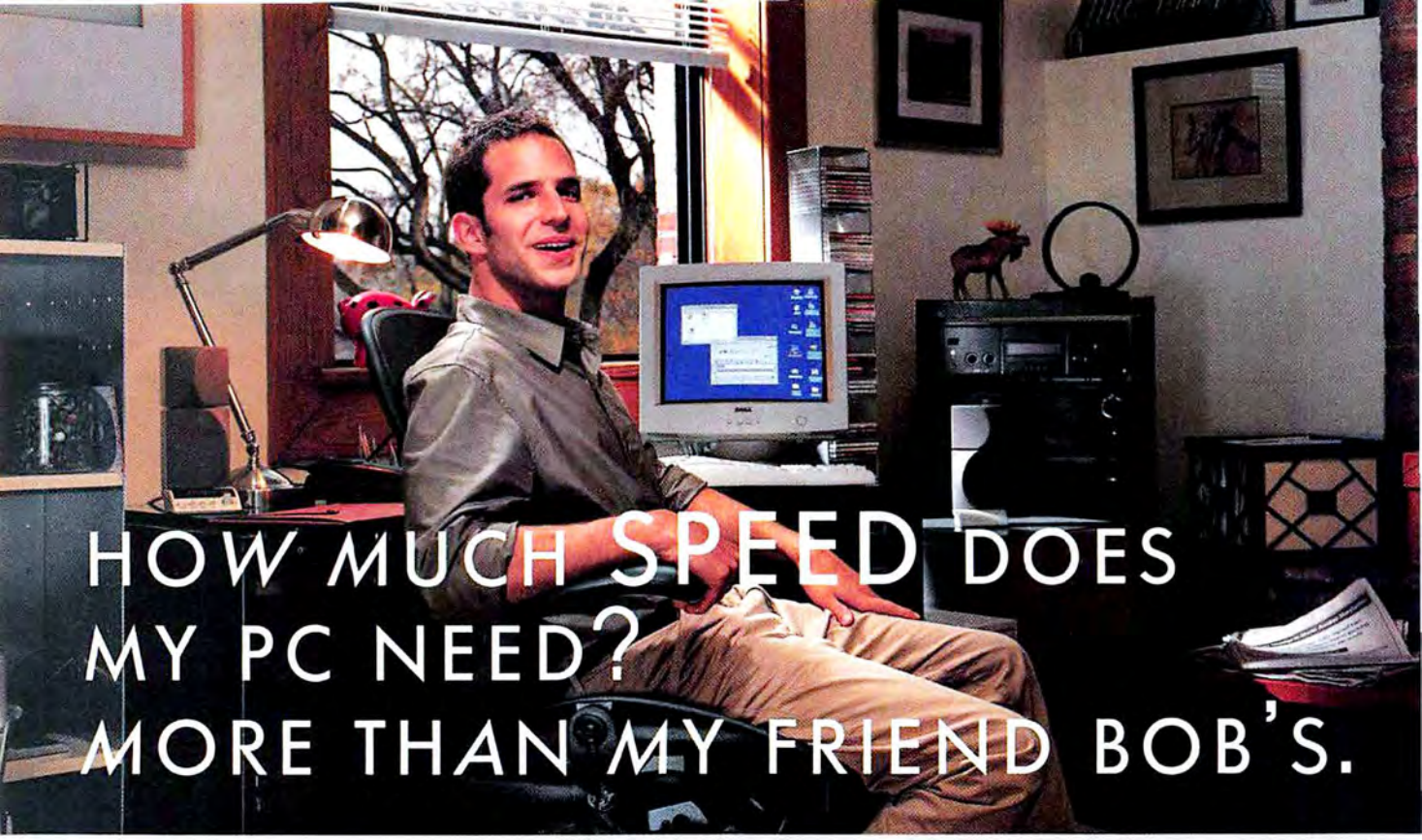

Congratulations. You just left Bob and his computer back there about a half a mile, standing in a cloud of your dust. Meanwhile you're cruising at Mach II thanks to the new motherboard. Combined with RDRAM, it offers up to a 116% increased memory performance gain over earlier systems.[28] The result — *WHOA!* Start it up and you'll find that everything is faster, smoother, more realistic and more intense. Technology at warp speed. It's one more benefit of the Dell4me™ total ownership experience. A complete resource for products and services that make it easy for you to get the most out of technology.

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- *NEW* 32MB NVIDIA geFORCE 4X AGP Graphics Card ■ *NEW* 12X Max DVD-ROM Drive
- SB Live! Value Digital with MusicMatch® Jukebox Enhanced[12]
- Harman Kardon HK-595 Surround Sound Speakers with Subwoofer
- V.90 56K Capable[5] PCI Telephony Modem for Windows®
- *NEW* Microsoft® Works Suite 2000 with Money 2000 Basic
- Microsoft® Windows® 98, Second Edition ■ QuietKey™ Keyboard
- Microsoft® IntelliMouse® ■ 3-Year Limited Warranty[7] ■ 1-Year At-Home Service[8]

$2999 As low as $82/Mo., for 48 Mos.[17]
E-VALUE CODE: **03739-500229b**

Dell Recommended Upgrades:

- *NEW* 64MB DDR NVIDIA geFORCE Plus 4X AGP Graphics Card, add $240
- *NEW* 12X Max DVD-ROM Drive and Decoder Card with TV Out with *FREE* $20 DVD Movie from Reel.com[21], add $60
- 1-Year Dellnet™ Internet Access[10] with 20MB of Online Backup[12], add $99

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[10]Includes 150 hrs./month, plus $1.50/hr. (or fraction) over 150 hours. #800/888/877 access charged $4.95/hr. extra. Excludes taxes and telephone charges. Additional $1.00/hr. surcharge in HI and AK. [17]Monthly payments based on 13.99% APR. APR FOR QUALIFIED CUSTOMERS VARIES BY CREDITWORTHINESS OF CUSTOMER AS DETERMINED BY DELL FINANCIAL SERVICES L.P. Taxes & shipping charges extra, and vary; they are due with 1st payment unless included in the amount financed. Purchase Plan from Dell Financial Services L.P. to U.S. state residents (including D.C.) with approved credit, excluding AR and MN residents. Availability may be limited or offer may vary in other states.

● FANTASIA 2000

ESPN Fantasy Games ESPN has long been a frontrunner in putting the wide world of sports on the World Wide Web. Case in point: The sprawling ESPN Fantasy Games network, which offers an array of free and fee-based games that are powerfully appealing (or appalling, depending on how you like to spend your time). Free games include a betting pool sweepstakes for in-season sports and "virtual GM," in which you become the general manager and put together your own basketball team. There's also a handful of free arcade-style games, like Home Run Rally, Slapshot, and the oddly compelling Ultimate Bobsled.
games.espn.go.com

● GOODONYA, MATE

QuokkaSports Anchored by the Australian-owned Quokka.com hub, this site successfully exploits the interactivity of the online medium. It provides plenty of lively content (some in real-time) through interactive games, Web cams, and streaming audio and video of international and adventure sports—such as the Whitbread around-the-world sailing race and the Marathon des Sables in the Sahara. Quokka will also partner with NBC to cover the Olympic Games in Sydney this September.
www.quokka.com

● COMING SOON TO A PC NEAR YOU

TrailerVision Tired of watching film trailers that are better than the movies they advertise? The Canadian director who launched this site uses all the clichéd techniques in the bombastic school of filmmaking—quick strobe-light cuts, fast-action special effects, and throbbing soundtracks—to create hilarious trailers for films that don't exist but that you'll swear you've actually seen. A fresh trailer debuts each Monday. Warning: This site may be addictive.
www.trailervision.com

LIGHT THEIR FIRE with musical greeting cards featuring singer Barry White (among others) from Egreetings.

● THE OLDEST WALLET ON THE INTERNET

What's Inside Jeremy's Wallet? Once in a great while, the endless proliferation of weird ideas online produces a Web site that borders on true genius. What's Inside Jeremy's Wallet? is candidly pointless, yet somehow deeply intriguing. Jeremy's wallet, designed by another resident of the Great White North with too much time on his hands, has been online since 1995 and is billed as "Quite Possibly The Oldest ▶

Free Wheelin'

WEB SITES THAT DELIVER

WITH THE ADVENT OF the Internet and e-commerce, it's now possible to be a complete hermit and still shop 'til you drop (your mouse, that is). Plus, you can get all your purchases delivered to your door. But what may seem like a great convenience can be offset by extra delivery charges. A number of sites deliver for free, but they make you pay for the privilege with higher base prices. We found a few that don't charge you for either the delivery or the perk.

1stAmericanFlowers. Some florists offer free delivery but add a service charge for Internet orders. Not 1st American Flowers, a Canadian business that also doesn't charge sales tax on U.S. deliveries. The company will even deliver the same day if you order by noon in the recipient's time zone. The minimum order is $29.95, but most floral arrangements in the site's catalog cost that much, anyway.
www.1stamericanflowers.com

Boo.com This ultra-hip shopping site delivers clothing and accessories free in the U.S. and in many other countries, including France, Germany, Ireland, and the United Kingdom. (Some overseas orders may come with import duties and taxes.)
www.boo.com

Freeshipping.com Browse through more than a million brand-name products here. You don't purchase from freeshipping.com itself; a robot scours for deals at other online retail sites. But gratis delivery doesn't always mean the lowest price here. Freeshipping led us to a Wusthof cutlery set from cooking.com for $426. But we found the same item at p4online.com for $391, including—you guessed it—free delivery.
www.freeshipping.com

Outpost.com Also known as Cyberian Outpost, this site, which features computers, electronics, games, and home and office equipment, takes the term "free shipping" to a new level. The company offers free *overnight* delivery in the U.S. via Airborne Express Next Day service. Most sites send goods via UPS or USPS ground, which can take a week or more to arrive.
www.outpost.com

Vitamins.com Feeling run down? Hurry to this site for vitamins and other nutritional supplements, as well as toiletries. Shipping is free in the U.S. The site also provides an online encyclopedia with sections such as general health concerns, herbal remedies, and drug interactions.
www.vitamins.com

USAppliance This online store will not only deliver heavy appliances such as refrigerators and dishwashers to your home, but its delivery people will even unpack the item and plug it in for you.
www.store.yahoo.com/usappliance

–Greg Holden

Wallet On The Internet." The B-movie–inspired design is superb. You can click your way through each item in Jeremy's wallet, such as his video rental cards and driver's license, and read the amusing commentary on his so-called life. Contents are updated every week or so. Be sure to check out the photo of Jeremy with his "platonic" friend Johanna, and the heartfelt fan mail that it inspired.
www.inforamp.net/~xeno/wallet

● ALL TRIVIA, ALL THE TIME

AbsoluteTrivia The Disneyland of trivia sites, AbsoluteTrivia boasts a database of more than 10,000 infobites, which are sortable by keyword or category. Dedicated trivia enthusiasts will enjoy the random trivia generator, which pitches a factual fastball with each click of the mouse, such as "Badminton is the world's fastest racket sport: a shuttle can leave the racket at a speed of almost 200 mph." Furthermore, you'll find a ton of links to additional trivia resources—so your quest for dubiously useful knowledge to impress your friends need never end.
www.absolutetrivia.com

Glenn McDonald is a freelance writer in San Francisco; Greg Holden writes about technology from his home in Chicago; Michael S. Lasky is a senior editor at PC World*; and Max Green is editor of FileWorld.* ■

Power Surfing

GETTING PAID TO GO ONLINE

HERE'S AN ENTICING CONCEPT: Get paid to surf the Web. That's what AllAdvantage, and other companies like ValuePay.com, promises members who sign up with them. But predictably, the reward does not come quite so easily.

By paying consumers to view ads, AllAdvantage turns the rules of marketing on their ears. Other services, such as Cybergold, pay only when you actually visit an advertiser's Web site. But AllAdvantage works through a viewbar—an always-on-top window that monitors the sites you surf, then delivers targeted ads. If you visit an auction site, for example, you'll likely see ads for auction sites the next time you go online. The payoff for your browsing is 50 cents for every hour you surf—up to a maximum of 25 hours per month. A little quick math reveals that you'll top out at $12.50/month. Big whoop.

But you also earn money on referrals. For every hour that someone you refer spends online, you get 10 cents. Referrals of referrals earn you 5 cents. Earnings are paid out monthly. The result? Well, according to AllAdvantage, one subscriber earned $5500 in November, and 44 members racked up more than $1000 each that month.

TOO GOOD TO BE TRUE?

WHILE GETTING paid to surf sounds good, there are privacy concerns. AllAdvantage tracks your every move on the Web and can match your name and e-mail address to the sites you visit. That's sensitive (and valuable) data. AllAdvantage says it does not pass this information on to advertisers and it conducts all targeted marketing internally. Members can also turn off the viewbar to protect their surfing privacy (but, of course, they don't earn money while the viewbar is off).

Still, the bottom line is that you have to amass an empire of referrals to really cash in. And, the amount of time you earn for referrals is linked to the time *you* actually surf. If you surf 10 hours a month and your referrals each surf 25, you earn only 10 hours for each referral.

I tested AllAdvantage for a month and was amazed at how little I accrued. I spent at least 40 hours surfing during that time but received credit for just over eight. My earnings were an underwhelming $4.23—not even enough to cover my ISP bill.

Why so little? The company only credits you for "active surfing," which means you must scroll or click on a Web page "every few minutes" to accrue time. You can't just leave your unattended browser on all day. A green button in the Viewbar turns red when you're no longer "active."

FRIENDS AND FAMILY

IF SOLO surfing earned me little, I figured I could sign up ten friends at 10 cents an hour and really rake in the bucks. At 40 hours, I could earn a whopping... $40. If my ten friends signed up ten of their friends, who signed up ten more friends, I'd have $260 a month. Not enough to quit my day job, but we're getting there. Problem is, I tried to hook friends and family on the deal, but no one was biting.

According to Ron Streeter, I wasn't seeing the business potential in the plan. Streeter, one of AllAdvantage's higher earners, has some 13,000 referrals. As owner of a T-shirt printing business, he set up a banner on his Web site to attract referrals: Anyone who links to the AllAdvantage site and signs up under Streeter's account earns surfing dollars for him. The first check arrived in September for $229. In December, he earned more than $2500.

So what's the advantage? If you don't mind the viewbar tracking your moves, you could earn pocket change. But to get the big payoff, you must put serious effort into building referrals—or have your own Web site to lure them in. www.alladvantage.com

—Glenn McDonald

You ought to be embarrassed if you're not using Net2Phone's Internet Telephony Kit to make FREE PC phone calls!

You call yourself a techie? You think you're up on the hottest gizmo?

"People we called didn't even know we were using a computer to speak with them."

PC Magazine

If you're not using Net2Phone's exciting new Internet Telephony Kit, you're nowhere.

Don't apologize. Just take advantage of this exciting offer:

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Check out the enclosed CD-ROM from PC World to learn more about Net2Phone!

Circle 132 on card or go to www.pcworld.com/productinfo

"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.

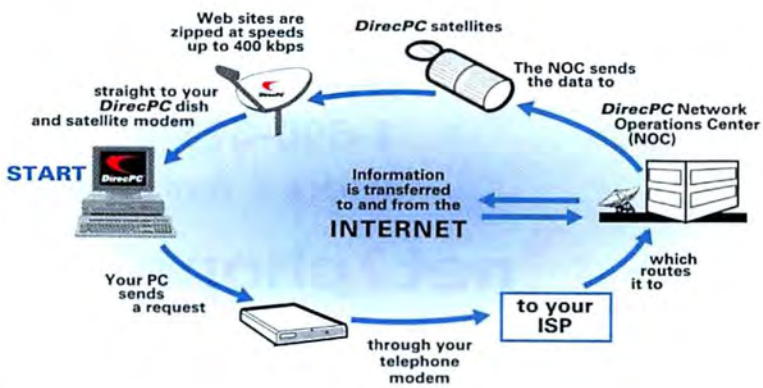
HARDWARE AS LOW AS **$149**

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.



a little Wait?"

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.

SERVICE AS LOW AS **$19.99/MO.**

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.

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 of 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) Additional Hourly Rate (Without ISP)	$1.99/Hour $.99/Hour	$1.99/Hour $.99/Hour	$1.99/Hour $.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

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WWW.DIRECPC.COM

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HUGHES NETWORK SYSTEMS

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Circle 97 on card or go to www.pcworld.com/productinfo

Free PCs: The Price You Really Pay

OUR TESTS OF HALF A DOZEN "FREE" COMPUTERS SHOW PERFORMANCE IS MIDDLING AND THE PRICE IS FAR FROM ZERO.

BY CHRIS LINDQUIST

THE FREE PC SOUNDS LIKE A GREAT IDEA. You get a nice, shiny new system sent to your doorstep, at little or no up-front cost. In return, you put up with a few on-screen ads or cleverly disguised marketing pitches. So how can a bargain-conscious consumer lose?

Look under the glossy surface of the latest offers of free or nearly free PCs, however, and you're likely to discover underpowered systems, long-term ISP commitments, undesirable privacy intrusions, and annoying on-screen advertising. To top it off, what you save in dollars you may lose via limited warranties and dubious tech support policies. In short, "free" may include hidden costs you're unwilling to pay. ▶

ILLUSTRATIONS BY JOHN KUCZALA

But are all free PCs a bad deal? We tested half a dozen systems from EMachines, EPCdirect, Gobi, InterSquid, MyFavoritePC, and PeoplePC. Our conclusion: So-called free PCs work best as entry-level computers for people who are more concerned with accessing e-mail and cruising the Web than with crunching spreadsheet numbers and editing digital video. But that verdict should come as no surprise. Computer-savvy users are more likely to push a PC to its limits, yet long for even more performance—which is something you simply can't get for nothing.

FREE PCs IN FREE-FALL

THE FIRST GENERATION of free PC companies found they had a lot to lose. Many couldn't make enough money to stay in business. As a result, Enchilada and Microworkz closed shop, leaving some customers waiting in vain for undelivered free PCs or stuck with no one to call for technical help. Another company, Free-PC, recently merged with PC maker EMachines and has no plans to accept new applications. Major desktop makers Hewlett-Packard and Micron—which briefly claimed to offer free or low-cost PCs—have withdrawn from that market to focus their efforts on producing higher-powered—and more profitable—models with traditional pricing arrangements.

The industry has grown less bold about touting these systems as free. InterSquid still calls its machines "free," but PeoplePC refers to its program as a "buying community" in which the first deal a new member gets is a PC. The hype seems less pronounced at retail outfits, where vendors are beginning to offer $400 rebates on pricier PCs and notebooks if the buyer agrees to sign up with an ISP. And in some stores, these rebates apply to almost every piece of hardware on the showroom floor—from printers to refrigerators.

FREE PCs ARE FINE IF YOU JUST WANT TO USE THEM TO SEND E-MAIL, BROWSE THE WEB, AND WRITE A FEW LETTERS.

Despite their drawbacks, a few of these systems do have enough positives to earn a place in at least some homes. But if you don't weigh the pros and cons of signing a long-term contract before making the commitment, that no-cost PC could become a high-priced ball and chain.

A WEB OF COMMITMENTS

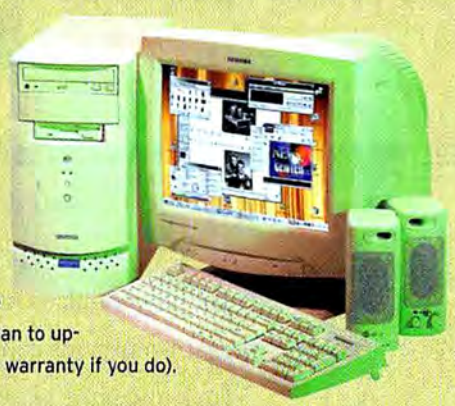
FREE PC VENDORS use various schemes to give users no-fee PCs. Most variations involve rebates, ISP commitments, or both—and make you pony up a certain amount of cash. Some programs, such as the one that EMachines offers, require you to buy a low-priced system online or at a local retailer. Then you get a rebate if you sign up for three years of ISP service from CompuServe or Prodigy. InterSquid takes a more direct approach: Sign up for 30 months of PSINet's ISP service (at a high $30 per month), and it gives you a 400-MHz Celeron computer.

Unfortunately, a long-term Internet service contract—a commitment practically every free PC arrangement requires—can lead to months of frustration if things don't work out. Facing busy signals and slow connections? Sorry, you signed the contract. In our reader survey on free PC experiences, nearly 69 percent of our respondents said they were most put off by the long-term ISP deals.

ISP plans also lock you into a particular service at a time when the market is fluctuating significantly. If your free or low-cost system came via a rebate program, you're probably married to your ISP for the next three years. (InterSquid's PSINet plan lasts six months less, and some programs let buyers choose from one-, two-, or three-year plans, with corresponding rebates.) As cable modem and digital subscriber line (DSL) services arrive nationwide, you may not want to get locked into a three-year commit-

BEST DEAL

PEOPLEPC



IT ISN'T THE CHEAPEST or the fastest, but PeoplePC's package offers the best coverage of the lot, including a three-year warranty and a lemon policy if your machine goes sour. PeoplePC's home page and documentation make it easy to get started on the Net. But this PC is best for folks who don't plan to upgrade their hardware later (you may void the warranty if you do).

WORST DEAL

MYFAVORITEPC

ITS PRICE IS LOW—but there's no preinstalled software beyond Windows 98, so you have to buy apps that other vendors bundle with their systems. The one-year parts-and-labor warranty is too short. Answers come via e-mail—not over the phone—and the company's tech support is open just 12 hours daily. The only upgrades you can buy from MyFavoritePC are a monitor and an extended warranty plan.

PHOTOGRAPH: KEN SMITH

WOULD Lynda Camba RECOMMEND A Free PC?

Yes

OCCUPATION: Medical biller
FREE PC: Gobi
PRIMARY USE: Graphics and Web design.
BEST THING ABOUT IT: Since May 1999, she reports, she has encountered practically no busy signals when accessing the included Internet service.
WORST THING ABOUT IT: The service lacks both newsgroups and POP3 e-mail support—she has to get her e-mail via a less-convenient Web-based interface.
ADVICE FOR THE COMPANY: "I would tell them to improve their online support. Right now, as far as I'm concerned, it is nonexistent."

PHOTOGRAPH: AMY ETRA

ment to an analog modem, especially if you can't switch without paying extra.

Some free PC vendors understand this problem. Gobi, for instance, says it may add a DSL option sometime this year. At press time, however, the company hadn't yet established whether customers would be able to switch in midcontract and how much making the change would cost.

If the ISP you agreed to use doesn't have a local number in your area, you'll have to pay toll charges. Vendor EPCdirect emphasizes this point by including on its Web page a warning window about toll charges. Big phone bills will quickly eat into any hardware savings you achieve.

Free PC vendors such as PeoplePC and Gobi give users a customized home page full of links to ads and promotions that encourage online buying. Gobi includes small advertising links at the top of the screen, too, but you can expand windows over them, so they don't take up useful desktop space. EPCdirect bundles membership in its parent company's online buying service, MyShoppingClub.

Other options from companies like Gobi and PeoplePC amount to loan agreements in which you promise to pay a certain amount per month for three years. In return, you get a 366-MHz PC, Internet service, and access to special "members-only" promotions and sales through a company's portal-like Web site.

These deals change continually. At press time, PeoplePC was offering a $100 bonus for joining the Etrade online stock trading service, $20 off any purchase of $50 or more at Art.com, and $10 off a first purchase at Buy.com. Another point: Read the configuration details carefully before you sign up. Some vendors (like EPCdirect and EMachines) don't include a free monitor in the deal.

SURVEYING THE FREE RANGE

WE ANONYMOUSLY bought free PCs from some vendors and ordered review units from the others. We also conducted a survey of 3541 *PC World* readers to find out whether anyone uses free PCs. More than 90 percent of the 396 survey respondents who reported owning a free PC said they used it for e-mail, and 84 percent cited Web surfing. Just over 62 percent listed gaming as one of the main activities they use their free PC for. And not quite 55 percent said they use it for running office productivity software.

Readers who didn't own a free PC but who planned to get one intended to use it as a secondary machine, saving their primary computers for more important tasks.

But no-cost systems aren't suitable for everyone. Power users and serious game players would do better to select one of the low-priced PCs that appear on the budget side of our *Top 15 Home PCs* chart, for example. PCs in this price range carry surprisingly large monitors, ample hard disk space, and sometimes DVD-ROM drives. Free computers generally hail from the shallow end of the PC gene pool, mustering small hard drives, tiny monitors, weak graphics cards, minimal memory, and bargain-basement processors—hardly the ideal home for Quake III or Photoshop.

WHAT DO YOU EXPECT FOR NOTHING?

SCRUTINIZE THE FINE print, and you may get the impression that most free PC plans are written by automobile dealers. None of the packages in this roundup, ▶

EMachines

www.e4me.com, 877/566-3463

THE DEAL Buy an EMachines PC and get a $400 rebate when you sign up for three years of CompuServe Internet service.

THE CATCH EMachines offers free phone-based tech support for only 15 days after your first tech support call; subsequent calls cost $20 each—or you can purchase a three-year extended service plan for $89. You must buy a monitor separately.

THE FEATURES Celeron-366 CPU,[1] 64MB of RAM, 128KB of L2 cache, 4.3GB hard drive, ATI Rage Pro Turbo graphics card with 4MB of RAM, 16X-40X CD-ROM drive, Conexant SoftK56 PCI modem, integrated Crystal Sound Fusion PCI Audio sound, SP-12 speakers, mini-tower case, Windows 98, Microsoft Works 4.5.

TOTAL COST OF OWNERSHIP

$475	PC (without monitor)
$792	($22 x 36 months of CompuServe)
$129	15-inch monitor
($30)	monitor rebate from retailer
($75)	EMachines rebates
($400)	CompuServe mail-in or in-store rebate
$0	shipping and handling (bought at retail)
$891	total

[1]At time of testing; CPU is now a Celeron-466.

for example, offers customers a fully outfitted computer and monitor without any payment or shipping fees. Yet not infrequently they're marketed as free systems.

The logistics of acquiring a free PC can range from supremely simple to agonizing. In our experience, the online deals took minimal effort to consummate. We ordered a PeoplePC and a MyFavoritePC from the companies' Web sites, after supplying our shipping info, credit card number, and basic demographic data (such as birth date and household income). Both systems arrived a few days later, complete with all the documentation we needed to set them up and go online.

Our experiences at big-name home appliance stores were bumpier. Many retailers (including Circuit City and Best Buy) offer low-priced systems that *become* free—or nearly so—after you purchase incentives and ISP contract rebates. When we tried to purchase a free EMachines system anonymously, we encountered salespeople who were often ill informed about the machines and the rebate deals. Worse, they pressured us to buy additional peripherals and extended service plans (in many cases, the standard warranty does not cover the length of the ISP contract). At least with online offers of nominally free PCs, a salesperson doesn't prod you to reach deeper into your wallet.

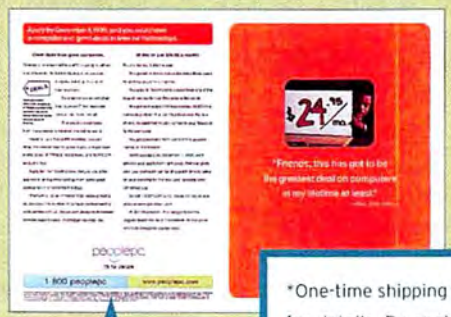
What happens if, four months after you get your free PC, high-speed DSL or cable-modem access arrives in your neighborhood? What if reliable ISP service drops to $3 per month in 2001? Can you revoke the remainder of contract? Not always—and certainly not for free.

A lot depends on the details of your contract. MyFavoritePC, for instance, lets you return the system within 10 days for a full refund (minus shipping charges of $60 to $113, usually). But that's generous by free PC standards. EPCdirect has you buy one, two, or more years of ISP service from MSN via a reduced-cost, lump-sum payment you make before receiving your system. If you purchase 49 months of service

PHOTOGRAPH: TOP, KEN SMITH

GOTCHA WATCH

READ THE FINE PRINT



THINKING OF BUYING a no-fee PC? Bring out your magnifying glass. In the PeoplePC package highlighted here, as in all free-PC deals, many of the essential details lurk in the tiny type.

1 PeoplePC's price omits the $48 shipping and handling fee.

2 Since you apply for a loan, failure to pay could hurt your credit.

3 Breaking your contract could cost you anything from the remainder of the ISP commitment to the full cost of the computer.

4 Adding new software or hardware could void the warranty.

5 If your home or business is not located near an MSN local access number, toll charges may apply.

*One-time shipping fee ($48) not included. 1 See PeoplePC Membership and Program Fee Agreement for details. By applying for PeoplePC membership, you are requesting to finance your membership through Servus Financial Corporation. 2 Your PeoplePC membership is subject to credit approval of your membership fee loan. Your membership fee of $762.09 will be financed at an APR of 11%, totaling 36 equal payments of $24.95 each. **Some restrictions apply. 3 Call 1 800 PEOPLEPC for the terms of our limited warranty. 4 In certain areas, toll charges may apply for Internet access. 5 All names mentioned herein are trademarks and/or registered trademarks of their respective companies. ©1999 PeoplePC

WOULD Cameron Brooks RECOMMEND A Free PC?

No

OCCUPATION: Student and office clerk
FREE PC: PeoplePC
PRIMARY USE: Internet access and personal finance applications.
BEST THING ABOUT IT: It offers good performance for the price.
WORST THING ABOUT IT: The strict warranty guidelines limit expandability.
ADVICE FOR THE COMPANY: "Provide more knowledgeable tech support, set fewer restrictions on warranty service, and add more up-to-date components."

and then decide to switch ISPs before the contract ends, you won't get a refund.

If you want to cancel your CompuServe account after participating in one of its rebate programs, you'll have to remit a $50 cancellation fee and a prorated portion of the rebate (up to the full $400). With PeoplePC, you enter into a three-year loan agreement when you sign up (unless you prepay a lump sum for ISP service at the start). To end your contract early, you must arrange with the vendor to pay off the loan. So if you can't see sticking with any ISP for 36 months (or in the case of EPCdirect, 49 months), you're better off buying your own PC and signing up separately for Internet access.

YOUR INTIMATE DETAILS

JUST AS YOU SHOULD read the fine print of your contract carefully, you should pay attention to the personal information required in exchange for a free PC.

Most companies are content with the basics: name, address, age, income, and credit card number. For some vendors, most information you supply is optional. (Gobi asks for details about your age and income, for instance, but you needn't provide it to get your PC.) For others, such as PeoplePC and MyFavoritePC, submitting the information is mandatory unless you prepay. PeoplePC also requires you to divulge your Social Security number, since you're applying for a loan on the system.

Gobi promises to offer only aggregate information to its partners: Your name and phone number won't show up on telemarketing target lists. But other companies, such as EPCdirect, concede that they intend to sell the data to third parties that want it for solicitations.

All online companies that offer free PCs post privacy policies on their Web sites, telling you what will happen to personal data you enter. If you don't like what you see, try another free PC site, or buy a system outright and protect your privacy. ▶

PHOTOGRAPHS: TOP, ANN SUMMA; BOTTOM, KEN SMITH

EPCdirect

www.epcdirect.com, 877/372-8833

THE DEAL Sign a fixed contract for MSN Internet access (12, 24, 36, or 49 months) and get rebates up to the price of your PC.

THE CATCH The machine you get is an off-brand computer, and you have to purchase the monitor separately.

THE FEATURES Celeron-466 CPU, 64MB of RAM, 128KB of L2 cache, 6.4GB hard drive, Joytech graphics card with 4MB of RAM, 18X-40X CD-ROM drive, U.S. Robotics 56K/V.90 Win modem, integrated VIA AC97 sound, High Tech Design DC-691P speakers, minitower case, Windows 98; Microsoft Works 4.5A, Money 99 Basic, and Bookshelf 99.

TOTAL COST OF OWNERSHIP

$980	($20 x 49 months of MSN and a one-year subscription to My Shopping Club)[1]
$130	for 15-inch monitor
$50	shipping and handling
$1160	total

[1] Or $759 prepay option.

How can we be so sure our technology is right for you? We ask.

COMPAQ AWARDS[1]

February 2000
PC World
Power Desktops Best Buy
Prosignia Desktop 330

January 2000
WinMag.com
WinList Corporate PCs
Prosignia Desktop 330

Compaq is ready to work with you before, during, and after your technology purchase. When you choose Compaq, you'll get more than a great PC. You'll get the best solution for your business at a great price. The support you need, whenever you need it. Most important, the benefit of the knowledge and expertise that have made Compaq the world's leading computer manufacturer.

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For example, if you decide that these Compaq PCs are right for your business, you'll have a full range to choose from and customize, including our Intel® Pentium® III processor–equipped Prosignia Desktop 330, our lightweight Prosignia Notebook 170, or the powerful ProLiant ML350 Server. You'll also get free trials of services — such as online training, business and demographic research, and an online business plan builder — all through www.MyWorkspace.compaq.com[6].

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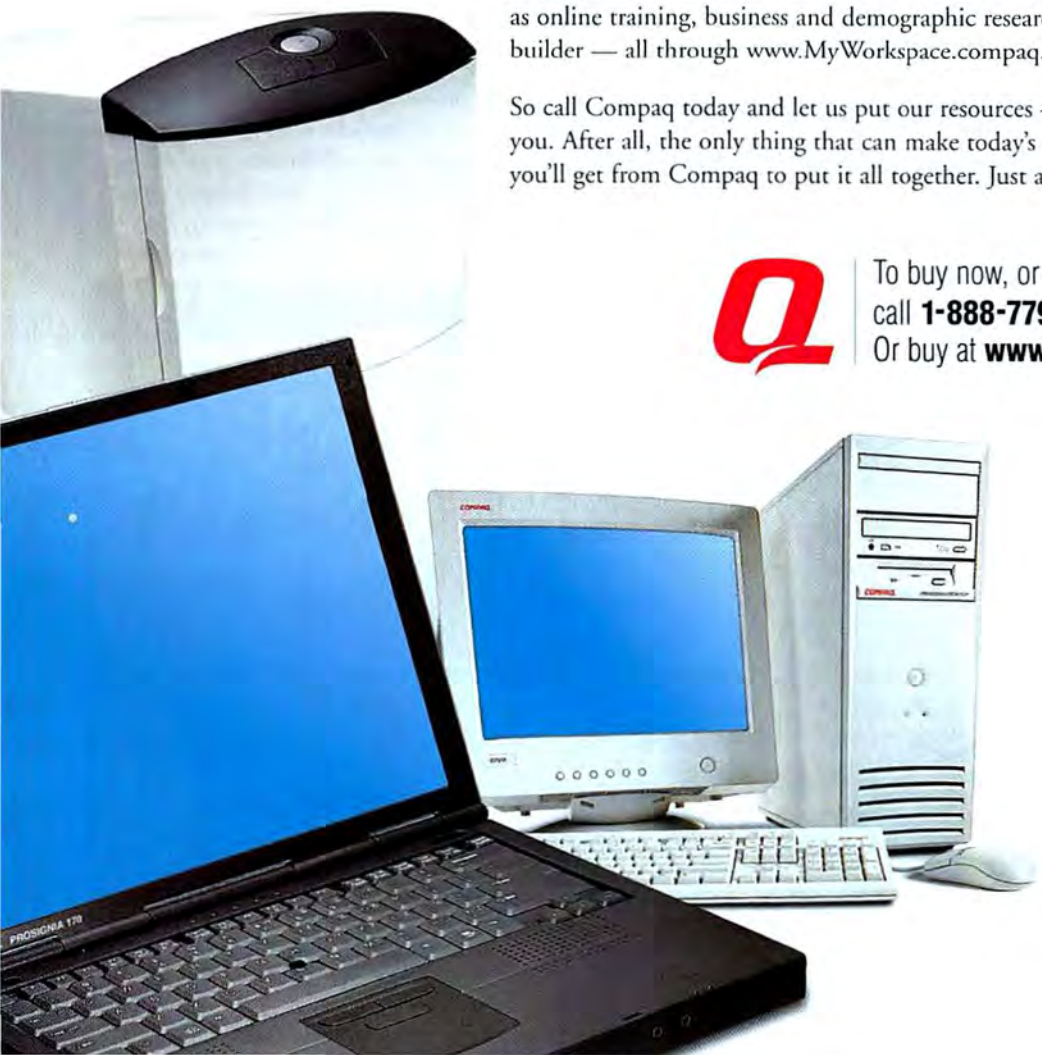

POWER PAQ

Prosignia Desktop 320 with:
Best value, space-saving solution
Intel® Celeron™ processor 466MHz
8.4GB hard drive[1] (5400 rpm)
64MB/100MHz SDRAM
Compaq 15" monitor (13.8" viewable)
32X Max CD-ROM drive[2]
Compaq 56K modem and 10/100 NIC
Microsoft® Windows® 98 (2nd Edition)
Microsoft Word 2000
3-Year limited warranty[4]

$989*
or lease for only
$28/month[5]
▸ QuickFind Code: 43X229-17117

For $55 more, upgrade your monitor to:
Compaq S710 17" monitor (16" viewable)
Buy now, supplies are limited.

PROSIGNIA DESKTOP 330

Maximum performance, flexible design
- Intel Pentium® III processor 650E MHz
- 17GB hard drive[1] (5400 rpm)
- 128MB SDRAM (expandable to 384MB)
- Compaq 15" monitor (13.8" viewable)
- 40X Max CD-ROM drive[2]
- Compaq 56K modem and 10/100 NIC
- **Microsoft Windows 2000**
- Microsoft Office 2000 (2nd Edition)
- 3-Year limited warranty[4]

$1819*
Lease for: $51/month[5]
▸ QuickFind Code: 43X229-17259

Customize with these options:
- Compaq A1000 printer: $349
- Compaq Pro UPS 500: $199
- 9x5, Next-business-day, on-site service, 3-year warranty upgrade (monitor not included): $99

COMPAQ DESKPRO EP

Premier network manageability
- Intel Pentium III processor 500MHz
- 10GB Ultra ATA hard drive[1] 7200 rpm
- 128MB SDRAM (expandable to 384MB)
- Compaq 17" monitor (15.7" viewable)
- 32X Max CD-ROM drive[2]
- Compaq 10/100 network controller
- Intel 4MB 3D Graphics
- Microsoft Windows 98 (2nd Edition)
- 3-Year limited warranty[4]

$1422*
Lease for: $40/month[5]
▸ QuickFind Code: 43X229-14148

Customize with these options:
- Compaq IJ350 Inkjet printer: $99
- Upgrade to S910 monitor: $299
- Microsoft Office 2000 Standard: $439

FREE INTERNET SERVICES

Take advantage of FREE Internet access through Compaq.NET for Business and a FREE e-commerce storefront through **www.MyWorkspace.compaq.com**[6]. With www.MyWorkspace.compaq.com, you'll find online solutions to start and grow your business, as well as Internet services, software, tools, and more. Make it your daily destination for personal and professional productivity.

COMPAQ SOLUTION PROVIDERS

Make the most of your technology with the expertise and experience of Compaq Solution Providers. Only Compaq has these specially trained and certified resellers to provide customized solutions for your growing business.

So rely on Compaq Solution Providers for expert assistance in choosing, installing, and servicing the best technology for your business.

PROSIGNIA NOTEBOOK 170

New thin, light form factor
- Mobile Intel Pentium III processor 450MHz
- 6GB SMART hard drive[1]
- 64MB SDRAM (expandable to 320MB)
- 13.3" TFT (1024 x 768) display
- 24X Max CD-ROM drive[2]
- Compaq 56K V.90 data/fax modem[3]
- Integrated AC adapter
- 1 Li-Ion battery
- **Microsoft Windows 2000**
- Microsoft Office 2000 Small Business®
- 3-Year limited warranty[4]

$2639*
Lease for: $74/month[5]
▸ QuickFind Code: 43X229-18342

Customize with these options:
- Compaq Global II carrying case: $69
- Wireless LAN PC card: $199
- APC Surge Arrest with telephone protection: $21

ARMADA NOTEBOOK V300

Best value for budget-conscious users
- Mobile Intel Celeron processor 400MHz
- 4.3GB SMART hard drive[1]
- 32MB SDRAM (expandable to 512MB)
- 12.1" STN (800 x 600) display
- 24X Max CD-ROM drive[2]
- Integrated 56K V.90 modem[3]
- Integrated AC adapter
- 1 Li-Ion battery
- Microsoft Windows 95/98 (dual install)
- 1-Year limited warranty[4]

$1499*
Lease for: $42/month[5]
▸ QuickFind Code: 43X229-12124

Customize with these options:
- Compaq Workstation carrying case: $52
- 60-minute software support calling card: $119
- Tripp Lite Super 8 plus telephone: $29

NEW NEOSERVER 150

The perfect server for first-time networking
It supports high-speed Internet access and e-mail, plus network features like file sharing and automated backup. And with e-commerce software and simplified setup, getting networked and taking your business online couldn't be easier.
- Intel Celeron processor 500MHz
- Integrated SCO Server appliance operating system (100-user license)
- 64MB 100MHz SDRAM
- 13GB hard drive[1] (expandable to 26GB)
- 17GB removable hard drive[1] for backup
- 56K V.90 modem[3]
- 1-Year parts and labor warranty[4]

$1799*
Lease for: $50/month[5]
▸ QuickFind Code: 43X229-22019

Customize with these options:
- Compaq UPS T700: $343
- Compaq LNM40 laser printer: $3995
- Next-day on-site 1-1-1 warranty upgrade: $99

NEW PROLIANT ML350 SERVER

Leading technology, 2-way value server
- Intel Pentium III processor 600MHz
- Dual processor capable
- 128MB 133MHz SDRAM (exp. to 2GB[1])
- 9.1GB Ultra2 hard drive[1]
- Dual Wide-Ultra2 SCSI controller
- 8 Bays: 4 removable, 4 hard drive
- 32X Max CD-ROM drive[2]
- 10/100 TX UTP NIC (WOL)
- 7 Slots: 2 64-bit PCI, 4 32-bit PCI, 1 ISA
- Server setup and management software
- 3-Year limited warranty[4]

$2689*
Lease for: $75/month[5]
▸ QuickFind Code: 43X229-16555

Customize with these options:
- Add a Compaq S710 monitor: $299
- Compaq UPS T2000: $949
- Compaq LNC02 color laser printer: $2995

COMPAQ

intel inside
pentium® III

*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. [1]Advertised configurations may vary from award-winning configurations. [1]For hard drives and storage, GB=billion bytes. [2]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; 40X Max from 150 KB/s to 6000 KB/s. [3]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. [4]Some restrictions and exclusions apply. Call (800) OK COMPAQ for warranty details. [5]Financing available through Compaq Financial Services (CFS) to qualified U.S. businesses, subject to credit approval and execution of CFS documentation. Monthly payments are based on a 48-month Fair Market Value lease, and do not include taxes, fees, or shipping charges. Other fees and restrictions may apply and CFS reserves the right to change or cancel this program at any time without notice. [6]Some restrictions apply. See www.compaq.com/smb/windows2000 for details. Access to www.MyWorkspace.compaq.com requires Internet access capability. ©2000 Compaq Computer Corporation. All rights reserved. Compaq, the Compaq Logo, and Prosignia are registered trademarks, and PremierSound is a trademark of Compaq Computer Corporation. Intel, the Intel Inside Logo, and Pentium are registered trademarks and Celeron is a trademark of Intel Corporation. Microsoft, Windows, and Windows NT are registered trademarks 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. 3614/04/00

Free Stuff 2000

OUT OF THE BOX

FREE PCS are aimed squarely at new users who can't afford or don't want to buy a PC the traditional way, so you might think they'd be designed for easy setup. The ideal beginner's system should include a straightforward setup poster, color-coded ports and cables, and thorough documentation that covers all the basics of using a PC. Not one free system we tested met all three criteria.

InterSquid's system, for example, included a useful color setup poster, but its thin documentation assumes that users possess more technical knowledge than most beginners actually do. Even the system we found easiest to set up—PeoplePC's Toshiba V3100—came up short on useful information. It delivered a clear and interesting setup manual, but the documentation provided little help on basic PC tasks other than getting connected to (and shopping on) the Internet.

Free systems tend to provide extremely skimpy software bundles, too. None of the ones we reviewed comes with an up-to-date office suite such as Microsoft Office 2000. Instead, most offer a copy of the less powerful Microsoft Works, plus a virus scanner. Gobi and InterSquid go a step further by adding Corel's WordPerfect Suite 8 word processor (not the most recent version); PeoplePC throws in a copy of Intuit's Quicken 99 (not Quicken 2000); and EPCdirect includes Microsoft Bookshelf. MyFavoritePC dispenses with the formality of including outdated software altogether: It ships with the Windows 98 OS only—you must supply any other software you want yourself.

Gobi

www.gobi.com, 888/937-4624

THE DEAL Sign up for three years of Gobi's Internet access, and get a free computer and access to special online deals.

THE CATCH The Gobi desktop places small paid advertising links at the top of the screen. You can expand windows over them, however, so they don't reduce your on-screen work space.

THE FEATURES Celeron-366 CPU,[1] 32MB of RAM, 128KB of L2 cache, 4.3GB hard drive, Hyundai DeluxScan 5560 15-inch monitor, integrated ATI Rage Pro AGP graphics with 4MB of SDRAM, 14X-40X CD-ROM drive, Lucent 56-kbps LT Win modem, integrated ESS Solo-1 sound, Labtec LCS-1012 speakers, minitower case, Windows 98, Corel WordPerfect Suite 8, Gobi software.

TOTAL COST OF OWNERSHIP

$936	($26 x 36 months of Gobi ISP service)[2]
$0	17-inch monitor
$30	one-time processing fee
$60	shipping and handling
$1026	total

[1]At time of testing; CPU is now a Celeron-433 or -466, depending on availability and warranty. [2]Or $799 prepay option.

FREE PCs ARE NO BIG PERFORMANCE DEAL

None keep pace with Dell's $1229 Dimension, though EPCdirect comes closest.

SYSTEM	Processor	RAM (MB)	Level 2 cache (KB)	PC WorldBench 98 score
EMachines	Celeron-366	64	128	173
EPCdirect	Celeron-466	64	128	195
Gobi	Celeron-366	32	128	157
InterSquid	Celeron-400	64	128	186
MyFavoritePC	Celeron-400	32	128	165
PeoplePC	Celeron-366	64	128	181
Dell Dimension 466c	Celeron-466	64	128	205

Better

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 and how we run it, see www.pcworld.com/testing. Data based on tests designed and conducted by the PC World Test Center. All rights reserved.

FREE-PC PERFORMANCE

MOST FREE PC companies no longer use phrases like "cutting-edge" to describe their machines. That's wise, because standard configurations include CPUs ranging from Celeron-366 to -466 and RAM allotments of 32MB to 64MB. By the time you read this, however, beefier free PCs will be available, since many vendors update their systems' configurations every three months. The current specs overlap those on this month's *Top 10 Budget PCs* and the budget section of *Top 15 Home PCs*: The chartmakers carry CPUs ranging from Celeron-400 to Pentium III-550 and RAM amounts of 64MB to 128MB. But the worst performer among our Top 10 Budget desktops (a Polywell) scored nine points higher on PC WorldBench 98 than the fastest free PC (the EPCdirect), while only the slowest Home budget system lagged behind the free PC pacesetter.

Free systems are fine if you just want to use them to send e-mail, browse the Web, and write a few letters. But for serious multimedia use or high-impact gaming, you'll need extra horsepower.

Our test systems demonstrated satisfactory to outstanding performance on business and graphics tasks versus simi- ▶

PHOTOGRAPH: KEN SMITH

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$250,000 Term Life Sampler

Guaranteed Annual Premiums/Guaranteed Level Term Period

Female Premiums

Age	10 YEAR	15 YEAR	20 YEAR	25 YEAR	30 YEAR
35	$ 103	$ 138	$ 163	$ 200	$ 225
40	$ 133	$ 175	$ 203	$ 253	$ 290
45	$ 190	$ 238	$ 283	$ 348	$ 405
50	$ 255	$ 308	$ 388	$ 495	$ 643
55	$ 360	$ 418	$ 585	$ 1,280	$ 2,618
60	$ 503	$ 608	$ 880	$ 5,923	$ 5,923
65	$ 818	$ 983	$ 1,320	$ 7,858	$ 7,858
70	$1,363	$ 1,713	$ 3,820	$10,003	$10,003
75	$2,613	$ 5,158	$14,613	$14,613	$14,613

Male Premiums

Age	10 YEAR	15 YEAR	20 YEAR	25 YEAR	30 YEAR
35	$ 115	$ 143	$ 183	$ 243	$ 290
40	$ 145	$ 193	$ 253	$ 340	$ 365
45	$ 210	$ 305	$ 385	$ 480	$ 575
50	$ 330	$ 495	$ 580	$ 730	$ 1,193
55	$ 500	$ 695	$ 825	$ 1,910	$ 3,333
60	$ 783	$ 1,110	$ 1,265	$ 7,980	$ 7,980
65	$1,330	$ 1,790	$ 2,295	$10,105	$10,105
70	$2,473	$ 3,175	$ 6,970	$13,335	$13,335
75	$4,105	$ 9,293	$20,488	$20,488	$20,488

"Quotesmith provides a list of all insurance companies & plans that match specific needs. The first to make available this new custom-search service." - *Nation's Business*

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"Quotesmith offers particularly thorough searches." - *Los Angeles Times*

"We found the best deals at Quotesmith..." - *Money*

"The... solution has value for those who prize immediacy and privacy." - *U.S. News & World Report*

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Search the marketplace in seconds. Every quote is guaranteed accurate. Take control of your insurance purchase decisions. View the latest claims-paying ability ratings from A.M. Best, Duff & Phelps, Moody's, Standard & Poor's and Weiss Ratings, Inc. on every term life quote. Buy from the company of your choice when you want and on your terms. Use the Quotesmith.com high speed insurance price comparison service before you buy or renew any insurance policy.

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AD CODE: PCW 04/00

Final premiums and coverage availability will vary depending upon age, sex, state availability, hazardous activities, personal and family health history. The non-tobacco use premiums shown above may include: Banner Life Ins. Co., Rockville, MD, form RT-97; Central States Health & Life Co. of Omaha, Omaha, NE, form L10; First Colony Life Ins. Co., Lynchburg, VA, forms One-20 and 1410-GP; First Penn-Pacific Life, Hoffman Estates, IL, form BT-1000AA (6/95); Jackson National Life Ins. Co., Lansing, MI, form L1665; John Hancock Variable Life, Boston, MA, form 98TLIFE; The Manufacturers Life Ins. Co. (USA), Toronto, Ontario, CN, form S0690; North American Co. for Life & Health Ins., Chicago, IL, form LS108A; Ohio National Life Assurance Corporation, Cincinnati, OH, form 92-TR-1; PHL Variable Insurance Company, Hartford, CT, form T604; Sun Life Assurance Co. of Canada (US), Wellesley Hills, MA, form SPL-1996-0; United of Omaha Life Ins. Co., Omaha, NE, form 6548L-0799. Premium rates shown above are not applicable to residents of FL, NJ & NY. $500 guarantee is subject to the terms and conditions detailed at www.quotesmith.com. Policy forms vary by state. California and Utah dba Quotesmith.com Insurance Services, Inc.: CA #0827712, #OA13858; UT #90093. Some premiums shown are graded premium life policies and/or term-like universal life policies. Term life premium rates always escalate after initial rate guarantee period. Quotesmith.com, Inc. is not a licensed agent or broker for all companies shown at www.quotesmith.com. All rates shown subject to change or withdrawal without notice.

larly configured nonfree PCs. InterSquid's 400-MHz Celeron system from Nutrend performed especially well.

In some ways, benchmark tests are less revealing than hands-on experience. To get a feel for the EMachine Etower 366i2 and the PeoplePC Toshiba V3100 test systems, we ran a blind "taste test" pitting them against a comparable, nonfree Dell Dimension L466C (which costs $1229). Two people performed various tasks—from word processing to gaming to image editing—on each machine. The testers reported little difference among the three computers on basic tasks. That doesn't make any of these systems fast in the grand scheme of things, however.

One major bottleneck in our tests was the video. To guarantee top performance in the latest games you have to use a high-end graphics card. But many of these free PCs use integrated AGP graphics from Intel and ATI. While speedy enough for basic tasks, these can't compete with the latest Voodoo3- and TNT2-class processors in 3D performance. And if they can't compete now, they'll be real dogs by the time your three-year contract runs out.

If the performance of your free PC fails to meet your needs, don't plan to upgrade your way out of trouble. None of the vendors whose free PCs we tested prevents you contractually from installing a new graphics card or adding RAM—but they don't make it easy, either. PeoplePC, for example, won't honor the system warranty if it determines that your upgraded hardware is responsible for a problem you later experience. Meanwhile, the systems that use integrated AGP graphics don't provide a slot for AGP upgrades; you'll have to settle for a lower-performing PCI graphics card, instead. Only the machines from InterSquid and EPCdirect include AGP slots.

GOOD HELP IS HARD TO FIND

MANY FREE PCs find their way into the homes of inexperienced users, which makes high-quality tech support even more important than usual. Unfortunately, only about half the free PC companies provide a no-cost tech support number to call—and these vendors limit their support hours.

PeoplePC and InterSquid do keep their support lines open 24 hours a day, but you pay toll charges to use them. EMachines offers free tech support, but only for *15 days* after the first time the customer contacts tech support; after that, you foot a $20 bill for each support call. And MyFavoritePC doesn't offer phone support at all—instead you have to rely on limited-hours answers available only via e-mail.

PeoplePC offers a parts-and-labor warranty that lasts for the full three years of your contract, and the company even throws in three years of on-site service for major problems. A "lemon" clause lets you exchange your PeoplePC for a new one if the original breaks down repeatedly. Unfortunately, PeoplePC is the only company to offer such a policy; the other vendors' labor warranties end after 12 months. Some parts warranties are more generous: InterSquid, PeoplePC, and EPCdirect offer three-year replacement coverage for defective components.

Even if your PC comes with long parts warranties, however, you could still have a recipe for trouble on your hands. More than a quarter of the free PC owners in our survey had at least one problem with their machine during the first year, and 80 percent of such owners had problems reaching the company's tech support.

On the other hand, nearly 32 percent of surveyed readers who own a free PC reported that they had received answers to their questions in less than three days. And Lynda Camba, a survey respondent who obtained her machine from Gobi, says that she received excellent, quick advice in both of her experiences with the company's telephone tech support.

But more than 19 percent of free PC ▶

YOU'RE A CANDIDATE FOR A FREE PC PROGRAM IF...

- You don't mind owning far-from-the-cutting-edge hardware.
- You live in an area served locally by the free PC company's Internet service provider. (Long-distance calls get expensive.)
- You're prepared to pay extra if you need a monitor larger than 15 inches, a printer, or other peripherals.
- You're not worried about signing up with an ISP for three years, even as DSL and cable modem access start to go nationwide.
- You don't mind making a toll call for tech support or having limited hours of support available.
- You don't expect a large bundle of the latest software with your system.

InterSquid

www.intersquid.com, 888/724-3733

THE DEAL Agree to 30 months of PSINet's Internet access service, and get a free "state of the art" PC.

THE CATCH The hardware you get, while not a bad configuration, is far from state of the art, and the $30 monthly fee is anything but a bargain.

THE FEATURES Celeron-400 CPU,* 64MB of RAM, 128KB of L2 cache, 8.4GB hard drive, Cybervision C50 15-inch monitor, integrated Intel 810 graphics with UMA and 4MB of display cache, 18X-48X CD-ROM drive, Zoom 56K PCI V.90 modem, integrated Roland MPU-401 sound, minitower case, Windows 98, Grolier Multimedia Encyclopedia CD-ROM.

TOTAL COST OF OWNERSHIP

$900	($30 X 30 months)
$0	15-inch monitor
$40	start-up fee
$60	shipping and handling fee
$1000	total

*At time of testing; CPU is now a Celeron-466.

PHOTOGRAPH: KEN SMITH

Don't get frustrated. Get MacOpener® 2000. Pop it on your PC and you're reading, writing and formatting Mac disks like they were formatted for Windows.® Go ahead. View or copy the contents of that Mac disk from any Windows application. MacOpener automatically adds the right PC extensions to the files—you need only double-click. And MacOpener even lets you format Mac disks as if they were PC disks. So when you're dealing with disks, compatibility will never be a problem.

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owners in our survey reported that they had to wait more than a week to get problems resolved. And over a quarter of respondents with support issues said that they had finally given up.

Among survey respondents who had to contact their free PC maker, nearly 48 percent said they were somewhat or very satisfied with the experience; an almost identical percentage described themselves as somewhat or very dissatisfied.

If you're not very technically proficient, make sure that you deal with a vendor like PeoplePC that offers a relatively strong warranty and solid tech support policies.

FREE ADVICE

THE BEST FREE PC deals offer an all-in-one solution: a computer with Internet access, software, and solid support policies at a reasonable price.

For about the same money you'd spend overall for a free PC, however, you could purchase a budget-priced system from a vendor of known reliability, complete with a comprehensive warranty, expansion options, and no long-term contracts. Gateway, for instance, offers one year of free AOL Internet access when you buy a PC from its Essential line. Free ISP offers are available too, but approach them with caution. (See "Beyond Free-Mail," page 151.)

If you're a typical *PC World* reader, you're probably pretty savvy. But if you're giving advice to someone who doesn't have a PC or you're looking to get online, you may have other options. If someone in your family has come to you for advice, you might suggest WebTV. It's cheap and requires little more than a TV set, a phone line, and the ability to use a remote control. Another alternative is to use low-cost e-mail–only services, which some local phone companies offer. The EMessage services from Pacific Bell and Southwestern Bell, for instance, let users send and receive e-mail for $8 a month, plus $180 for the keyboard-equipped connection device. They won't be able to send pictures of the family or access Web pages with them, but you will join the millions of people for whom e-mail is a way of life.

For certain buyers, free PCs may still be a good deal. If you're planning to sign up for an ISP deal anyway, you don't mind the long-term commitment, and you need a low-priced primary or secondary computer, then a free PC deal may work for you. Just be sure you come to the game with realistic expectations—and don't assume that the price is right just because the box has a "free" sticker on it.

online *For more on free PCs, visit www.pcworld.com/aproo/freepcs. Chris Lindquist is a freelance writer in the San Francisco Bay Area.* ■

MyFavoritePC

www.myfavoritepc.com, 888/621-3436

THE DEAL Buy a $550 PC; then collect a $100 instant rebate, a $50 mail-in rebate, and a $400 voucher when you sign up with MSN at $22 per month for 36 months.

THE CATCH If you want a monitor, it'll cost you at least $99 more ($149 minus a $50 mail-in rebate). The only software you get is Windows 98. The vendor provides no phone support—only e-mail. The deal may be nearing its end by the time you read this.

THE FEATURES Celeron-400 CPU, 32MB of RAM, 128KB of L2 cache, 4.3GB hard drive, integrated Intel 810 graphics with 4MB of UMA, 17X-40X CD-ROM drive, Archtek Telecom V.90 voice modem, integrated Soundmax Digital Audio sound, Z691 speakers, minitower case, Windows 98.

TOTAL COST OF OWNERSHIP

$792	($22 x 36 months of MSN ISP service)
$149	15-inch monitor
($50)	mail-in monitor rebate
($400)	mail-in voucher from MSN
$113	shipping and handling fees
$604	total

PeoplePC

www.peoplepc.com, 800/736-7537

THE DEAL Finance a computer over three years (or buy it up front for $798) and get three years of free MSN Internet access. The only free PC that includes a year of on-site tech support.

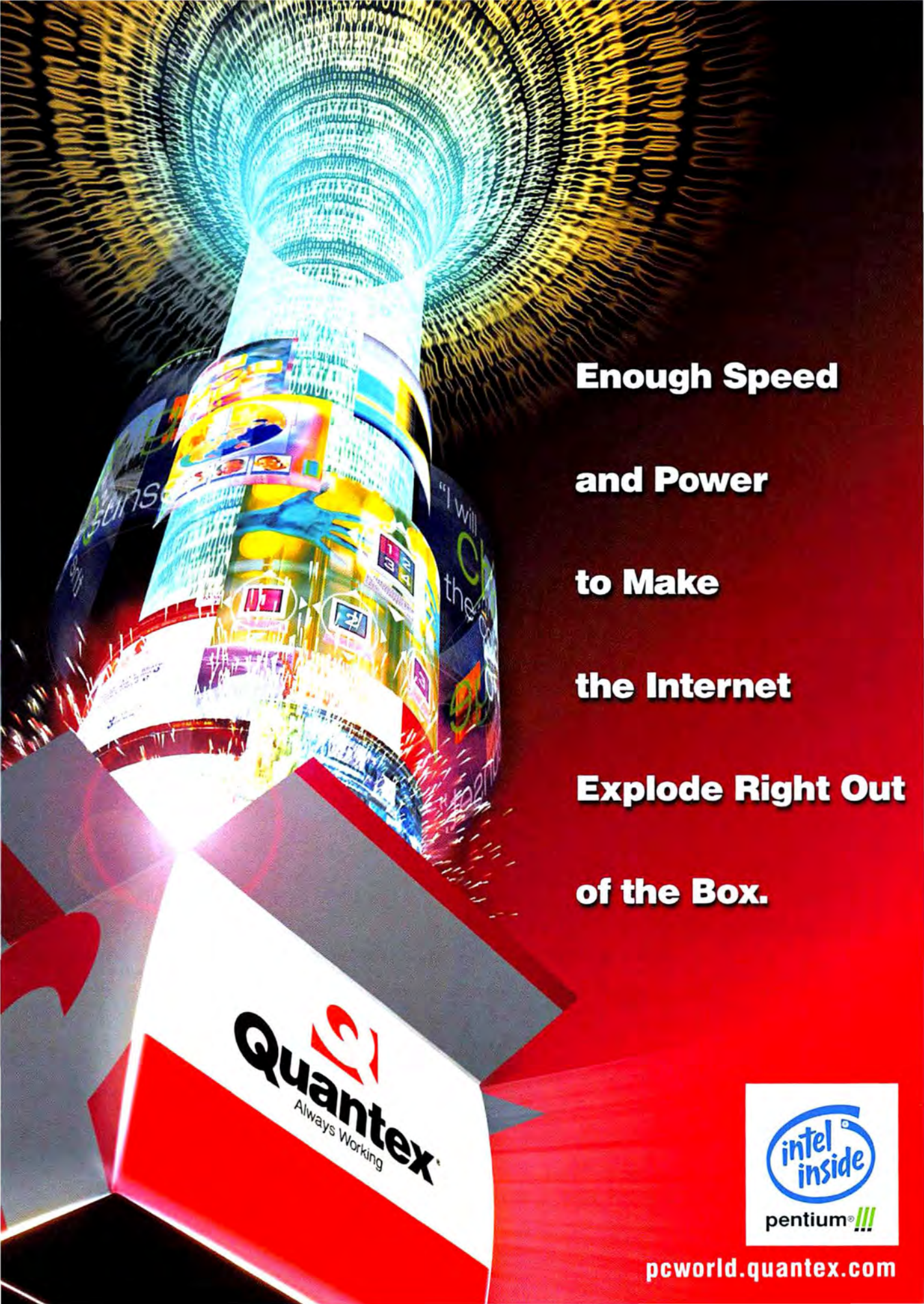
THE CATCH Adding software or hardware could void the warranty.

THE FEATURES Celeron-366 CPU, 64MB of RAM, 128KB of L2 cache, 6.4GB hard drive, Toshiba TechBright 510T 15-inch monitor, integrated Intel 810 graphics with UMA and 4MB of display cache, 17X-40X CD-ROM drive, U.S. Robotics 56K/V.90 Win modem, integrated Soundmax digital audio sound, Sun-691H speakers, minitower case, Windows 98 SE, Microsoft Works 4.5, Norton AntiVirus, Quicken 99 Basic, Microsoft Works Calendar.

TOTAL COST OF OWNERSHIP

$900	($25 for 36 months of ISP service)[1]
$0	15-inch monitor
$48	shipping and handling
$948	total

[1]Or $798 prepay option.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and Power
to Make
the Internet
Explode Right Out
of the Box.
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pentium III
pcworld.quantex.com

Celebrate the Internet Revolution with an E-Powerhouse from Quantex

All Quantex desktops include a 3.5" 1.44MB Floppy Drive, Microsoft Windows 98 Second Edition, Internet-Ready Keyboard, MS Mouse, New ATX Mid-Tower Case, 2 USB Ports, 3-Year Limited Warranty & 24/7 Toll-Free Technical Support

QUANTEX SM800z

Cutting-Edge Performance Desktop

New Intel® Pentium® III Processor 800MHz
128MB SDRAM Memory, PC133 Ready
New 40GB 7200rpm Ultra ATA-66 Hard Drive
19" Monitor w/Diamondtron NF CRT (18" vis, .25ag)
nVidia GeForce 256 AGP Graphics w/32MB, TV-out
CD-Rewritable Drive
New 12x Max Variable Speed DVD-ROM Drive
56K V.90 Internet Fax/Modem
Aureal Vortex2 PCI Sound, A3D 2.0 Technology
Altec Lansing ADA-305 Dolby Pro Logic Speakers
Microsoft Office 2000 SBE

$2499

Business lease:$91/Mo., 36 Mos.
e-QUOTE NUMBER: pcw04s10

QUANTEX SM733x

Cutting-Edge Performance Desktop

Intel® Pentium® III Processor 733MHz
128MB SDRAM Memory, PC133 Ready
30GB 7200rpm Ultra ATA-66 Hard Drive
19" Monitor w/Diamondtron NF CRT (18" vis, .25ag)
Matrox G400 AGP Graphics w/32MB (DualHead display)
CD-Rewritable Drive
New 12x Max Variable Speed DVD-ROM Drive
56K V.90 Internet Fax/Modem
Aureal Vortex2 PCI Sound, A3D 2.0 Technology
Altec Lansing ACS-33 Speakers w/ subwoofer
Corel WordPerfect Office 2000

$1999

Business lease:$73/Mo., 36 Mos.
e-QUOTE NUMBER: pcw04s09

QUANTEX SM700s

Cutting-Edge Performance Desktop

Intel® Pentium® III Processor 700MHz
128MB High-Performance SDRAM Memory
20GB 7200rpm Ultra ATA-66 Hard Drive
17" Monitor w/Diamondtron NF CRT (16" vis, .25ag)
nVidia Riva TNT2 AGP Graphics w/32MB, TV-Out
Internal Zip Drive
New 12x Max Variable Speed DVD-ROM Drive
56K V.90 Internet Fax/Modem
Aureal Vortex2 PCI Sound, A3D 2.0 Technology
Altec Lansing ACS-33 Speakers w/ subwoofer
Corel WordPerfect Office 2000

$1799

Business lease:$65/Mo., 36 Mos.
e-QUOTE NUMBER: pcw04s08

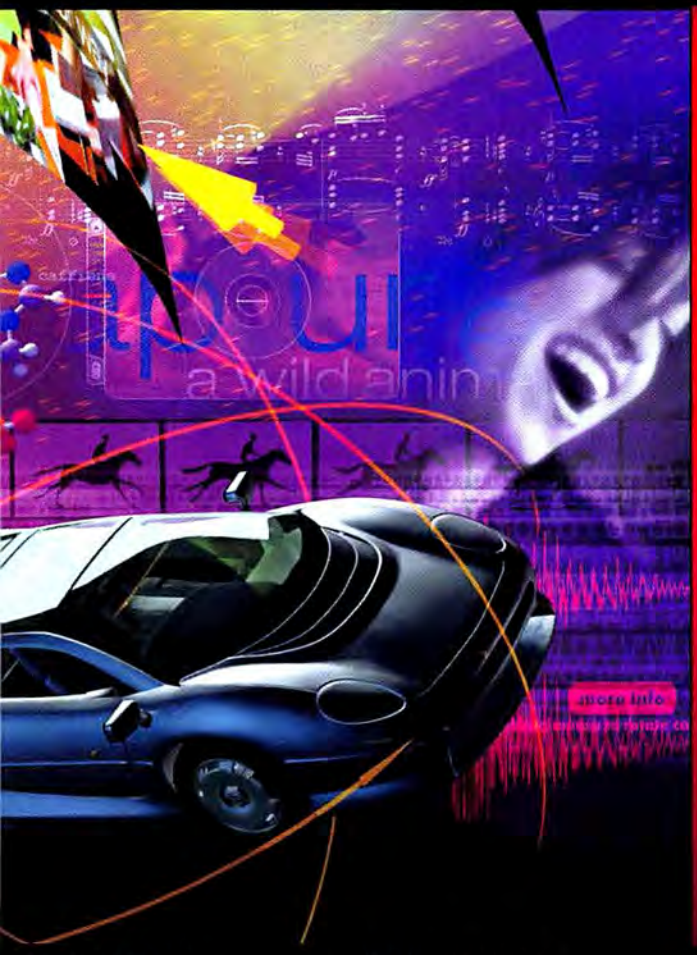
intel inside
pentium® III

Peripheral Upgrades: Canon MultiPass C560 Printer/Scanner/Fax/Copier...add $299. Epson Stylus 860 Color Printer...add $149 (after $50 rebate). 36-bit USB Color Scanner...add $99 (after rebate). Brother HL-1240 Laser Printer...add $289. MS Sidewinder Precision Pro Joystick...add $49.

Your new Quantex PC comes equipped with the latest software plug-ins* which allow you to immediately begin enjoying the streaming video, 3D animation and music technologies of Intel® Pentium® III processor-optimized sites.

Quantex SM800z Performance Desktop Pictured

Get a Quantex PC featuring the Intel® Pentium® III processor & you'll experience a whole new Internet



Power, performance, pure adrenaline-pumping speed. That's what the new Internet demands. And that's exactly what the new desktops from Quantex deliver. At their heart is the astonishing Intel® Pentium® III processor, with speeds up to a scorching 800MHz! Suddenly, you're seeing web graphics in brilliant 3D. Experiencing full-screen, full-motion video. You can even run the most cumbersome multimedia applications in record time. And the Internet itself becomes a more productive—not to mention, more dazzling—place to be. All this, coupled with Quantex's award-winning service and reliability. There's never been a better way to present yourself...with the future.

QUANTEX M650s

High Performance, Great Value

Intel® Pentium® III Processor 650MHz
128MB SDRAM Memory
20GB Ultra ATA Hard Drive
19" Monitor (18" vis, .26dp, 1600x1200 max res)
Intel 2D/3D Graphics Accelerator
3rd Generation DVD-ROM Drive
56K V.90 Internet Fax/Modem*
Aureal A3D Sound Technology, Speakers w/subwoofer
Corel WordPerfect Office 2000
Canon BJC-2100 Color Printer
Optional Internal 250MB Zip drive, add $129

$1499

Business lease:$54/Mo., 36 Mos.
Q-QUOTE NUMBER: pcw04m31

QUANTEX M500c

Affordable Desktop Solution

Intel® Celeron™ Processor 500MHz
64MB SDRAM Memory
10GB Ultra ATA Hard Drive
17" Monitor w/on-screen display (15.8" vis)
Intel 2D/3D Graphics Accelerator
48x Max Variable Speed CD-ROM Drive
56K V.90 Internet Fax/Modem
Aureal A3D Sound Technology, Speakers
Corel WordPerfect Office 2000
Canon BJC-1000 Color Printer
APC TEL-Per7T Surge Protector, add $30

$999

Q-QUOTE NUMBER: pcw04m00

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All Quantex notebooks include Floppy Drive, Smart Lithium Ion Battery, USB/Fast IR Ports, Personal Touchpad, 3-Year Limited Warranty on CPU & Memory, 1-Year Parts and Labor Limited Warranty on all other components

All Quantex business desktops include a Floppy Drive, 2 USB Ports, 104-Key Keyboard, MS Mouse, 3-Year Limited Warranty & 24/7 Toll-Free Technical Support

QUANTEX W-1511

High-Performance Notebook

New Pentium® III Processor 650MHz
featuring Intel® SpeedStep™ Technology
15" XGA TFT Active Matrix Display
128MB SDRAM Memory
New 18GB Ultra ATA Hard Drive
Modular 6x Max Variable Speed DVD-ROM Drive
56K V.90 Internet Fax/Modem*
ATI Mobility P Graphics w/8MB, TV-Out
Quantex Deluxe Carrying Case Included!
MS Office 2000 SBE
MS Windows 2000 Professional

$2999

Business lease:$109/Mo., 36 Mos.

e-QUOTE NUMBER: pcw04w17

QUANTEX T-1411

High-Performance Notebook

Intel® Pentium® III Processor 500MHz
14.1" XGA TFT Active Matrix Display
128MB SDRAM Memory
12GB Ultra ATA Hard Drive
Modular DVD-ROM Drive
56K V.90 Internet Fax/Modem*
ATI Mobility M Graphics w/8MB
Quantex Carrying Case
Corel WordPerfect Office 2000
MS Windows 2000 Professional
Targus Defcon1 Security Lock, add $49

$2299

Business lease:$83/Mo., 36 Mos.

e-QUOTE NUMBER: pcw04t25

QUANTEX T-1330

Ultra-Thin Design only 1.37" thick

Affordable Portable Power

Intel® Celeron™ Processor 466MHz
13.3" XGA TFT Active Matrix Display
64MB SDRAM Memory
6GB Ultra ATA Hard Drive
Modular 24x Max Variable Speed CD-ROM Drive
ATI Mobility M Graphics w/4MB
56K V.90 Internet Fax/Modem*
Quantex Carrying Case
Corel WordPerfect Office 2000
MS Windows 98 Second Edition
APC Personal SurgeArrest Tel-PER7T, add $30

$1799

Business lease:$65/Mo., 36 Mos

e-QUOTE NUMBER: pcw04t00

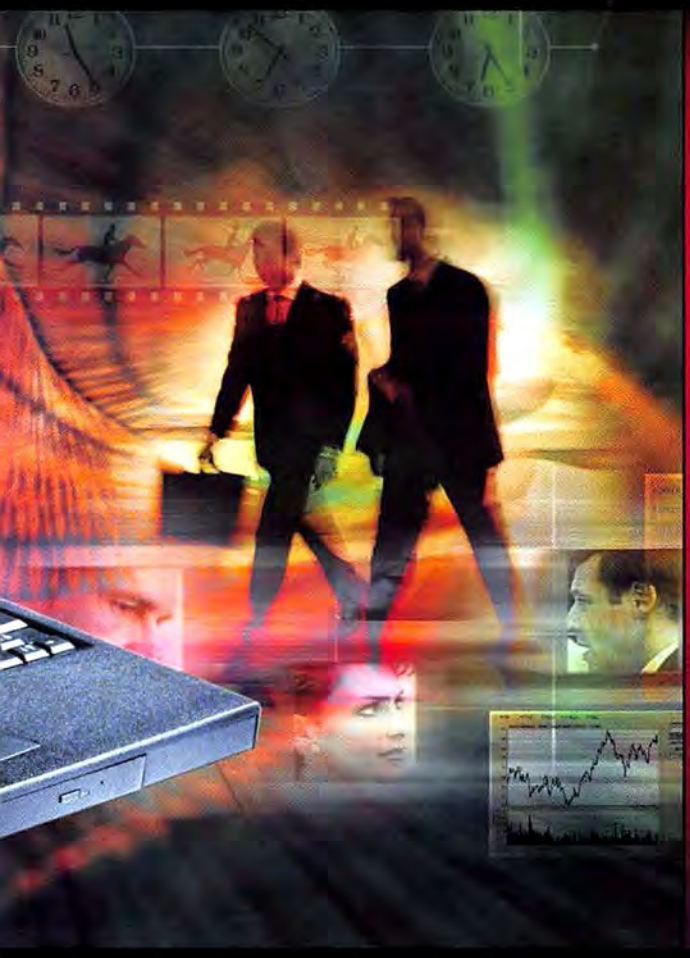
intel inside
pentium® III PROCESSOR

Peripheral Upgrades: T-Series Mini-Docking Station...add $149. W-Series Mini-Docking Station...add $249. Smart Lithium Ion Battery. $119. PCMCIA Network Card. $129. Quantex Deluxe Carrying Case. $89. Targus Defcon1 Security Lock. $49. Canon BJC-85 Portable Color Printer. $299

Quantex systems now come pre-installed with **Windows 2000 Professional** for a whole new dimension in business computing with greater reliability, ease-of-use, mobile functionality and performance than any other OS available.

Quantex PCs pre-installed with Windows 2000—rocket fuel to propel your business in the new millennium

Quantex W-1511 Notebook & SB650s Business Desktop Pictured



Move your business at net speeds with rocket-fast new Quantex systems fueled by the hottest OS on the planet—Windows 2000 Professional. In addition to being the industry's easiest and most reliable business OS, Windows 2000 features newly integrated web capabilities and broad support for notebook computers which make it easy for you to connect to the bold new Internet anywhere and anytime. Along with the fastest Intel® Pentium® III processors, Windows 2000 inside Quantex systems provides the juice you need to accelerate your business to BreakNet speeds.

QUANTEX SB600t

Performance Business Desktop

New Intel® Pentium® III Processor 600E MHz
128MB SDRAM Memory
15GB 7200rpm Ultra ATA Hard Drive
17" Digital Monitor w/On-Screen Display (15.8" vis)
nVidia TNT2 Vanta AGP Graphics, 16MB
48x Max Variable Speed CD-ROM Drive
Intel 10/100 PCI Fast Ethernet Controller w/RJ-45
ATX Mid-Tower Case: Chassis-lock, Removable Hard Drive Chassis & Power Supply
Microsoft Office 2000 SBE
Microsoft Windows 2000 Professional

$1399

Business lease:$51/Mo., 36 Mos.
Q-QUOTE NUMBER: pcw04b32

QUANTEX SB650s

Performance Business Desktop

New Intel® Pentium® III Processor 650MHz
128MB SDRAM Memory
20GB 7200rpm Ultra ATA Hard Drive
19" Monitor w/Diamondtron NF CRT (18" vis, .25ag)
nVidia TNT2 Vanta AGP Graphics, 16MB
48x Max Variable Speed CD-ROM Drive
Intel 10/100 PCI Fast Ethernet Controller w/RJ-45
ATX Mid-Tower Case: Chassis-lock, Removable Hard Drive Chassis & Power Supply
Microsoft Office 2000 SBE
Microsoft Windows 2000 Professional

$1699

Business lease:$62/Mo., 36 Mos.
Q-QUOTE NUMBER: pcw04b42

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The Amazing New Quantex Servers Built for Internet Overachievers

It's going to take more than just any run-of-the-mill server to give your users the type of web experience they're hungry for—content that's instantly available, seamless performance, better-than-ever richer graphics and sound. Enter the new Quantex QX Series Servers. In addition to being almost infinitely scalable, these servers are designed around Intel's new Pentium® III processor (with speeds up to 800Mhz), support up to an 8-way processor configuration, provide ultra-high availability, and deliver reliability unsurpassed. There's no contest. The QX Series is the unbeatable solution for hosting and delivering the fullest, richest Internet experience possible—day in and day out.

In the bold new Internet world, you can never be too powerful, too fast or too reliable

QUANTEX QX5000ws

Reliable Web Server

Intel® Pentium® III Processor 650MHz-800MHz
Dual-Processor Upgradeable
Intel 440GX+ Server Board
128MB ECC SDRAM (2GB Max)
9GB 10,000rpm Ultra2/LVD SCSI Hot Swap HD
Dual Channel Ultra2/LVD SCSI Controller
Dual Peer PCI Buses, 6 PCI, 1 ISA Slot
5 Hot-Swap Drive Bays, 4 Fans
Microsoft Windows 2000 Server
Microsoft Front Page Web Creation & Management Tool
Microsoft Internet Information Server
Intel® EtherExpress™ Pro 100 Ethernet Adapter

Starting at $2799
Business lease starting at:$102/Mo., 36 Mos.
Q-QUOTE NUMBER: pcw04q51

QUANTEX QX5000

Workgroup Server

Intel® Pentium® III Processor 600MHz-750MHz
Dual-Processor Upgradeable
Intel L440GX+ Server Board
128MB ECC SDRAM (2GB Max)
9GB 10,000rpm Ultra2/LVD SCSI Hot Swap HD
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
Microsoft BackOffice Small Business Suite, add $1499

Starting at $1999
Business lease starting at:$73/Mo., 36 Mos.
Q-QUOTE NUMBER: pcw04q36

QUANTEX QX3000

Branch Office Server

Intel® Pentium® III Processor 550MHz-600MHz
Intel 440BX Chipset
Intel N440BX Server Board
64MB ECC SDRAM (768MB Max)
9GB Ultra-Wide SCSI Hard Drive
Integrated Ultra-Wide SCSI Controller
3 PCI Slots, 1 ISA Slot, 1 Shared PCI/ISA Slot
Mid Tower Server Case, 4 Internal 3.5" Bays,
4 External 5.25" Bays
Intel® EtherExpress™ Pro 100 Ethernet Adapter
Optional APC SmartUPS 700VA, add $349
Novell NetWare Small Business Suite 5, add $899

Starting at $1399
Business lease starting at:$51/Mo., 36 Mos.
Q-QUOTE NUMBER: pcw04q32

All Quantex servers include 512KB ECC Secondary Cache, Floppy Drive, 48x Max Variable Speed CD, ISC Management Console, Emergency Management Port, 104-Key Keyboard, MS Mouse, 3-Yr. Limited Warranty, 24/7 Toll-Free Dedicated Hardware Technical Support

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Phone Hours: M-TH: 8a.m.-Midnight (EST); Friday: 8a.m.-9p.m (EST); Saturday: 10a.m.-7pm (EST). GSA Contract #GS-35F-0049K

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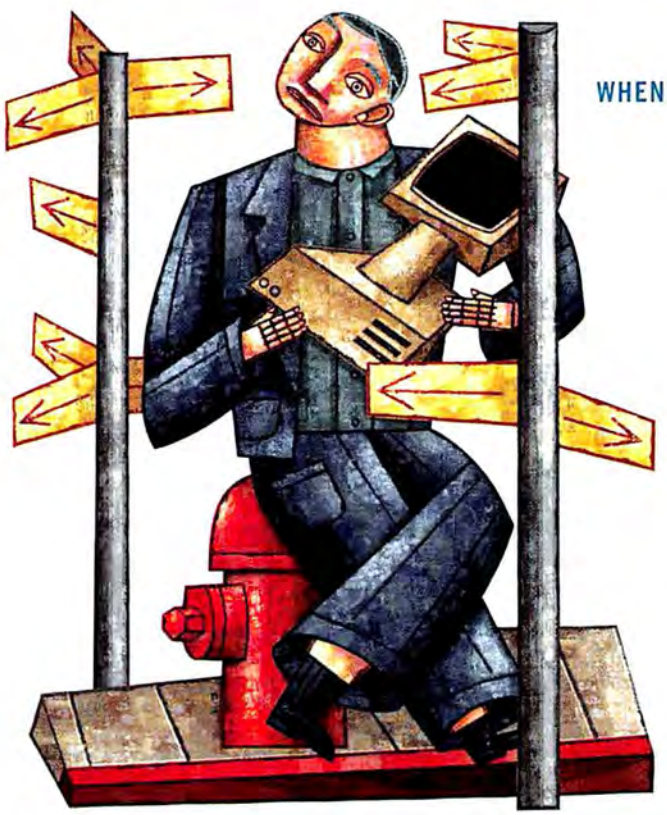
Free Support Free-for-All

WHEN VENDOR SUPPORT FAILS, WHERE DO YOU TURN? WE TRY NINE SUPPORT SITES TO SEE WHICH ONES PROVIDE THE ANSWERS YOU NEED, AT A PRICE YOU CAN'T REFUSE.

BY LINCOLN SPECTOR



WHEN A PC SUDDENLY AND FOR NO apparent reason conks out, most people pick up the phone and call the manufacturer's technical support line. Sometimes that means waiting forever on hold. Or it could involve sending e-mail that never gets answered, paying money for help, or receiving bad advice. Don't worry. Third-party technical support sites are springing up all over the Internet, offering practical tips on computer-related problems and a useful, accessible alternative to less-than-stellar vendor support. Like so much else on the Web, most of these sites are free (supported by ads), and some of them provide exemplary advice. ▶

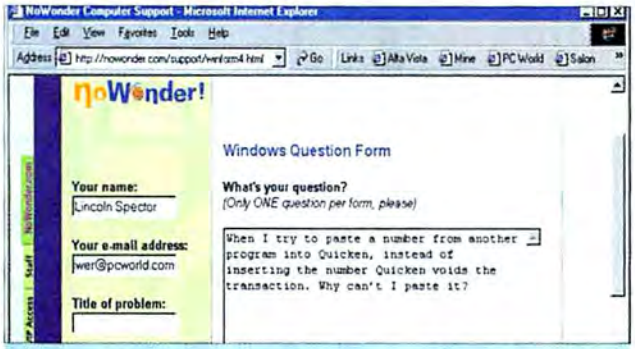
ILLUSTRATIONS BY RICHARD DOWNS

When Leigh Washburn of Washington, D.C., needed help designing an Excel chart, she went first to Microsoft's Web site. It was pretty much a bust. "Their only advice was to buy a book," she says. Eventually, she found her way to another site, MyHelpDesk.com, where a search for 'Excel chart' brought her quickly to a graphic explaining exactly how the procedure worked. Initially she doubted the accuracy of the advice: "When it works that easily, it couldn't possibly be right." But she soon became a believer. Washburn had discovered one of the conundrums of today's Internet: It's full of helpful free advice—if only you can find it.

Is third-party support any good? In many cases it's excellent. We examined nine free sites—32bit.com, About.com, Computing.net, EHow.com, GoofyGuys.com, MyHelpDesk.com, NoWonder.com, PC Support Center, and VirtualDr.com—looking for answers to questions about computers, the Windows OS, applications, and peripherals. Time and again, we found clear, complete, and correct answers, though no single site performed best consistently. Forum sites, where a community of users helps other users, did particularly well.

That's more than we can say for the vendors' own sites. We asked the same questions at Web sites maintained by Compaq, Hewlett-Packard, Microsoft, and other leading companies. Finding the correct answer was generally either very difficult or nearly impossible (Dell proved the one major exception).

Internet support usually falls into one of three categories: forums, expert advice sites, and knowledge bases. *Forums* are bulletin boards where people post questions and answers for each other. You can also post a question at an *expert advice site*, but only one person will respond—an "expert" responsible for answering questions. At a *knowledge base*, you can search an online database to find answers to specific questions. A site needn't be limited to a single approach—NoWonder.com, for example, offers both forums and expert advice, while About.com uses all three methods.



NO-NONSENSE DESIGN: NoWonder.com's query page is simple and easy to follow, asking for your question and basic user information.

A GATHERING AT THE FORUM

YOU'RE MOST LIKELY to find the right answer at a forum site such as 32bit.com, About.com, Computing.net, NoWonder.com, or VirtualDr.com. The community spirit of a forum increases the likelihood that you'll get a variety of opinions and more than one way to solve a problem, and that good advice from one person will correct bad advice from someone else.

You don't get that kind of give-and-take experience from an expert advice site, where only one person reads your question, and only you read his or her answer. The quality of these sites—About.com, GoofyGuys.com, NoWonder.com, and PCSupport.com—depends entirely on the quality of professionals hired or, in some cases, of the volunteers selected to answer your questions. One caveat about expert advice sites: Their usefulness hinges on their having enough experts for the traffic. If a site becomes popular quickly, the quality of its service could plummet as it scrambles to muster staff.

Waiting is also part of the game with forum and expert sites. Overall in our testing, forums proved more responsive than experts, usually providing at least one answer within an hour of our posting a question. When we asked late at night, the forums usually had an answer by the following morning. By contrast, experts often took a day or more to answer a ques-

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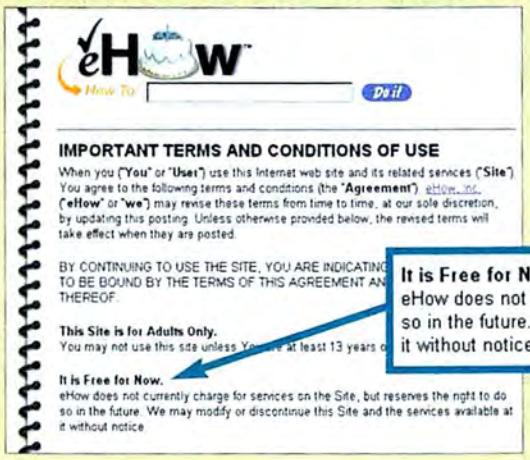

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MORE THAN MOST free stuff, technical support sites are refreshingly free of concealed hitches. Sure, you run the risk of getting a delayed response, bad advice, or no answer. But these hazards apply to tech support of all kinds, free *and* fee-based.

Don't be startled, though, if your favorite free help sites don't stay free. Many sites would like to charge for advice (as Exp.com and ExpertCity.com already do). So enjoy the free ride—for now.

tion. This variation in response time is hardly surprising: When you ask many people, someone is bound to answer quickly; when you ask only one, he or she may take some time to get back to you.

Two exceptions are NoWonder.com and PCSupport.com, both of which offer a chat-based feature on their sites. (By the time you read this, MyHelpDesk.com should also offer live chat.) Live chat potentially can provide a speedier give-and-take dialog than e-mail allows. You ask a question, an expert asks for additional details, you supply those details, and so forth. But you may have to wait for 5 or 10 minutes while the expert looks something up. At NoWonder.com, some experts charge for the information they provide. You can decide whether you want to accept it and pay their fee.

KNOWLEDGE BASE ABYSS

WHEN YOU DO GET AN answer from a forum or an expert site, it's bound to be more useful than the information you retrieve from a knowledge base site such as About.com, EHow.com, or MyHelpDesk.com. With a knowledge base, you don't have to wait for someone to reply, but the search itself takes time, and the answers you're looking for aren't always there. When we searched with keywords like *taskbar* and *margins*, the three knowledge bases let us down more often than they hit the mark.

The Web is full of help, and we don't have sufficient space here to cover every site we found. Some that we don't cover are useful but charge for information: ExpertCity.com, for example, claims that it can respond almost immediately as well as provide more than one solution. AskMe.com (formerly Xpertsite.com) and Service911.com both offer a mix of free and fee-based services. These two sites were being revamped as of press time; the new versions should be available by the time you read this. AskMe.com claims its fee-based service can deliver a faster response from an expert. Yet another group of sites, including ExpertsExchange.com, uses a point system to ration the number of questions you can ask.

In a nutshell: If your hardware or software vendor fails to provide prompt, reliable advice, third-party tech-support sites offer a helpful alternative, though some of them exhibit minor quirks.

PCs and Windows

BEST Computing.net
WORST EHow.com

The most basic technical support questions concern the computer itself and the operating system. To find out how different sites handle these queries, we asked each one a series of four questions.

First, we asked how to get the computer to start with the NumLock function off. Second, we looked for advice on picking the right kind of RAM to buy to upgrade a PC's memory. Then we searched for a way to make Windows' taskbar disappear. And finally, we asked why Windows 98 SE couldn't shut down properly. (This is a known bug, for which Microsoft's Web site provides a patch.)

We started by looking for answers on the vendors' own sites. We asked the first two questions at Compaq, Dell, and Toshiba. Extensive searches proved futile at Compaq and Toshiba. At Dell, by contrast, we quickly found what we were looking for, thanks to the site's natural-language search tool. We also checked Microsoft's site for answers to the two Windows questions. After much searching, we discovered the cause of Win 98 SE's shut- ▶

Free Tech Support Sites
FEATURES COMPARISON

WEB SITE	Forums	Expert advice	Knowledge base	FAQs[1]	Quality of user interface	Overall comments
32bit.com	●	○	○	○	Straightforward forum based on Ultimate Bulletin Board software.	**PRO:** Ideal for questions about computers, peripherals, and operating systems. **CON:** Weak on inquiries regarding applications.
About.com	●	●	●	●	Lots of drilling down; unreliable searches; easy to get lost.	**PRO:** Helpful expert advice on PCs and peripherals; covers non-PC topics. **CON:** Spotty search tool renders knowledge base unusable; forums hard to use, poorly supervised.
Computing.net	●	○	○	○	Simple, easy-to-navigate forum.	**PRO:** Easy-to-use forum site provided correct answers to almost every question. **CON:** Relatively long wait for an answer.
EHow.com	○	○	●	○	Information easy to find.	**PRO:** A fun site with advice on many subjects, most of which are not PC-oriented. **CON:** The number of PC topics is so small, you're not likely to find what you need.
GoofyGuys.com	○	●	○	●	Plain and direct; ask a question or search through previous questions.	**PRO:** Offers terrific advice on systems and Microsoft Office applications; fairly quick response time. **CON:** Lackluster advice on our printer problem.
MyHelpDesk.com	○[2]	○	●	●	Difficult to navigate.	**PRO:** Top knowledge base site leads you to pages in other sites. **CON:** Mediocre advice from its own original content.
NoWonder.com	●	●	○	○	Easy-to-use forum based on Ultimate Bulletin Board software.	**PRO:** Helpful forum community and practical expert advice. **CON:** Difficult to find existing information.
PCSupport.com	○	●	○	○	Fancy and graphics-filled.	**PRO:** Chat with experts allows natural conversation to generate answers more quickly than e-mail. **CON:** Didn't provide good advice on our Windows and Quicken questions.
VirtualDr.com	●	○	○	○	Ultimate Bulletin Board software makes its forum a snap to use.	**PRO:** More active community than other forum sites we tried; returns answers quickly. **CON:** Not ideal for questions regarding Office applications.

● = Yes ○ = No [1] Not counting FAQs on using the site itself. [2] Features not available for evaluation at press time.

down problem and a fix for it. We didn't find an answer to the taskbar question.

The best answers for system questions came from users at the Computing.net forum site. Their explanations, though not always conventional, were sound and useful. For the RAM upgrade, for example, someone suggested that we pull our existing SIMMs from the computer and bring them to a store for reference. Computing.net is also extremely straightforward and simple to use. Its unpretentious design has no doodads to slow the download and no odd colors to make reading difficult. Posting a question is ridiculously easy: You just scroll to the bottom of the page and find the form. Unlike the other forum sites, Computing.net doesn't require you to register to post a message.

The worst site for this set of questions was EHow.com, a knowledge base that covers far more than computer use. Ask EHow how to attract hummingbirds, and you'll get a wide selection of useful tips. Ask it how to turn NumLock off, and you'll get a short list of irrelevant suggestions, ranging from 'How to Make a U-Turn' to 'How to Top Turn Off the Lip on a Windsurf Board'. EHow sports a natural-language search tool, but it lacks the intelligence to guess just what your question means. If you ask how to turn off the taskbar in Windows, you'll get a list of answers, including the ubiquitous 'How to Make a U-Turn' and 'How to Flip-Turn When Swimming the Backstroke'.

Worse, in many cases the info we sought wasn't there. For three of the four questions we asked EHow, no right answers appeared among all the wrong ones. But for the upgrade question, it provided a useful article, 'How to Buy RAM', written for the site. And since EHow provides canned solutions for common problems, we didn't have to wait for an answer.

Overall, we received few blatantly wrong answers to our questions. The experts at NoWonder.com and PCSupport.com had trouble with the shutdown problem, offering general advice that evinced no knowledge of the documented bug. In fact, the PC Support Center guru went so far as to tell us that the only probable solution would be to reformat the drive, though he admitted that answer was too drastic.

Do Your Own Background Check

IT'S A COMMON OCCURRENCE. You ask a question online, wait for a response, and then get not an answer, but another question: What kind of PC do you have? What version of Windows? What printer?

If the people trying to help you don't have enough information about your system, they may not be able to answer your question until you've answered theirs, turning a simple query into a volley of e-mail exchanges. So if you want your answer fast, put every relevant fact into your original query.

What's relevant? Best to give more info than less. Start your message with a brief description of your question before getting into a long, detailed description with all of the information suggested here. If you're using Windows 98, you can get information about your PC from the System Information program. Select *Start•Programs•Accessories•System Tools•System Information.* If you're using Windows 95, right-click *My Computer,* select *Properties,* and click the *Device Manager* tab for hardware information. Here are the facts you should include in your query, just to be safe.

Hardware: Give the make and model number of your computer. Identify the CPU (Pentium III-500, for example) and video card, and list the amount of installed system RAM. If you're writing to the vendor, include the serial number; you'll probably find it on the back of your computer.

Software: List your operating system (such as Windows) and the version number (95, 98, or other). Add the names of all software that loads when you start your computer, such as antivirus or crash control programs, and anything in the start-up folder. Of course, you should include the name and version number of any program pertinent to your problem and the names of any programs that interact with it, such as browser plug-ins.

Peripherals: If you're asking about a printer, modem, scanner, or other peripheral, include the name of the vendor and the model number of the device. You should also mention the type of port it's plugged into (for example, serial, parallel, USB, or IEEE 1394).

Applications

BEST NoWonder.com
WORST About.com

To find out how well third-party Web-based free support handles the programs we use to get our work done, we asked two questions about Microsoft Office and two about Quicken. Most of the sites provided some help with Office but did very poorly when we asked about Quicken, a market leader in a very popular category.

We asked how, in Microsoft Word, you make the first line of a paragraph stick out farther to the left than the other lines (a formatting arrangement called a hanging or overhanging indent—though we didn't acknowledge knowing the term). We also asked how to create an Excel formula for x to the power of y. Again, we avoided using the technical term, exponentiation.

Our first Quicken-related question concerned use of a common shortcut, <Ctrl>-V, to paste text. This Apple Macintosh standard has been adopted by Windows and most Windows applications but was not a default setting in Quicken until version 2000. The second query asked how to enter a new share price manually into an investment account via the register.

You're not likely to find answers to these questions at Microsoft's or Intu- ▶

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it's sites. Although Microsoft.com has an extensive database, we found only a long, complex way to create hanging indents, and nothing explaining exponentiation. Intuit's site had no relevant help.

NoWonder.com offered the best advice in response to both sets of questions, perhaps because it combines expert advice and a forum. When one proved inadequate, as when the Word expert didn't provide enough details with his instructions, the other came through.

The exception involved the Quicken share-price question. Here, once again, the expert didn't include enough details, but this time the only reply we received in the forum was just plain wrong. On the other hand, NoWonder was the only site that offered the correct answer to the Quicken paste question, both through the expert and from a kindly soul on the forum. We also tested NoWonder's chat-based expert area, which was on its trial run at press time. Unfortunately, since this facility was still in an early stage of development, it was not as successful in providing us with a prompt response.

HOW-TO HAVEN? EHow.com capably covers nontechie topics, such as making a U-turn, but isn't as useful for PC-related subjects.

On the design front, NoWonder's site could be called NoNonsense. The straightforward site is easy to use and navigate. To ask an expert, you simply fill out a form that asks for all pertinent user information. For forums, NoWonder.com employs Prime-Web's Ultimate Bulletin Board software, which enables you to easily enter messages, respond to them, browse, and find answers to your questions.

Good Quicken experts are, apparently, hard to find. Consider what we encountered at PCSupport.com, the other site using a chat feature. It handled the Office questions quite capably. But when I asked about Quicken on a Tuesday, I was told to come back the next day for the Quicken expert. Come Wednesday, I was told the expert would be there on Friday. Someone who *was* there on Wednesday took a stab at the paste question, figuring out the ▶

Usenet Newsgroups

THE OTHER INTERNET FORUMS

IF YOU DON'T FIND adequate technical advice from an expert-advice, knowledge-base, or forum site, consider Usenet, a forum-based portion of the Internet that predates the Web by years. Usenet forums, called newsgroups, offer a plethora of useful information, and the people who populate them are often very well informed.

The best place from which to search Usenet is the Web site www.deja.com. In the upper right corner of this portal's home page, you'll find a search tool geared toward newsgroups. Type in a keyword relating to the problem you're having with your PC, application, or peripheral, and you'll find a huge listing of postings from newsgroups all over the Internet, as well as options for a power search. AltaVista and HotBot also have newsgroups, though they're not as helpful as Deja's.

The best way to be interact with a newsgroup (asking questions and taking part in discussions) is to go to it directly or to access it through America Online, Netscape Messenger, or Outlook Express. You'll need to know the name of your ISP's news server, which is usually news.*your ISP's domain name*.com—for example,news.earthlink.com.

As helpful as newsgroups are, some of them have shortcomings. They are, as a rule, not moderated, meaning that anyone can post anything. While this unrestricted approach has some advantages, such as greater freedom of expression, it does mean that you may have to wade through spam, including porn ads, to find what you're looking for. You'll also have to deal with people who are lacking in the social graces. Your questions may provoke replies ranging from unfriendly to downright obscene, in addition to some useful answers.

Which are the best newsgroups to try for PC technical support? For general information about your computer or Windows, visit comp.os.ms-windows.misc, comp.os.ms-windows.setup.win95, comp.os.ms-windows.win95.misc, comp.sys.ibm.pc.misc, comp.sys.intel, comp.windows.misc, microsoft.public.win98, or microsoft.public.win98.apps. For info about particular programs or peripherals, go to comp.apps.spreadsheets, comp.os.ms-windows.apps.word-proc, microsoft.public.excel, microsoft.public.win98.comm.modem, alt.comp.softwarefinancial.quicken, or comp.periphs.printers.

Don't fret if some of these names seem a bit out of date. The Windows 95 newsgroups do discuss Windows 98, and the term *ibm.pc* is a throwback to a time when IBM controlled this industry; the IBM PC newsgroup covers PCs made by any manufacturer. (For more information about Usenet newsgroups, see *Internet Tips*, page 236.)

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problem but not a solution. He asked for my e-mail address so the Quicken expert could answer the price-change question. But the expert's eventual reply was that he didn't have an answer—not exactly useful.

None of the knowledge bases held answers to any of our application-related questions. Even MyHelpDesk.com, which helped Leigh Washburn with Excel and is the best of the knowledge bases because it culls information from various sources rather than depending on what its own people produce, couldn't help here. MyHelpDesk is a technical support portal that guides you to information on other Web sites. It's a great place to find extensive data about a subject, but you can't rely on it to find answers to specific questions. MyHelpDesk is still improving its site, however—currently it's adding a natural-language search tool, for example—and may soon offer more useful and relevant advice on specific PC-related topics.

No site bombed in the applications category quite as badly as About.com—forums, a knowledge base, and an expert advice site rolled into one. The forums are difficult to figure out, and returning to questions you posted can be nearly impossible. What's more, About.com's forums are sparsely populated, limiting the give-and-take that usually makes these venues attractive. Finally, they're not carefully moderated; postings are often off the subject and can sometimes be offensive.

A knowledge base typically covers a lot broader area than just computers and doesn't fare well with technical questions. Although About.com's experts were often on the mark in other categories, giving prompt and accurate answers, they failed to make the grade with applications. We didn't obtain correct answers to either Quicken-related question. And 24 days after posting our Microsoft Office questions, we had yet to receive any answer.

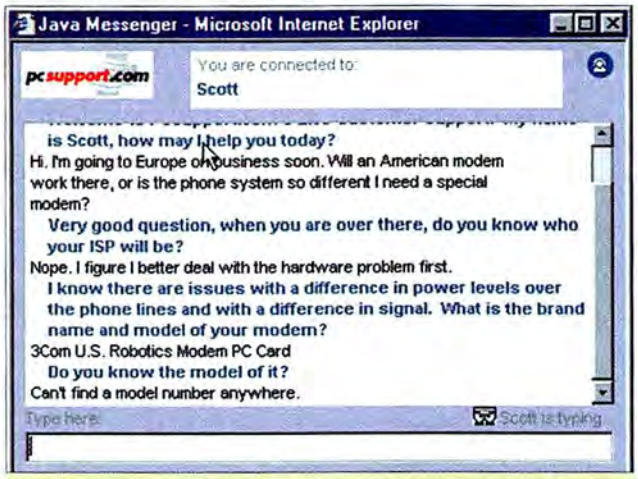
Peripherals

BEST 32bit.com and VirtualDr.com

WORST None

So many different printers and modems are out there, no third-party site could possibly cover them all. Luckily, none has to. Most questions about, say, a particular ink jet printer pertain to other models, too. To test support sites' helpfulness with peripherals, we asked general questions one might ask about any printer or modem.

Our printer question asked why we couldn't load the paper in our Hewlett-Packard DeskJet 882C so it wouldn't jam. For modems, we asked a universal question: When in Europe, can you operate a modem designed for use in the United States? If the site asked us for more details, we identified the modem as a 3Com U.S. Robotics Modem PC Card and the country as Germany.



LET'S TALK: PCSupport.com offers expert advice through a live chat area, providing immediate give-and-take dialog for users.

How did the vendors themselves do? Hewlett-Packard fared reasonably well, but only after we figured out that its advice for other DeskJet model numbers worked equally well with our 882C. A collection of paper-handling tips for the 810C, 830C, 880C, and 895Cse proved useful for the 882C as well. On the international modem question, 3Com quickly responded—we sent the question and received an answer the next day. But the company's recommendation that we buy a European modem could have been sales motivated; other sources advised us that an adapter would do the trick.

Two of the forum sites, 32bit.com and VirtualDr.com, outdid every other site in the peripherals category. One 32bit.com user not only told us about modem adapters but also pointed us to roadwarrior.com, a retail site that sells kits and adapters for traveling users. On VirtualDr.com, a response from a DeskJet 882C user offered the only model-specific advice we saw about loading the printer.

Both sites use the same Ultimate Bulletin Board software as NoWonder.com and are equally powerful and easy to work with. The one trick to using both of them successfully involves finding the right forum. For instance, 32bit.com has 11 different Windows 95/98 forums, including General, Hardware, Internet, and Utilities. There's no specific Modem forum, so do you go to the Hardware forum or the Internet forum or both? The key is to look in the Posts column, which tells you if a forum is heavily used. The larger the number of people who use the forum, the better your chances of getting a fast, accurate reply. We posted our query to the Hardware forum, which had 2433 posts, compared to the Internet forum's 533.

No site completely blew it on both questions; all had something useful to say about either printers or modems. We did get some bad advice, however. An expert at GoofyGuys.com wrote, 'DeskJets are known to have this problem when they get old', indicating that he didn't know the DeskJet 882C is a newer model. Experts at both About.com and NoWonder.com told us that a modem made for use in the United States could be used in Europe without any serious problem—true, but not sufficient advice.

And of course, a wrong answer—a possibility with any technical support source—can be worse than no answer at all. With forum sites, including 32bit.com, Computing.net, NoWonder.com, and VirtualDr.com, you're likely to find the right answer to your technical questions faster than you can say, "Read the manual."

Lincoln Spector is a contributing editor for PC World *and writes our monthly column* Answer Line. ■

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3Com USRobotics V.90 WinModem	5-year/3-year Micron Power limited warranty	5-year/3-year Micron Power limited warranty
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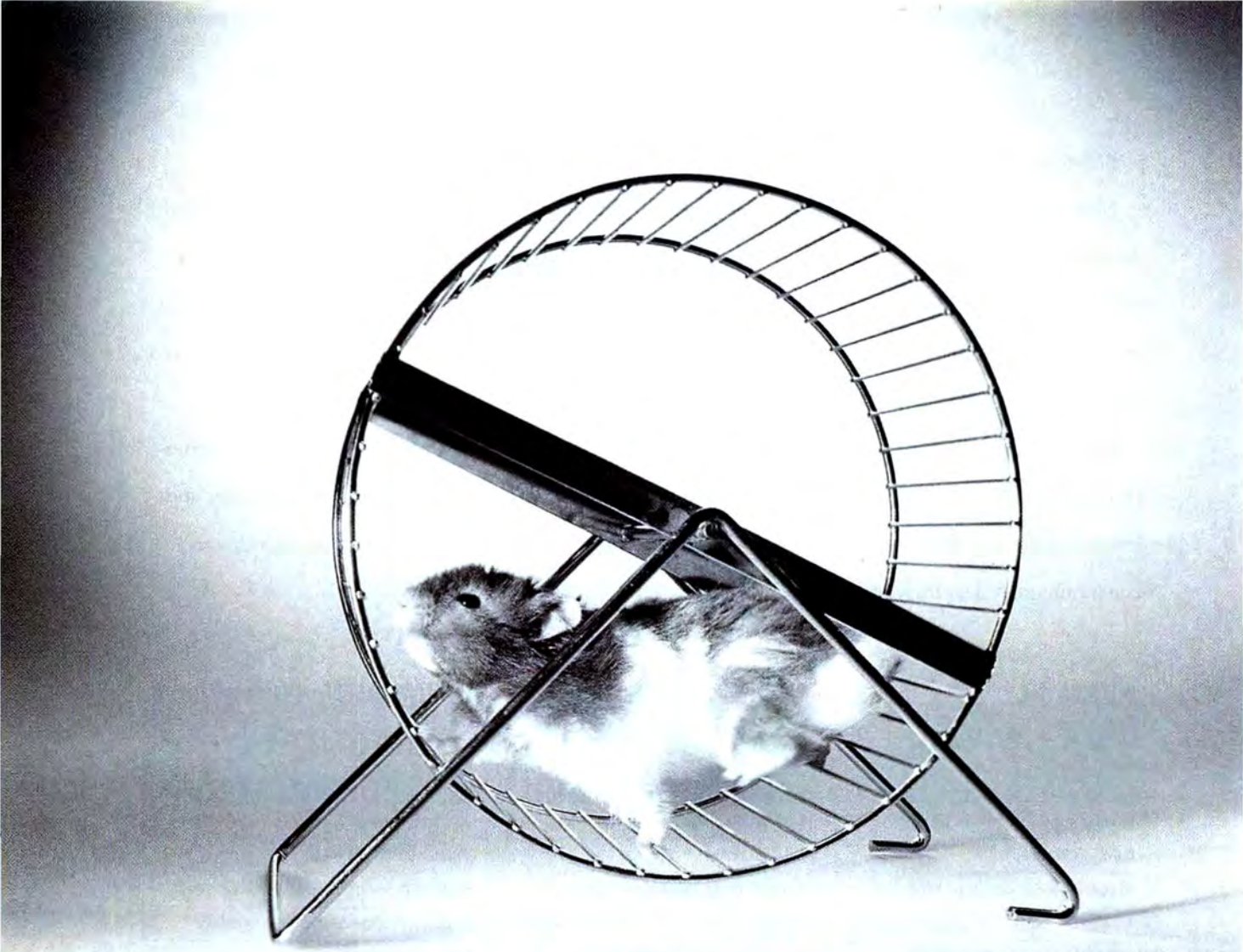

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Beyond Free-Mail

NO-COST E-MAIL IS ONLY ONE OF THE WEB'S GIVEAWAY SERVICES. BUT ARE SERVICES LIKE FREE NET ACCESS AND ONLINE STORAGE WORTH YOUR BANDWIDTH?

BY JEFF BERTOLUCCI AND MATT LAKE

ILLUSTRATIONS BY SCOTT BALDWIN

IF YOU'RE PAYING ANYTHING for e-mail, Internet access, Web hosting, backup storage, or a personal information manager, you may be paying too much. Dozens of sites give away everything from applications to personal organizers to multiple megabytes of storage space. Some ISPs even offer free Net access, a huge bargain that can save you hundreds of dollars annually. But are these services really free? What are the hidden costs? And do no-cost offerings make sense for every user?

With so many free services available on the Web today, some people may wonder whether they'll ever have to pay real money ▶

PHOTOGRAPH: IAN BRADSHAW/GAMMA-LIAISON

E-Mail for Nomads

DAVID ANDERSON / BLACKSBURG, VIRGINIA

FOR DAVID ANDERSON, a U.S. military officer who used to subscribe to a regional Internet service provider, frequent changes in address meant frequent ISP changes—and that amounted to a lot of new e-mail addresses. "Since I'm in the [military], I tend to travel a lot, and the entire family moves every couple of years," says Anderson, currently an assistant professor at Virginia Tech in Blacksburg, Virginia. The solution: Juno's free e-mail, which the Andersons have been using to stay in touch with friends and family since 1996.

Though initially drawn to Juno because it was free, Anderson quickly discovered that the e-mail service suited his nomadic lifestyle. Juno's numerous access numbers (more than 2000 in the United States, compared to 2000 or fewer for most fee-based services) make it easy for him to check his e-mail—both when he's at home and when he's on the road. And aside from the occasional busy signal, Anderson says he's had little trouble connecting to the service. (Unlike the other free e-mail services reviewed in this article, Juno is not strictly Web-based; you must sign up for service by using the company's free download software.)

Juno's free service isn't perfect, but Anderson has adapted to its shortcomings—the pitches it makes for other Web-based services and sites, for example. And while every Juno e-mail message carries a pop-up advertisement, Anderson has learned to accept that as a condition of using the free service. "For the most part, we just ignore the ads," he says. –Jeff Bertolucci

to work and play on the Web again. But while these no-charge services may be a no-brainer choice for small-office and home users, businesses may want to think a bit harder. For example, a free Web site may be ideal for showing pictures of your family to friends or for posting an online résumé for all the world to admire, but if you're using the site as a business storefront, the mandatory ads that pop up on it will irritate clients. Free online storage is handy for personal file sharing or for storing your collection of MP3 audio files, but many free sites lack the security features and storage capacity that businesses demand. And most free Internet service providers require you to fill out intrusive marketing surveys and include creepy, we're-watching-you language in their contracts. If you consider any of these limitations significant, you might be better off paying for the services you need.

In this article, we've divided free Web-based services into five categories: e-mail, PIMs, ISPs, Web hosting, and storage/backup. We chose these categories because they're the most popular ones among *PC World* readers and Internet users in general. We list the advantages and disadvantages of each service type and highlight our top picks on a scorecard (after having evaluated at least five of each type of service). In some cases, we found that the convenience and cost savings of a freebie outweighed its drawbacks. But in other cases, a free online service simply did not measure up to its fee-based competitors.

Our favorites—or Best Bets—in each service category ranged from the well-known to the less familiar: Yahoo Mail and Hotmail for free e-mail service, AnyDay.com among the PIMs, Homestead in the hosting bracket, Freei.net in the ISP group, and X:drive among storage services. (Other free services—such as computer help and e-commerce and workgroup tools for small businesses—are covered in other sections of this month's special issue.)

With so many useful Web-based services to choose from—at no cost to the user—will you ever again have reason to pay for such popular applications as e-mail and personal planners? That depends on your tolerance for advertising, the lifeblood of free online services. Still, even if you abhor the thought of a

pop-up Wheaties ad blemishing your spreadsheet or word processing document, chances are good that you'll find something worthwhile among the services discussed here.

E-Mail

PROS Your e-mail is available at any Web-enabled PC nationwide, without configuration hassles.

CONS Handling of online mail is slower and less reliable than that provided by standard POP3 accounts; security remains a concern.

BEST USE A good supplement to business or personal e-mail accounts, especially for frequent travelers.

You have e-mail at work, but you don't use it for personal correspondence. You keep changing your ISP or AOL screen name. You travel a lot and want to check messages on the road. If any of these scenarios describes your situation, you're a good candidate for Web-based e-mail. These services provide a permanent e-mail address to call your own, paid for by banner advertising that appears on each screen you view. Your mail is accessible from any Web-ready computer, and you can even use your Web e-mail account to check messages from another account—except those protected by a firewall.

IF YOU MOVE AROUND A LOT, FREE WEB-BASED E-MAIL PROVIDES A PERMANENT ADDRESS TO CALL YOUR OWN—PAID FOR BY BANNER ADVERTISEMENTS.

Then again, Web-based e-mail takes longer to collect and read than paid POP3 mail (because free e-mail providers usually use slower servers); ads litter your screen; and every message you send bears an intrusive tagline touting the service or asking whether you "Yahoo." Even worse, using Web-based e-mail can expose you to security risks (see "Add a Security Blanket to Free E-Mail" on page 154). If you seek a business account, stick with the POP3 e-mail hosted by your ISP.

On the other hand, if you just want an e-mail account for personal messages, you're in luck. Almost everyone with a domain provides free e-mail these days—it's a good way for companies to promote a Web site, generate repeat visits, and boost advertising revenue. So whose name should follow the @ sign in your Web-based e-mail address? Choose wisely, and you may never have to change your e-mail address again.

Our favorite free e-mail services are veterans Yahoo Mail and Hotmail. In addition to providing the usual features, both let you save your user name on your PC (Hotmail will also save your password) so you can log in instantly (this shortcut is not recommended for shared or portable PCs because of security concerns). They also provide strong filtering tools for incoming messages, including a filter that bounces e-mail from known spam merchants. And both sites' interfaces are well laid out and easy to use. Better yet, you can download e-mail for offline reading: You can collect mail from Yahoo with any POP3 e-mail software, including the popular programs Eudora, Netscape Messenger, and Outlook, while Hotmail integrates with Outlook Express 5.0. In both cases, the setup is quick, and the flexibility invaluable.

In contact management, Yahoo has a slight edge over Hotmail—it can import address book info from Outlook, Organizer, and Palms, as well as from other sources that can export their data in comma-separated value format. Yahoo Mail can also notify you of incoming messages, by sending a signal to Yahoo Messenger, an instant-messaging app that you install on your PC. But Hotmail shines in two other areas: It can scan incoming mail attachments for viruses before you download them, and it offers a dictionary and thesaurus, in addition to the standard spelling checker.

Each of the other contenders has its own strengths. One standout is Mail.com, which provides free e-mail service for a gaggle of other portal sites, including IWon.com and NBC.com. The service's best feature is its large selection of domain names. Instead of tethering you to *name*@mail.com, it lets you opt for such ▶

E-Mail SCORECARD

SERVICE	WHAT'S HOT	WHAT'S NOT	BOTTOM LINE
Excite Inbox inbox.excite.com	Handles voice mail and fax as e-mail attachments	Limited message filtering	Great choice for sharing contact information with an offline PIM
Hotmail www.hotmail.com	Virus scanning, offline reading (with OE 5.0), instant log-ins	So-so address book	Strong features and brisk performance make Hotmail our cowinner
Mail.com www.mail.com	Choice of e-mail domains , free mail forwarding, 5MB mailbox	Annoying ads, can't import address books	Solid features, easy to upgrade
ProntoMail www.prontomail.com	Notifies you of incoming messages via ICQ, online PIM	Best features (forwarding, pager notification, e-mail by phone) aren't free	Nice frills, but nothing to e-mail home about
Yahoo Mail mail.yahoo.com	Free message forwarding, POP3 offline reading, instant log-ins	None, unless you mind getting branded as a Yahoo	First-class overall service and no serious weaknesses earn Yahoo a space at the top

alternatives as the short-and-sweet @usa.com, the professional @consultant.com, or the cutesy @cheerful.com.

Another plus is Mail.com's 5MB mailboxes—2MB bigger than those most free e-mail services offer. Mail.com will also forward your messages to another e-mail address for free (as will Yahoo Mail). Just switch the feature off when you travel so you can view your messages from any Web-enabled computer. Even with such solid features, however, Mail.com could not overcome its two chief impediments: distracting advertisements and a so-so address book that lacks a nickname field and won't let you import multiple addresses at once.

Though Hotmail and Yahoo Mail are our favorite free e-mail services overall, the newly revamped Excite Inbox has evolved into an all-in-one in-box: It handles faxes and voice mail as well as e-mail. (Other integrated services offer similar features—see *Web Savvy*, page 39.) Using a toll-free number, correspondents send you voice messages and faxes, which show up as file attachments in your Excite e-mail in-box. But the site limits the usefulness of this feature with a 3MB mailbox capacity and quotas on incoming non–e-mail messages. Like Yahoo Mail, Excite uses Starfish Software's stellar TrueSync program, which lets you keep contact information in sync by uploading address books from PIMs and personal digital assistants to your e-mail account, and vice versa.

ProntoMail has an online PIM and good message-formatting tools, notifies you of incoming messages via ICQ, and spell-checks in American and British English and in ten continental European languages. But the service's best features—mail forwarding, pager notification, e-mail by phone—cost money.

Personal Information Managers

PROS Your calendar and contacts are as near as a Web connection; many sites let you synchronize with your offline PIM or PDA.
CONS The Web is slow (really annoying if you juggle a busy schedule); anyone who knows your password can access your account.
BEST USE An excellent organizational tool for people with multiple PCs and/or handheld PDAs.

When you look in the mirror, do you see a schlub whose desk looks like an overflowing landfill, or someone so highly effective that you could practice just five of Steven Covey's seven habits and still get all your work done before lunchtime? Most of us fall somewhere in

Add a Security Blanket to Free E-Mail

"SO FAR, I'VE GOTTEN 31 passwords and freaked lots of people out by sending them mail from their own accounts and changing their passwords!" Big talk like this, found at one hacker's Web site, is enough to turn the stomach of any Hotmail user. In the summer of 1999, an exposed defect in Hotmail's security forced Microsoft to close down the site's servers for approximately 8 hours. After plugging the holes, Microsoft brought in privacy watchdog Truste to declare Hotmail secure from hacks. Even so, persistent miscreants will likely find ways to exploit JavaScript, browser architecture, or server software and get into e-mail accounts. Here's how to protect your privacy, regardless of the free e-mail service you use.

Keep JavaScript out of your e-mail. Malicious JavaScript code embedded in e-mail messages endangers your account security and could make your system susceptible to damage, such as that caused by viruses. You can combat this threat in two ways. The first is to set up your e-mail app to refuse messages that contains HTML code—plain text can't carry JavaScript. (Look for this option under the Preferences or Options link of your e-mail provider.) The drawback of doing this is that you may end up turning away legitimate mail that happens to carry HTML coding.

Your second option is to turn off JavaScript support in your browser before you log on to collect mail. (In Internet Explorer, select *Tools•Internet Options•Security* and set the security slider to *High*. In Netscape Navigator, click *Edit•Preferences•Advanced* and uncheck *Enable JavaScript*.) If you want to activate JavaScript at a given site, you'll have to turn the Enable JavaScript option back on.

Ban the spam. Reducing the number of strangers who know your address will help minimize the amount of unwanted e-mail you get. When subscribing to a site, don't check off boxes that add your name to online listings—spammers go there to collect addresses. Turn on spam filters at sites that provide them. And if you really want to be cautious, get your free service at a site like ProntoMail, which lets you specify the senders whose mail you'll accept.

Clear the cache. When you're using a public-access PC to check for e-mail, remember that browsers save information in the system's memory and hard drive when they visit sites. Unless you see (and check off) an increased security option in a public-access PC's log-in screen, you can't assume it will purge pages when you leave—meaning that subsequent users of that computer could read your e-mail. For peace of mind at services that don't offer an explicitly secure log-in, flush the cache manually. (In IE, select *Tools•Internet Options•Delete Files*. In Navigator, go to *Edit•Preferences*, expand the *Advanced* category, click *Cache*, and then clear both the memory and disk caches.) Also, watch what you click. Hotmail, for example, provides two check-in options: One is secure, while the other saves your log-in name and password for instant access. Click the wrong option, and you may regret it.

Clear the folders. With Web-based e-mail, the longer you leave messages online, the more time a hacker has to try to read them. Delete messages as soon as you've read them, and empty the trash folder. Save messages you'll want to access again to your hard disk. If your service lets you save messages using a regular e-mail program (as both Yahoo and Hotmail do), take advantage of that feature. **—Matt Lake**

between—probably closer to the schlub. But personal information management software promises to whip us into shape, and as such, free PIM services are particularly tempting deals.

Without a doubt, we favor paid-for desktop programs such as Microsoft Outlook and Lotus Organizer over their online counterparts. These desktop applications' greater flexibility, broader range of print options, and faster local software are tough for a Web site to match. Furthermore, PIMs that stay on your hard drive are more secure: Of the seven free services we looked at, all provide password protection and (according to them) hacker-resistant sites, but only Zkey.com and Visto.com offer a secure socket layer connection to encrypt data. (Visto.com also provides an optional secure connection just for log-in, where only the password submission page is encrypted.)

WEB-BASED PIMs PROVIDE SOME FEATURES THAT TRADITIONAL PIMs DON'T—LIKE WEATHER FORECASTS AND THE ABILITY TO SET REMINDERS FOR TV SHOWS.

That said, several Web-based PIMs do provide compelling features that traditional PIMs don't offer, such as four-day weather forecasts in your calendar and the ability to look up and set reminders for TV and movie programs. Many of the seven sites we examined also permit you to synchronize data with an offline PIM. And if you use multiple PCs or PDAs, you can consolidate your various address books in a single location.

AnyDay.com and Visto.com are the strongest of the sites we looked at. Both provide clean, well-designed interfaces and robust downloadable programs that sync up calendar and contact information with a range of PC programs, plus Palm and Windows CE devices. But AnyDay.com takes the crown because of its additional features, our favorite being a first-rate event planner akin to Excite's. In addition to scheduling events, it handles RSVPs by letting invitees leave comments, see who else has answered, and check a list of things to bring—no more parties with tons of potato salad and no dessert. (The RSVP feature was still in beta form in our tests, but it worked well.)

AnyDay.com also lets you print schedules, two-month calendars, to-do lists, and reminders with a date stamp on each page; and it includes a free service, My Accounts from VerticalOne, to help you keep track of information on membership-based sites. To see how many new e-mail messages you've received, for example, or what's changed in your online bank account, just click the appropriate link in the VerticalOne summary page.

The well-designed Visto.com comes with a full spectrum of features, including the ability to handle group calendars, integrated e-mail, file storage and sharing, and bookmark synchronization. For the impatient, it also provides a 'remember me' button that lets you log straight in—just by entering the site's URL. (To log in automatically using a secure socket, type **https://** before **www.visto.com**.) But the service isn't perfect: Visto.com's event scheduler, which browses items like TV and movie listings and book and CD launch dates, is rudimentary at best.

Excite Planner's attractions include a free downloadable version of TrueSync for synchronizing with Palm devices, a special feature that will remind you of events by e-mail or pager, and a nice notepad tool that you can use to jot down ideas. Unfortunately, however, we found the service's core scheduling features and screen layouts to be unremarkable.

Zkey.com offers a generous 30MB of file space and gives you control over the information other people see when they view your schedule. It also provides chat, e-mail, messaging forums, and great tools for syncing up with a PIM. But the organizer is a bit tricky to use due to the overwhelming number of features it has. Plus, the program's frame layout makes printing a hassle.

Internet Service Providers

PROS Free ISP service can save you more than $200 per year.

CONS Most free services come with too many banner ads that you must click periodically to stay connected, as well as sluggish connection speeds and iffy privacy policies.

BEST USE Fine for home or small-business users who don't go ▶

PIM SCORECARD

SERVICE	WHAT'S HOT	WHAT'S NOT	BOTTOM LINE
AnyDay.com www.anyday.com	Robust syncing tool, fantastic event planner, integration with other PIMs	Lacks extras like file storage or e-mail	The best pure Web PIM around; great time-management and event-planning features
Excite Planner planner.excite.com	Excellent PIM and PDA connectivity, reminders via e-mail or pager	Limited control over hard-copy scheduling	Terrific for coordination with Excite Inbox; adequate for use with other Web e-mail
Visto.com www.visto.com	Syncs everything from bookmarks to file folders, data encryption	Shaky event scheduler	Mediocre event scheduler prevents Visto from taking the laurels
Zkey.com www.zkey.com	Chat, e-mail, messaging forums, great PIM features, data encryption	Frame layout makes hard-copy printing tricky	Excellent all-around package, but the multitude of features makes it hard to use

online much—and who can stand the intrusive ads.

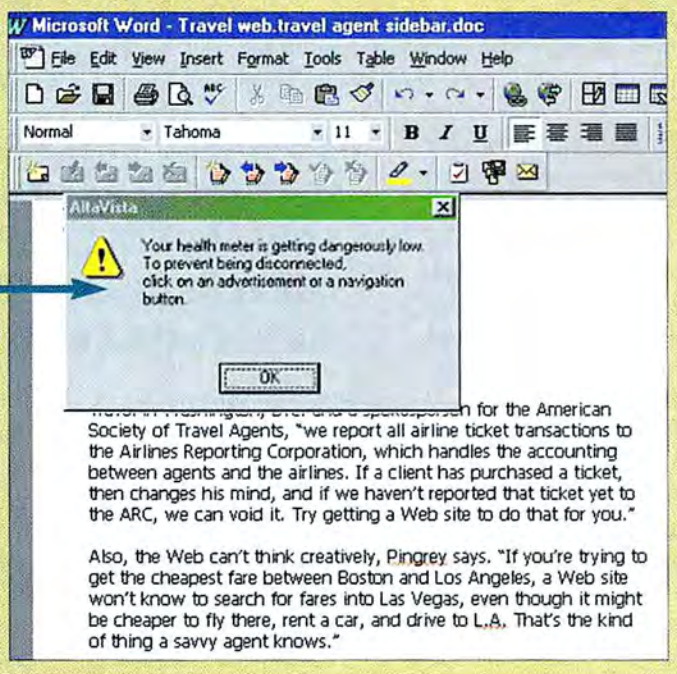
Few Web bargains are as tantalizing as free Net access—promised by a small but growing band of ISPs, including AltaVista, Freei.net, and NetZero. After all, ISP service is usually the biggest recurring expense for any PC user, typically costing more than $200 a year. Even if you don't want to face a barrage of ads every day, a free ISP account makes a great backup to your regular pay service—to use when your main account is down, for example. You might even want to open several free ISP accounts, since they don't cost you anything to set up.

If you go this route, however, be aware that you'll have to endure a steady stream of advertisements in a narrow window, usually along the top of your screen. You can move the window to a more convenient location so that it doesn't block browser menus and toolbars, but if you try to close it, you'll lose your Internet link; and if you try to move it off the desktop, it won't budge past the borders of your screen. Worse, this rude ad window retains its always-on-top position even when you're using non–Web-based programs. So while you're writing a document in Microsoft Word, say, you'll have to tolerate an electronic billboard for low-interest mortgages, reconditioned hard drives, and the like. The only way to escape is to log off the Net.

Of course, banner ads aren't entirely evil. They do provide navigational buttons for fast access to e-mail, search engines, news sites, and other popular features. Many also stream useful information to your PC, such as news headlines and stock quotes. Nonetheless, few people will deny that they're annoying.

GOTCHA WATCH

DON'T FORGET THE ADVERTISERS



You're connected to your free ISP, but you're using Word, not surfing the Web. Even so, your work is interrupted repeatedly by messages from the ISP warning you that if you don't click on an ad soon, you'll be disconnected.

Another drawback of free Net services is that access is normally limited to one user via dial-up modem, which means speeds of 56 kbps or slower. (This may change, as some companies begin to offer free DSL service.) And because free ISPs continually funnel banner ads to your PC, modem throughput is at best slightly slower than the rated speed—an important issue to consider if you plan to download large files. Moreover, some free ISPs disconnect users who don't click a banner ad within a certain time frame. The grace period is usually 20 to 30 minutes, but in our tests AltaVista booted us off after just 6 minutes. In contrast, Freei.net doesn't kick you off at all.

At least getting disconnected presumes that you've been able to connect in the first place. Free ISPs tend to supply fewer dial-in access numbers than their fee-based counterparts, which can make getting online a monumental task in itself. Fortunate- ▶

ISP SCORECARD

SERVICE	WHAT'S HOT	WHAT'S NOT	BOTTOM LINE
AltaVista www.altavista.com	Web-based e-mail, smallest installation file here (600KB)	Frequent reminders to click ads	Good features, but the service knocks you offline quickly
Freei.net www.freei.net	Web-based e-mail, no need to click ads to stay connected	Clutters screen with multiple dialog boxes	Long tech support hours and longer online sessions earn it top honors
NetZero www.netzero.com	Allows 20 to 30 minutes without clicking ads, 24/7 tech support	Client-based e-mail may be hard to configure	Solid second choice—but we stayed on longer with Freei.net

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ly, that's changing. At press time, EarthLink, one of the largest pay ISPs, had more than 2000 local dial-up numbers in the United States, while AltaVista, one of the top free ISPs, offered nearly as many—about 1800. If you live in or near a major metropolitan area, you probably won't have a problem finding a local dial-in number for a free ISP. But folks in the hinterlands may face long-distance toll charges.

Finally, free Internet access offers little in the way of privacy. According to Freei.net's privacy statement, for instance, the company "reserves the right to monitor any and all communications" of its users; and its licensing agreement states that "each user agrees to...periodic questionnaires." Similarly, AltaVista's service pact gives the company the right to "gather information about you, such as data about your use of the service...and provide this information to third parties, including advertisers."

Though monitoring of this nature may lead to little more than targeted banner ads or more spam delivered to your in-box (our tests yielded just two to three pieces of junk e-mail per in-box per day—less than you'd typically get with AOL), the potential for serious breaches of privacy clearly exists. By comparison, EarthLink's paid access agreement states that the provider may "disclose information about your use of the service," but only to "satisfy laws, regulations, or government requests...or protect itself and its subscribers."

After weeks of testing nine free ISPs, we chose three worthy services to highlight here: AltaVista, Freei.net, and NetZero. Each provided dependable dial-in access with few busy signals, a geographically diverse selection of local access numbers, and reliable e-mail service (though NetZero's e-mail requires a client program, such as Microsoft Outlook, on your PC). None requires you to enter a credit card number during registration, as some free Internet service providers do. (Of course, they all display banner ads along the top of the screen.)

All three picks provide good online technical support, complete with installation guides and troubleshooting information. NetZero has the longest telephone support hours—24 hours a day, seven days a week. The company also offers a premium phone support option: For $15 per incident, you get immediate access to (as opposed to having to wait on hold for) to a living, breathing representative. Freei.net provides 20 hours of phone support daily. AltaVista's phone support is available for 17 hours a day.

Our number-one free ISP is Freei.net. The provider lets you surf as long as you want without having to click ads to avoid being kicked off. (Of the three ISPs, AltaVista was the most vigilant at reminding us to click ads.) Furthermore, Freei.net's e-mail application is browser-based (as is AltaVista's), so you can access it from any computer; and you don't have to configure a desktop e-mail client for a second log-in name. Our one complaint ▶

PHOTOGRAPH: RAY NG

Free, but Worth It?

DAVID EISLER / ARVADA, COLORADO

DAVID EISLER, A SOFTWARE ENGINEER in Arvada, Colorado, wanted a free Web page to promote his shareware program ZoomTools, a collection of Windows graphics utilities. He tested several free Web-hosting sites but eventually chose a pay service.

Why would a shareware developer on a tiny budget pay for Web space? The free sites lacked sufficient business-friendly features. For example, many free hosts, such as Geocities, post advertising in annoying pop-up browser windows, forcing potential customers to close the windows while navigating the site. When Eisler signed up for free Web space at Xoom.com, heaps of unwanted junk mail began appearing in his in-box. And Go Network's uploading tools were too slow and unreliable for Eisler's taste.

Eisler finally settled on MindSpring—now part of the EarthLink service—which charges him $7 per month to host his Web site. (MindSpring's fees ordinarily start at $30 per month, but Eisler received a special promotional rate, according to a MindSpring spokesperson.) He likes the ad-free pages (which he feels present a more professional image), the business-oriented diagnostic tools (such as a counter that tracks hits for individual pages), and the dependable service. "I wanted to be confident that visitors would get through," Eisler explains.

Would he ever be tempted to try a freebie again? "Sure," he responds, "but only for something I'm not trying to make money on—like photos of the kids." –Jeff Bertolucci

about Freei.net is that it cluttered our screen with a great many dialog boxes—a minor cavil that most users should be able to live with, considering the ISP's other strengths.

Web Hosting

PROS Site-building tools, wizards, templates, and help mean you don't have to be a professional to post your own site.

CONS You can't control intrusive banner ads and pop-up windows.

BEST USE Good for getting a quick Web presence—until you have the budget to do it without ads.

When carving out your own piece of cyberspace, you can either take what your ISP gives you (usually limited to 4MB or 5MB with scant page-building support) or look around for another host. The trouble is, fee-based hosting companies make you register a domain, and then they charge you approximately $30 a month to host it. That is a steep price to pay if all you want is something quick and dirty to support a small business outpost, a vanity site, or a venue where you can post things for fun.

IF YOU'RE SIMPLY LOOKING FOR A PLACE TO SHOWCASE A HOBBY OR POST SOME PHOTOGRAPHS, YOU'RE BETTER OFF WITH A FREE WEB HOSTING SERVICE.

If you're simply looking for a place to showcase a hobby or post some photographs, you're better off with a free Web hosting service. Unlike fee-based hosts, services such as Homestead and Freeservers.com provide excellent tools for designing pages and mapping out whole sites. Better yet, you can knock off a small site in about an hour and still have enough extra tools on hand to tinker with it for weeks. And while all free hosts make their money through advertising, not all of them bludgeon your visitors with irksome ads. Homestead and Xoom.com, for example, commandeer little screen real estate for ads, and Tripod gives you the choice of having advertisements embedded directly in your Web page or letting visitors view them in a pop-up window that keeps coming back if they close it.

For all-around ease of use, Homestead takes the cake. Its site-building tools work best for novice designers. You click through a wizard-style template picker, changing text and uploading graphics from your hard drive as you go (you can also drag and drop images from Homestead's own art collection). To insert a link, click an element, then click the *Link* icon, and finally enter a Web address. It doesn't get much simpler than that.

The program does equally well at mapping out whole sites. Like any Java-based program running across the Web, Homestead's SiteBuilder can sometimes be slow to load and use, but this was not a chronic problem with Homestead or with any of the other services we looked at. And once ready for viewing, Homestead's sites are quite responsive. On the negative side, we were put off by the ad banner frames the Web host places at the bottom of each page: You can't minimize these, as you can the ad windows used at most other sites.

Furthermore, the company's 12MB space allowance is among the stingiest offered the services we evaluated—edging out only Tripod's skimpy 11MB slot. On the other hand, of course, the average casual user won't need even as much as 11MB, and if space is an issue for you, you can always sign up with a service multiple times, effectively gaining unlimited space.

Homestead's URLs are significantly longer than the ones furnished by Freeservers.com and Tripod, which provide virtual domain names for their users. At Tripod, that's *name*.tripod.com; at Freeservers.com, you get a choice of several different domain configurations, including *name*.bizservers.com, *name*.freeservers.com, and *name*.8m.com. (If you want an even catchier domain name, try Web.com's service, which will let you sign up for domains at *name*.web.com. The company plans to offer free domain hosting services by the time this article goes to print.) Like Homestead, Freeservers.com and Tripod both offer robust site-development tools, plus Web-based file uploading and FTP

Hosting SCORECARD

SERVICE	WHAT'S HOT	WHAT'S NOT	BOTTOM LINE
Freeservers.com www.freeservers.com	Solid site-design tools, choice of domains, e-mail forwarding	Site builder isn't quite as good as Homestead's	Terrific site- and page-building tools; best for those who'll upgrade
Geocities www.geocities.com	Excellent click-and-edit templates, 30MB of space	Long Web addresses, lots of ads	URLs are too long, but you can make attractive pages
Homestead www.homestead.com	Outstanding page-building features, easy-to-use templates	Annoying ad banner frame on each page, only 12MB of space	Short and snappy URLs, best page-designing tools of the bunch
Tripod www.tripod.com	Good site-development tools, nice JavaScript and CGI script help	Storage offering—11MB—is the smallest here	Handy for Web developers of all skill levels
Xoom.com www.xoom.com	Unlimited space, optional chat rooms	Excessive number of graphics makes it slow to load	Not bad, but probably too slow for most users

support, making them ideal for uploading sites created offline.

In addition, Freeservers.com throws in a couple of bonuses. It runs a free e-mail forwarding service, redirecting messages sent to any user name at your virtual domain to the e-mail address you used to register with the site. A Freeservers.com spokesperson says that the company also plans to offer instant messaging and free Web-based e-mail in the near future. And if you get sick of having an advertising-based Web site, you can upgrade an existing Freeservers.com site to one free of advertising for only $6 per month—a pittance compared to the hosting fees that many companies charge.

Of the other free hosting services we reviewed, Geocities' strengths include a well-established set of Web communities and its Yahoo affiliation, which draws traffic to the site. Geocities also provides 30MB of Web storage and comes with site-building tools that will appeal both to experienced HTML programmers and to novices. The service is chock-full of ads, however, and it forces you to use long Web addresses that incorporate geocities.com into the URL. Our last contender, Xoom.com, gives you an unlimited amount of space and offers chat rooms, but the graphics-intensive site loads slowly.

As we were going to press with this issue, yet another site that provides free Web hosting—Bootbox.net—launched. This company's array of free offerings includes Web-based e-mail and Internet access as well. The home page is a portal, complete with a search engine and Yahoo-like categories ranging from Arts and Entertainment to World News.

Though we didn't have a chance to review Bootbox.net's Web hosting abilities or its other services, they work much the same as the services of other providers in this story—for example, you must keep ad windows open to maintain a Web connection.

Web Storage and Backup

PROS A convenient way to archive and share data.

CONS In most cases, you get little storage space, and file transfer rates for modem users are slow.

BEST USE Worthwhile option for anyone who wants a cheap, easy way to back up documents, files, MP3 tracks, and photos.

Haven't you heard? Apple's iMac is the future of personal computing. No, we're not saying that all PCs will come in translucent, lollipop-colored cases. But like the iMac, they'll no longer contain a floppy drive. Where and how will you archive important files, shuttle work documents to colleagues, and share family photos with relatives? High-capacity removable drives (such as the Iomega Zip) represent one option, but they can add hundreds of dollars to your budget. Fortunately, numerous Web sites these days supply storage space for free.

In exchange for some personal information (usually consisting of your e-mail address and your zip code), sites such as FreeDiskSpace.com, I-drive, and X:drive let you store or back up your files on their servers. Unfortunately, they don't give you much space: Most sites allot between 25MB and 30MB, which should be adequate for saving small files, but won't suffice for backing up bulkier data, like graphics. Some of these sites let you buy additional storage from them. X:drive, for instance, will sell you an extra 25MB for only $5 a month. Other sites award you more space if you complete marketing surveys or persuade friends to join their service. For example, FreeDiskSpace.com gives you 5MB for each friend you refer who opens an account; and if you fill out a fairly intrusive survey, you can earn up to a staggering 300MB. If that's still not enough space, you could always open an account at every free storage site on the Web (just remember which files are stored where).

More Bang, No Bucks

GET THE MOST OUT OF YOUR FREEBIE

APPLY THESE TRICKS to help you steer clear of hidden costs and get more than you paid for from your free Web service.

Be aware that the "local" dial-in number for your free ISP may be a toll call—even if it is in your area code. For example, users in Denver who phone Boulder pay a toll call, even though both cities are within the 303 area code. Check with your local phone company before dialing. Additional phone charges for dialing out of your area code can quickly nullify the cost savings of free Internet access.

If banner ads leave little room for your applications, try switching to a higher screen resolution—such as 1024 by 768 pixels. Right-click the Windows desktop, then click the *Settings* tab. A larger monitor may also help.

Avoid free sites that ask for your credit card number. They shouldn't need it.

Read the usage agreement carefully before signing up for a free service. You may not like what you find. Some sites monitor your surfing habits and float banner ads tailored to your particular interests.

Make sure your Web storage site's connection is secure. Most browsers, including the big two—Internet Explorer and Netscape Navigator—display a small lock icon at the bottom of the screen when they're connected to a secure page. You'll also know you're on safe ground if the Web address of the page you're viewing starts with "https://" (the "s" stands for secure).

Upgrade to the most recent version of your browser. Most free services will run with a 4.0 version of IE or Netscape, but you're always safer using the latest and most powerful iteration.

Keep in mind that freeware utilities that frequently ping Web sites to maintain your Internet connection may not work with free ISP software. In most cases, you must periodically click a banner ad or navigational button to stay connected to a free service. So if you use a free ISP to download large files, make sure you click a banner ad every few minutes. If you don't, the service could disconnect you in the middle of a transfer. —J.B.

Aside from being free, one big benefit of Web-based storage is that you can access your files from any Web-connected PC. This is a bonus for business travelers and telecommuters tired of transferring files between work, home, and notebook PCs—or lugging a heavy floppy drive on trips.

Free storage sites also offer the advantage of letting you keep files in both private and shared folders. Friends, family, and business associates can access specified parts of your private account, allowing you to share documents and photos without the hassle of e-mail attachments. (Some services permit nonmembers to sign on as "guests" and access your files; others reserve file sharing options for members only.)

YOU COMPROMISE DATA SECURITY WHEN YOU STORE DOCUMENTS ON THE WEB. BUSINESS USERS ARE WISER TO SHELL OUT SOME DOUGH.

Of course, you compromise the security of your data when you store documents on the Web. For this reason, many free sites keep multiple copies of your files on offline servers to prevent snooping or hacking. But persnickety users may have legitimate privacy concerns anyway. I-drive's user agreement, for instance, states that the company "does not guarantee the security of any information transmitted to or from this Web site."

For truly secure data transfers, you should opt for a pay service such as @Backup, which, for $99 a year, will employ heavy-duty, 56-bit encryption to transfer your files across the Net. The service also lets you archive up to 100MB of data, and its Windows program allows you to schedule automated backups and transfer multiple files in one session. In contrast, most free storage sites permit you to transfer only one file at a time.

Of the ten free storage sites we reviewed, our favorites are X:drive, I-drive, and FreeDiskSpace.com. X:drive takes top honors thanks to its reliable performance, its simple file-transfer tools, and a clever virtual-drive utility that lets you treat your X:drive account as another PC storage device. To use this feature, you'll need to run Windows 95 or 98 and download a free 900KB applet from X:drive. (FreeDiskSpace.com plans to offer a virtual-drive feature soon, according to a company spokesperson.) One quibble about X:drive: It'll send you reminder e-mails if your account is inactive for more than 125 days, in an effort to keep you coming back.

I-drive is another gem. Perhaps most impressively, it packs three nifty free applications—FILO, Sync, and Infinite Space. If you've ever bookmarked a Web page or article only to get a 'Page Not Found' error message when you try to access it months later, you'll love FILO: It lets you copy entire Web pages to your I-drive storage area, leaving all the linked URLs intact. Sync allows you to synchronize the contents of a folder on your PC with one in your I-drive account. Finally, with Infinite Space, you can store an unlimited amount of Web content—including news, file downloads, MP3 tracks, and other types of data—in I-drive's storage area. (I-drive limits desktop storage to 50MB.) And like X:drive, I-drive doesn't force you to trade information (by completing a survey) for space.

Our third favorite is FreeDiskSpace.com, which supports multiple computer platforms, including Linux and Macintosh. (I-drive supports Windows, the Mac OS, and Linux, but its FILO and Sync tools run only on Windows and Mac OS.) FreeDiskSpace.com also wins points for letting you transfer multiple files simultaneously—a unique feature among free storage sites.

Folks at home who don't need a lot of space and are willing to risk their privacy will benefit most from a free storage site. If you connect to the Web via a modem, though, you'll suffer from slow data-transfer rates. Business users seeking a secure repository for corporate secrets are wiser to shell out some dough.

Looking Forward

What's next for free Web services? The latest trend is "trading up," which happens when you upgrade the basic service—enlarging your e-mail in-box, say—in exchange for a small fee or for signing up friends. Some services will let you opt out of ads this way. In general, though, free Web sites will remain advertising-driven, making them better suited to home users.

And keep in mind that today's free Web services may be too expensive tomorrow. Fortunately, competition in the free online service market is fierce, so if your favorite site suddenly starts asking for money, feel free to go elsewhere.

Jeff Bertolucci is a freelance writer based in Colorado, and Matt Lake is a freelance writer based in Pennsylvania. ■

Storage SCORECARD

SERVICE	WHAT'S HOT	WHAT'S NOT	BOTTOM LINE
FreeDiskSpace.com www.freediskspace.com	Up to 300MB of space, multiplatform support, multifile transfers	You must complete a detailed survey to get the most space	Big Brother knows all about you—but for 300MB, it may be worth it
I-drive www.idrive.com	Multiplatform support, no surveys to fill out, bundled apps	No virtual drive utility	No-cost alternative to a Zip drive
X:drive www.xdrive.com	Nifty virtual-drive tool, no surveys	No Mac or Linux support	Most comprehensive storage site of those we reviewed

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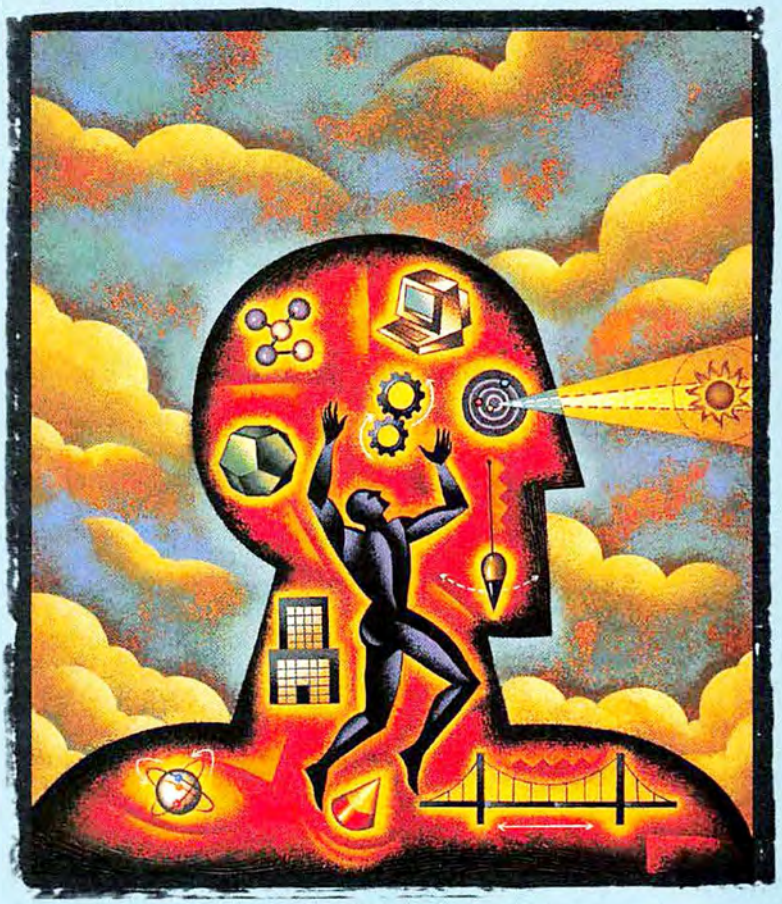

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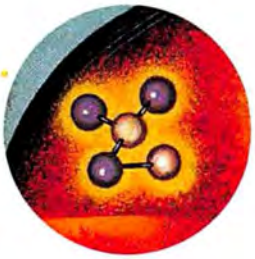

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CHECK ALL THAT APPLY: TAP1

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- ❑ **IT/BUSINESS EXECUTIVE = $995**
  This fee applies if you are an IT or business executive or hold another executive position other than those listed below.
- ❑ **GOVERNMENT/MILITARY = $1,580**
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- ❑ **Check enclosed** _____
- ❑ **P.O.# (A complete purchase order must be submitted within 10 days)** _____
- ❑ **AMEX** ❑ **Visa** ❑ **MC** **Exp.** _____
- ❑ **Credit Card #** _____

Signature _____

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Running Free

FOR FLEDGLING BUSINESSES, NOTHING'S BETTER THAN A FREE SERVICE. SO WE TRIED SOME ONLINE WORKGROUP AND E-COMMERCE TOOLS THAT CLAIM TO HELP YOUR COMPANY FOR NADA.

BY GREGG KEIZER

"I CAN'T BELIEVE THEY'RE GIVING THIS AWAY FOR FREE," says John Ettema, owner of Inside-Out Home and Garden, a store in Campbell, California. He's talking about ECongo, a free e-commerce hosting service that he used to add online sales to the business he does at his brick-and-mortar shop. "If you had told me a year ago when I opened my store that I'd be on the Web by now, I would have said you were crazy," Ettema continues.

The explosion of free services available on the Web—ranging from free storefronts like Ettema's to free collaboration software that helps you stay in touch with coworkers and clients—has reduced the economic barrier to using the Internet for business down to, well, nothing. ▶

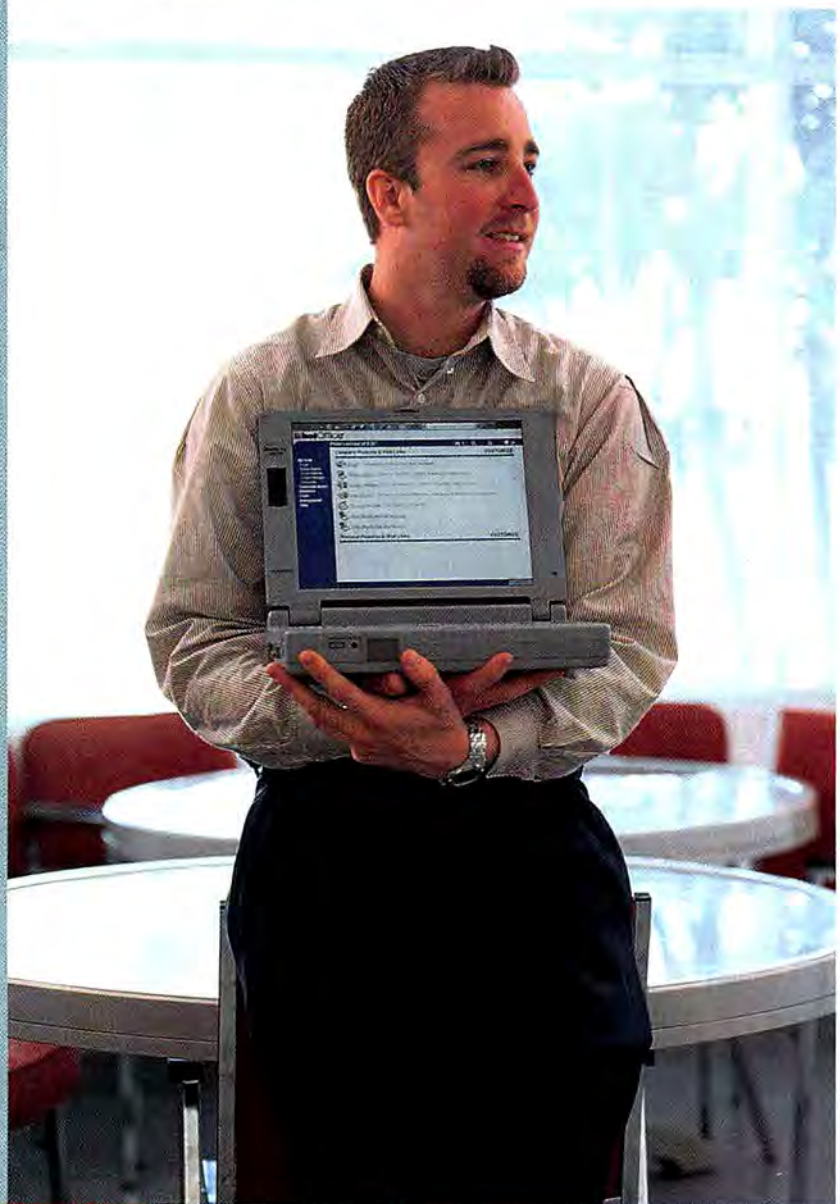
ILLUSTRATIONS BY JAMES O'BRIEN

That's good news for cash-strapped small businesses. Without investing in a network, building an intranet or extranet, or installing any additional software, businesses can maintain group calendars, share files, and even collaborate in real time through chat or document review. Want to dive into e-commerce? Free store-building tools include everything from catalog creators to virtual shopping carts, plus the hosting services you need to put your business on the Web. All you need is a Net connection.

But don't you have to pay the piper sometime? That was the question we kept in mind as we sniffed through four online collaboration suites and a trio of free e-commerce services, as well as speaking to the small-business people who use them. We discovered that free services can only take you so far, but at least they do take you somewhere.

"RATHER THAN CALLING THE OFFICE FOR DOCUMENTS WE ALL SHARE, IT'S EASIER TO LOG IN TO HOTOFFICE AND ACCESS [THEM]."

Peter Leshaw, Miami, Florida



Free Collaboration

PETER LESHAW, who works for Enterprise Development Corporation, a nonprofit technology organization in Florida, spends far more time outside his office than in it. He, like the other experts who staff EDC, relies on HotOffice, an on-the-Web collaboration suite, to stay in touch. "[HotOffice] has trimmed a lot of time from my day," Leshaw says. "Rather than calling the office for one of the administrative documents we all share, it's easier to log in to HotOffice and access the documents there." All this is possible without physically networking the organization's machines.

By letting users select a familiar browser as the interface, Web collaboration suites like HotOffice simplify operation. There's no new software to learn, just Web-based forms to figure out. "A non–tech-savvy person can do great things [with these tools]," says James Eron. As chief information officer for the U.S. Amateur Ballroom Dancing Association, Eron helped the group get connected via a free collaboration site using HotOffice. "One of the officers is not particularly computer literate, but she publishes more documents [for sharing] than almost anyone else," he notes.

To find out whether these tools are as wonderful as Leshaw and Eron claim, we looked at four of them: DayTracker, HotOffice, Schedule Online, and WebEx. And we discovered that they're not all created equal.

YOU GOTTA HAVE THIS

THOUGH NEW COLLABORATION sites pop up on the Web with increasing frequency, they share some digital DNA. All, for instance, sport organizer-like tools, including at a minimum a scheduling calendar and an address book. Most also toss in a to-do list, discussion boards, and other features. HotOffice and Schedule Online even add synchronization with Microsoft Outlook or with handheld PalmPilots.

In most instances, all or part of the workgroup can share these organizational tools. By setting up privileges, the administrator (typically the first person who signs up for the service) allows others to do such things as enter changes in the calendar or access an address book.

The good collaboration tools, however, go beyond basic schedule sharing. Indeed, many

PHOTOGRAPH: DAVID VANCE

GOTCHA WATCH

BIGSTEP'S SMALL PRINT

WHEN IT COMES TO FREE RIDES for your business, every service (even our favorites) has its hidden costs. For an idea of what to look out for, here's a closer look Bigstep.com.

BUILDING A STORE online isn't an overnight job. The small businesses we talked to spent six weeks on average creating their store designs.

THIS HOST'S terms of service warn that "Bigstep.com does not guarantee that its security procedures will prevent the loss of, alteration of, or improper access to, your information."

TO TAKE ONLINE credit card orders, you must use Bigstep's merchant account, at $15 per month, plus $0.20 per transaction and 2.67 percent of the purchase price.

businesspeople we talked to considered document sharing the most important feature of an online workgroup tool. By uploading files to a Web server, users publish documents that others can share by downloading to their computers. Of the sites we looked at, only DayTracker lacks this service. But HotOffice takes the document-sharing prize: Not only does it upload files via a secure server—thereby ensuring that no hacker can intercept private and possibly business-crucial information—but it's the only free service that permits users to search for documents by keyword.

Another sophisticated tool is real-time file sharing, which enables several people to view and annotate documents simultaneously and even to share running applications like Word or PowerPoint. But of the four tools we reviewed, only WebEx provides its own real-time collaboration.

THE PRICE YOU PAY

OF COURSE, there's no such a thing as a free lunch. Like a lot of other free services on the Web, some collaboration sites make their money by bombarding you with advertisements. HotOffice, for instance, sticks banner ads at the top of every page. If you love certain collaboration tools but don't want to expose your employees to ads, you can buy ad-free versions of the software. Both HotOffice and Schedule Online offer such an arrangement. DayTracker carries no ads in the first place.

WebEx takes a different approach by getting rid of ads and limiting the functionality you get for free. If you want to get together with a group of more than four people and collaborate for longer than 10 minutes, WebEx will start charging.

Here's a blow-by-blow account of the collaboration tools we used.

● DAYTRACKER.COM

PROS Can create private client groups, easy to add anyone to the collaboration.

CONS Lacks file sharing and can't support real-time collaboration.

DayTracker doesn't win the blue ribbon as a collaborative tool. Though it includes the basics—a group calendar, an address book, and message boards—it doesn't let you share files, conduct chats, or provide Net-style document or application collaboration.

DayTracker's most striking feature is its ability to segregate projects by "groups," a term it uses to mean concept- or idea-specific content. You build groups for each project or client and then invite people to join a specific group. Basically, this group function is a slick privacy feature, separating information so Client A sees the calendar events, contacts, and discussions you want her to see, but not the content you've arranged for Client B.

DayTracker doesn't have tools like file sharing and chat, but neither does it bombard you with ads or slap any restrictions on how much data you can stick on its servers. Unfortunately, that could change. DayTracker.com is being purchased by Franklin-Covey, makers of the Franklin Planner line of paper-based organizers. At press time, Franklin hadn't announced any changes, but group scheduling will probably remain DayTracker's focus.

www.daytracker.com ▶

Best Bets

AMONG FREE COLLABORATION TOOLS, **HotOffice** is our favorite. Its wealth of features and its emphasis on document sharing make it ideal for any workgroup–despite its pox of advertisements. WebEx gets an honorable mention because, uniquely among free collaboration sites, it lets you conduct real-time virtual meetings in which everyone can share files or programs.

If you want to build an online store for free, **Bigstep.com** offers the easiest way to get started selling online. Though we don't like FreeMerchant as much, it's well suited for companies that already have a catalog database and want to export data to QuickBooks.

● HOTOFFICE

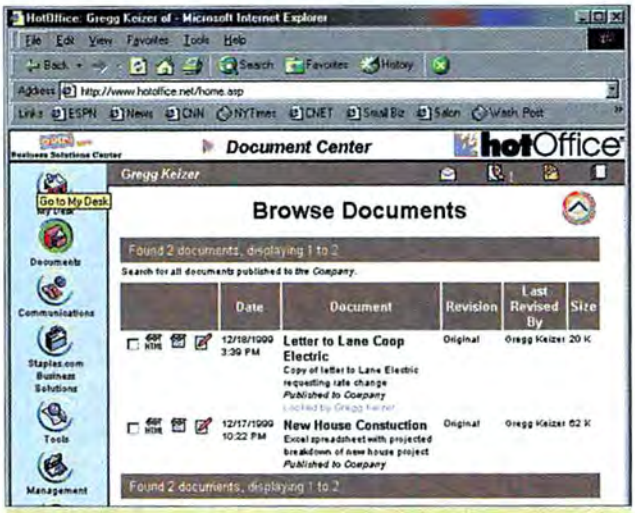
PROS Provides a full suite of collaboration tools, includes excellent file-sharing features.

CONS Maximum 40MB of free shared file storage.

HotOffice recently unveiled its free Web service after years of honing a paid version of the software. So it's no wonder that HotOffice is the most polished and feature-rich collaboration site of the four we looked at. It combines the most comprehensive set of tools—including Web-based e-mail, group scheduling, contact and document sharing, chat space, and threaded discussions—with an easy-to-use interface.

File sharing may be HotOffice's best feature. You can publish files for group consumption by uploading them to HotOffice and then adding descriptive text to each file so users know in advance what they're downloading. Another outstanding convenience: A search engine is available to help users dig up files by keyword. Users can either view those documents within the browser—HotOffice converts them to HTML format on the fly—or download them for later review.

But HotOffice has some negatives, too. One drawback is that you must explicitly define all users before they can join you—there is no virtual office or directory-like listing for customers to browse. A second (and more frequent) annoyance involves HotOffice's tendency to bombard you with advertising. And finally the service limits the amount of free storage you get to 40MB for your entire company (you can, however, pay for extra storage at a rate of $2.50 per month for each additional 20MB). www.hotoffice.com



ONE OF THE BEST THINGS about HotOffice is the way it permits users to collaborate on documents and track revisions.

● SCHEDULE ONLINE

PROS Supports basic file sharing; guests can view calendars without having to register with the service.

CONS Forms for many tools are crude and can be confusing.

The name of this service says everything you need to know about it. Though Schedule Online is stuffed with collaboration

Free Tools You Forgot

FREE COLLABORATION software and a free storefront don't mark the end of the e-commerce gravy train. If you know where to look, you can find a Scandinavian-sized smorgasbord of free goodies for small businesses to plug into their existing Web sites.

1 DISCUSS BUSINESS

If you're currently connecting to customers and clients via a Web site, you can add threaded message boards without spending another dollar. Both Beseen (www.beseen.com) and Server.com (www.server.com) let you insert message boards at your Web site, regardless of the server that hosts it. Beseen even allows you to set up a nice chat room for talking to customers or colleagues.

2 MAIL ME

Everybody and his uncle offers free e-mail accounts. You might as well join the crowd. Sign up with BigMailBox (www.bigmailbox.com), and get an unlimited number of free Web-based e-mail accounts that your customers and coworkers can create and use à la *user@yourdomainname.com*. You can even customize the mailbox page with your site's background color and add your company logo.

3 EXCHANGE ADS

Your budget doesn't leave you a spare dollar to advertise your new online store, but you want to get out the word? Try Link Exchange's Banner Network (adnetwork.linkexchange.com), the Web's biggest swap-space ad banner coalition. Here's how it works: You build a banner ad for your business—the site even sports links to free software for creating banners—and in return you agree to post others' banners on your pages. For every two banners that show up on your site, one of yours is displayed on another member's page.

4 INVITE SEARCHES

Unless you want your customers to wander aimlessly through your site, you'll want to add a search function. That way, customers can quickly find what interests them. Both PicoSearch (www.picosearch.com) and Beseen's MySearch (mysearch.looksmart.com) index your pages and provide a link you can stick on your site. The free versions carry conditions and limitations, but they suffice for most small businesses.

5 DEVELOP YOUR FORM

You've managed to create your own Web site, but that's just the beginning. Now you want to capture customer information, and for that you need forms. But programming a form is no trivial undertaking. So why not hand the job over to Response-O-Matic (www.response-o-matic.com)? This slick service walks you through its form-making process, which relies on a fill-in-the-blank template. Afterward, whenever a customer submits a filled-in form, Response-O-Matic sends the information to your e-mail address. –Gregg Keizer

tools—just real-time document sharing and message boards are missing—only its online meeting and resource calendar is worthwhile.

Schedule Online stresses its calendar, which can be shared by designated users and viewed by specified guests. The arrangement means you can give your customers access to the calendar by setting up guest accounts for them. They can then view the calendar without going through Schedule Online's registration. The calendar offers other time-saving shortcuts too. To schedule a meeting, for instance, you click a time slot and enter the particulars.

On the downside, many of Schedule Online's other tools have crude forms or lack extras that some of the other free collaboration sites provide. For example, the site's document publishing tool allows you to control file access, but it displays a bare-bones list of files on the server and won't let you rename the file or add descriptive text.

www.scheduleonline.com

● WEBEX

PROS Offers real-time application and document sharing.

CONS Free application sharing is limited to 10 minutes per session, users can meet with only three others at a time.

Though WebEx does have online office options, with group calendar, an address book, and file sharing, its specialty is its slick virtual gatherings. At WebEx meetings—designed to accommodate up to four people—participants can cooperatively view and annotate documents, exchange chat messages, give slide-style presentations, and run an application on one PC that shows up on the displays of the other attendees.

Other services rely on downloads for sharing documents, but WebEx stresses dynamic meetings where everyone can contribute simultaneously. The person running the meeting loads a document, Web page, or application, and the other participants can view it on their monitors. At any time during the meeting, the host can transfer control to another attendee, enabling that person to display documents. Meanwhile, anyone who likes can type comments into the chat window available for that purpose.

When you review documents in real time or share applications across WebEx, the response time—the amount of time it takes for the screen to redraw with changes—depends on the speed of your Internet connection. But even when we used it over a standard 56-kbps analog connection, WebEx continued to perform with spectacular speed.

For most meetings, the free deal should suffice, but if you find that you need to meet with more than three others or if you expect to host an application-sharing session for longer than 10 minutes, you must provide a credit card up front and pay 15 cents for each meeting minute (a new fee structure should be out now).

www.webex.com ▶

Phoning for Free

THERE'S A LOT OF TALK ABOUT cheap long distance these days—a dime a minute, a nickel a minute, free weekends. But if your business's monthly phone bill still runs to three figures, you might look at an Internet phone as the perfect solution.

It isn't—at least not yet: Despite continuing improvements in sound quality, none of the Internet phone programs currently available will cause your long-distance carrier to lose sleep. Using a 56-kbps modem, we tested a handful of free programs and services, including Microsoft NetMeeting (www.microsoft.com/netmeeting), Dialpad.com (www.dialpad.com), and HearMe VoicePresence (www.hearme.com). You should keep this in mind, too: Though the services we reviewed don't have a per-minute charge, many others do—especially those that allow calls from your PC to a telephone.

NET PHONES: ALL NET ALL THE TIME

FOR FREE LONG-DISTANCE, it's hard to top Microsoft NetMeeting: The software comes with Internet Explorer, which is itself free. If you have a microphone, talking to other users is fairly easy, and the system's sound quality approaches that of an analog cell phone. If you hook up a camera to your PC, NetMeeting becomes a videophone, though video over a modem is slow and choppy. NetMeeting will likely appeal most to tech-savvy users who don't mind the requirement of having a PC on both ends.

That said, you *can* make PC-to-phone calls using NetMeeting, but first you have to configure the program to use a gateway service that routes your call from the Internet to a regular telephone. If that's incoherent to you, you're probably better off with a service such as Dialpad that makes this process simpler.

Dialpad is free and aims to make money by showing you ads when you initiate calls. The service has admirable audio quality, but suffers occasional dropouts and some echoing when used without a headset.

10-4, GOOD BUDDY

HEARME OFFERS Web-based voice chat. Up to 500 people can participate, but only one person can speak at a time. That does not mean you get low-quality sound: In fact, HearMe's sound quality equaled NetMeeting's. HearMe gives its free VoicePresence service to anyone who wants to add voice chat to a Web site. It's ideal for e-commerce, because it enables visitors to speak directly to online retailers. It also makes sense for people who make regular conference calls in which one person speaking at a time isn't a deal breaker. **–Paul Heltzel**

Free Storefronts

"ORIGINALLY I went with a [for-pay] e-commerce service," says Glenn McComber, a partner in Breaker Spot, a Sarasota, Florida, firm that sells alarm systems and other electrical products. "I had to hire someone to develop the site, and it was always a problem getting across what I wanted. But within minutes *I* was setting up my own site on Bigstep."

Taking a small business onto the Web may generate extra income, but getting it there can give you headaches and siphon money out of your pocket. Even low-cost Web storefronts like Yahoo Store and ICat may require a bigger financial commitment than fledgling operations are willing to make to go online.

Free e-commerce services are one way to get your Web feet wet without exhausting your bank account. We tested Bigstep, ECongo, and FreeMerchant to see just how far zero dollars could take us in e-commerce. The answer is that they go as far as taking a customer's credit card number. From there on, the costs add up.

"IF YOU'D TOLD ME A YEAR AGO WHEN I OPENED MY STORE THAT I'D BE ON THE WEB BY NOW, I WOULD HAVE SAID YOU WERE CRAZY."

John Ettema, Campbell, California

BUILD IT FOR FREE

THE BEST THING about building a storefront with a free service like Bigstep, ECongo, or FreeMerchant is that you don't have to know HTML. Like fee-based storefronts Yahoo Store and ICat, the freebies let you pick a design template, enter basic information, and set options like accepted methods of payment. If you're assembling a retail-like storefront, you then create a catalog and fill it with descriptive text and digital images. The store's underlying commerce features—the shopping cart, order forms, and tax and shipping calculations—are usually set up by the service. Other tools range from site traffic reports to assistants that register your site with several search engines.

Each free e-commerce service shows its true colors in the details. Bigstep's strong point, for instance, is its easy setup: A step-by-step wizard and a convenient checklist of to-do tasks lead you through store making. FreeMerchant, meanwhile, excels at back-office tasks: It's the only free host that tracks inventory and lets you integrate your online store with QuickBooks, the small-business accounting program. ECongo doesn't distinguish itself in any specific area.

Though some fee-based e-store hosts limit the number of products you can put in your catalog or make you pay more to build a beefier online inventory, the services we looked at let you add all the items you want to your sales list. Bigstep does, however, limit each user's image file storage space to 12MB.

WHAT A DEAL!

WHAT'S THE CATCH? To make money on the deal, ECongo plans to sell small ads on its members' sites. Bigstep and FreeMerchant plan to provide unspecified fee-based services to members or partner with suppliers like OfficeMax.

Though these services don't charge a dime to put a store on the Web, they do impose some costs—specifically, credit card transaction fees. To process credit card orders, you have to pay to set up a merchant account; there's also a charge for each credit card transaction. Be sure to investigate each hosting service's merchant account setup and transaction charges before you decide where to open shop. Prices range from Bigstep's charges of $15 per month (with no setup fee) and 20 cents per transaction to FreeMerchant's $399 software charge, $45 monthly fee, and 35-cent surcharge per transaction.

PHOTOGRAPH: ROBERT HOLMGREN

Despite such costs, these services' gratis storefront hosting, virtual shopping carts, and other complimentary tools are nothing to sneeze at. Again, consider all your options before diving in.

● BIGSTEP.COM

PROS Outstanding step-by-step wizard for store creation.

CONS Must use service's merchant account for credit card orders.

Bigstep.com isn't such a big step for small businesses eager to try out e-commerce without investing a lot of dollars. Using wizards, Bigstep walks you through site building, catalog creation, and report setup. And Bigstep breaks the process down into tasks and even includes a to-do checklist that tracks what you need to finish. That helps you parcel the job into small chunks you complete as time permits—a major selling point for people building their store on stolen time.

Bigstep offers 28 design templates for customizing colors and font sizes; you also get a shopping cart for customers to gather their selections and place orders. Finished sites can look as slick as any produced by a professional designer, and the range of options available allows your online presence to look quite different from other storefronts created with the same templates. But Bigstep's biggest advantage is its suitability for both service- and product-oriented businesses. While ECongo and FreeMerchant are basically online catalog generators, Bigstep's designs can accommodate small businesses that sell services, rather than goods.

Our biggest complaint—one we heard from several small businesses, as well—is that you must use Bigstep's merchant account partner to get real-time authorization. To its credit, Bigstep's merchant account costs are the lowest of the three we reviewed ($15 per month plus transaction fees), but businesses that already have an account elsewhere won't want to pay for a second. The service's other significant limitation—the 12MB maximum for storing image files—shouldn't create any problems for you unless you plan to post an enormous, picture-heavy catalog.

● ECONGO.COM

PROS In-store search tool, lists your store in a mall-like directory.

CONS Cookie-cutter look, wizard tool is of limited help.

ECongo's store maker is cruder than Bigstep's, and the service lacks the back-office tools that make FreeMerchant appealing.

ECongo does offer the core set of store-building and maintenance tools, including a shopping cart, access to a merchant account (for $40 per month, plus transaction fees), and order processing. It features only six templates, which tend to generate online storefronts that look like cookie-cutter copies. For instance, all ECongo storefronts share the same navigational toolbar at the top of the screen. What's more, the chore of adding departments and categories or of fleshing out the front page with images and text can be daunting, since the store-making guide effectively leaves you on your own after the basic store is in place.

On the other hand, ECongo does provide a couple of tools that the others omit. A built-in store search tool, for example, enables customers to jump directly to a product that they are interested in, rather than having to hunt through the entire store. And of the three services we examined, only ECongo collects its members in a business directory designed to drive traffic to your store. But these attractive perks aren't enough to sway us. We think you can find better help for your e-business than ECongo offers.

WHEN YOU USE ECONGO to build an online store, the end result is automatically placed in an online mall to help drive traffic to your front door.

● FREEMERCHANT

PROS Imports catalog information from spreadsheets and databases, integrates online ordering with QuickBooks for processing, no catalog size limit.

CONS High credit card transaction fee, obtuse store-building process.

Ambitious entrepreneurs looking to integrate e-commerce with their existing operation will get more from FreeMerchant than from any other free host. It includes the necessary core of store-building tools and lets you stock an unlimited catalog on the Web, but its forte is how it lets users manage their online business.

FreeMerchant is the only free store service that lets you import data from an existing database or spreadsheet to speed up catalog building. It accepts info from 1-2-3, DBase, Excel, FoxPro, and Paradox. It's also the only service that exports order invoices to QuickBooks. And it automatically posts items from your catalog to EBay, the giant online auction site.

Creating your store at FreeMerchant seems unduly hard, however. The 50-plus templates offer color and background variations on a handful of layouts, and at times you're left guessing about the next step to take. As a result, you'll have to fiddle with the storefront layout to finesse it into shape. And FreeMerchant's charge of 30 cents per transaction for credit card authorization (on top of a $40 monthly fee) is the highest of the trio.

FreeMerchant's excellent management tools may be lost on an e-commerce neophyte, but if you want maximum functionality from your free storefront service, this site is your best bet.

Gregg Keizer is an Oregon-based freelance writer. Paul Heltzel is a frequent contributor to PC World. ■

WEB SURFER

PRESARIO 5700N-466

$899‡

As low as $26 per month†

Intel® Celeron™ Processor, 466 MHz
64 MB 100 MHz SyncDRAM – 4 MB Shared for Video
10.0 GB UltraDMA Hard Drive[1]
40X Max CD-ROM Drive[2]
2X AGP with 64-bit Hardware Accelerated 3D Graphics
ESS Solo PCI Audio
56K ITU V.90 Modem[3]
JBL Pro Amplified Speakers
Creativity Action Center
Compaq CV515 15" Monitor (13.8" VIA)

Personalize by choosing:

IJ300 Color Inkjet Printer: Add $99
Compaq CV715 17" Monitor (16.0" VIA): Add $70

PHOTO ENTHUSIAST

PRESARIO 5700N-533

$1099‡

As low as $31 per month†

Intel Celeron Processor, 533 MHz
128 MB 100 MHz SyncDRAM – 4 MB Shared for Video
10.0 GB UltraDMA Hard Drive[1]
10X DVD-ROM Drive[4]
2X AGP with 64-bit Hardware Accelerated 3D Graphics
ESS Solo PCI Audio
56K ITU V.90 Modem[3]
JBL Pro Amplified Speakers
Creativity Action Center
Compaq CV515 15" Monitor (13.8" VIA)

Personalize by choosing:

10 Mbps Home Phoneline Networking[5]: Add $69
APC Back-UPS Pro Office 280: Add $89

VIDEO EDITOR

PRESARIO EZ 2700

$1574‡

As low as $44 per month†

Intel Pentium® III Processor, 550 MHz
64 MB SyncDRAM
20.0 GB UltraDMA Hard Drive[1]
10X DVD-ROM Drive[4]
SoundMax Integrated Digital Audio
56K ITU V.90 Modem[3]
Home Phoneline Networking[5]
4X CD-RW Drive[6] (4X/4X/24X)
10/100 Ethernet Adapter
JBL Pro Amplified Speakers
Compaq MV730i 17" Monitor (16.0" VIA)

Personalize by choosing:

Compaq A1000 Multi-Function Printer: Add $399
Intel Create and Share Camera USB Pack: Add $79

WEB SURFER

PRESARIO 1600-466

$1499‡

As low as $42 per month†

Intel Celeron Processor, 466 MHz
12.1" TFT Active Matrix Display
64 MB SyncDRAM
6.0 GB UltraDMA Hard Drive[1]
24X Max CD-ROM Drive[2]
Trident CyberBlade i1 Hardware Accelerated 3D Graphics with 4 MB Video Memory
56K ITU V.90 PCI Modem
Hi-Capacity LiIon Battery
128 KB Integrated "On-chip" cache

Personalize by choosing:

Compaq Value Case: Add $39
Extra A/C Adapter: Add $49
QuikDock: Add $159

JET SETTER

PRESARIO 1600-500

$1899‡

As low as $53 per month†

Intel Celeron Processor, 500 MHz
14.1" TFT Active Matrix Display
64 MB SyncDRAM
6.0 GB UltraDMA Hard Drive[1]
24X Max CD-ROM Drive[2]
Trident CyberBlade i1 Hardware Accelerated 3D Graphics with 4 MB Video Memory
56K ITU V.90 PCI Modem[3]
Hi-Capacity LiIon Battery
128 KB Integrated "On-chip" cache
Compaq Value Case

Personalize by choosing:

Extra A/C Adapter: Add $49
96 MB SyncDRAM: Add $100
12.0 GB UltraDMA Hard Drive[1]: Add $150

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may vary from 1500 to 3600 Kbps. 6X DVD-ROM Drive transfer rate is up to 8115 Kbps compared to 1352 Kbps for 1X DVD-ROM Drives. [6]CD-RW drive data transfer rates may vary as follows: for recording to CD-R media, the data transfer rate may vary
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Crucial.com: Micron Memory at Factory Direct Prices

www.crucial.com

Heather Rothfuss knows the difference a good upgrade can make. As a Ph.D. student in the chemical engineering department at the University of Washington, Seattle, Heather routinely drives her PCs to the breaking point, trying to grow the toxic-waste-eating bacteria that will help save the planet.

Heather was made caretaker of her research group's computer systems after her husband, Christopher, taught her everything he learned in his past life as a systems administrator (he is now also a chemical engineer).

Heather buys DRAM upgrades from Boise, Idaho-based Crucial Technology, Inc., "most of all because they make their own memory," she says. As a subsidiary of Micron Technology, Inc., Crucial is the only DRAM manufacturer that ships memory directly to its customers. The manufacturer tests all of its modules under extreme temperatures, voltages, and operating conditions before selling them through Crucial's Web site and telephone sales service. Through Crucial, users can purchase the same exact modules most PC makers—including Gateway, IBM, and HP—build into their base systems.

Christopher Rothfuss uses field-ion microscopy to study the carbon monoxide poisoning caused by methanol fuel cells. But, until recently, his PC didn't have the juice it needed to take pictures of the electrons striking the phosphor screen he set up for his experiments.

"Clearly the computer was not up to speed for the video capture, so I decided to get some more RAM," Christopher says. "With the 64MB stick I added from Crucial, I am able to get better frame rates and larger capture sizes because I now have the RAM buffering that I was lacking before," he says.

For academics, high demands and shoestring budgets go hand in hand. Soon after Heather bought an old PowerMac clone to support her lab's bacterial genome project, she realized it needed an upgrade. "We had millions of base pairs to search," she says, "and we needed to get the information as quickly as possible." Crucial found the RAM Heather needed, and shipped to her in two days.

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Even novice users can learn everything they need to know about upgrading their systems at the Crucial.com Web site. Shoppers can use the site's unique "configurator" to find out exactly what memory they need for their upgrades. The configurator prompts customers to enter their computers' make and model information and returns a list of Crucial memory upgrades that are guaranteed to be compatible with that system.

Heather saved money because she bought her memory directly from the Micron factory. With Crucial, Micron removes the middleman and passes the savings along to its customers. "Crucial's pricing is great," says Heather. "It's at least as good as the cheapest I can find elsewhere."

Crucial backs its products with "amazing customer service," Heather adds. "They always seem to answer on the first ring, and they often respond to email requests within ten minutes." Crucial's technical support staff are highly trained, and their services are free. And that's just the kind of backing the Rothfusses need while they go about the business of saving the planet.

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Millennia 400	$154.00	$78.29
Millennia 450	$154.00	$78.29
Millennia MAX 450	$154.00	$78.29
Gateway	Kingston	**Crucial**
G6-450	$154.00	$78.29
G6-400	$154.00	$78.29
Performance 450	$154.00	$78.29
IBM	Kingston	**Crucial**
Aptiva (2153) Model E2U	$154.00	$78.29
Aptiva (2139) Model E5D	$154.00	$78.29
HP	Kingston	**Crucial**
Pavilion 4530	$186.00	$78.29
Pavilion 4535	$186.00	$78.29
Kayak XU PC Workstation 440BX Chipset	$207.00	$89.99
Vectra VL Series 8	$154.00	$78.29
Apple	Kingston	**Crucial**
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Power Mac G4	$136.00	$78.29

Crucial prices reflect an automatic 10% discount for ordering online. Prices were taken from Crucial and Kingston Web sites on 1/31/00. however, they can (and do) change daily. Prices may vary according to specific system requirement.

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Not long ago, New York-based Syntra Technologies emerged on the world stage as a provider of e-commerce solutions to Exxon Mobil Corp., Microsoft Corp., and The Coca-Cola Company. But, despite the software developer's rise to global preeminence, it was getting only provincial treatment from its computer products supplier.

"We were spending $50,000 per month and getting no special care," says Marc Runkel, Syntra's IT manager. "They did a lousy job of updating their Web site. I would often order something online, only to discover later that it was out of stock."

With 140 employees to support—a figure he expects to double by 2001—Runkel had to find a partner that could keep pace with his company's exponential growth. So he started an online account at CDW.com, a Web site run by Vernon Hills, Ill.-based CDW Computer Centers, Inc. Since then, Runkel says, "CDW.com has bent over backwards to keep our business."

CDW.com is the country's leading one-stop source for customized computing solutions. It is an authorized direct seller of products from Compaq, Computer Associates, IBM, Microsoft, Toshiba, and other industry leaders. Syntra uses CDW.com's extranet service, CDW@work, "to buy everything from servers and storage devices to mice and palm pilots," Runkel says.

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Syntra relies on CDW@work's Purchase History feature to track its purchases online. It lets Runkel download records in one-, two-, and three-month increments. Any CDW@work customer can use Purchase History to maintain a five-year record that its employees can access at any time. Runkel uses Purchase History most often to prepare internal reports and memos for Syntra's management. "All I have to do is download the information and bring it into Microsoft Excel, and I'm all set," he says.

Purchase History also helps Syntra to qualify for discounts on all of CDW's products. CDW@work automatically accounts for its customers' past purchases as well as purchasing volume in order to provide the best pricing available. Syntra's employees qualify for discounts on their personal purchases, too. "It's a great perk for our employees," Runkel says, "to share in the corporate discount, and to have their orders shipped directly to the office."

CDW@work makes it easy to track any order by allowing customers to review invoice and shipping reports. And CDW's personal account managers can customize CDW@work to make sure a business's internal billing procedures are enforced. For companies with multiple purchasers, the account managers can also customize order-status windows for each authorized individual.

CDW's personal account managers process every order placed through CDW@work. Their personal touch is often what makes the greatest difference to demanding companies like Syntra. "I can't speak highly enough of our CDW sales rep," Runkel says. "If we need to rush an order, or need some other special consideration, he is able to go the extra mile."

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Inetcam: Unparalleled Streaming Video for the Web

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Bob Pullman knows a thing or two about Internet video software. As a Webcasting pioneer, Pullman first incorporated video into his company's Web site by making images captured on a hilltop in Renton, Wash., available to viewers via FTP. In those early days, he recalls, "we were limited to uploading the camera images to the server every 60 seconds."

Even today, Pullman says, "many applications for streaming video are too undependable for the money." There is one package, however, that Pullman likes: "Inetcam will do for streaming video what Ford did for automobiles," he says, "by providing high-quality streaming video at a low price."

> **"Inetcam will do for streaming video what Ford did for automobiles, by providing high-quality streaming video at a low price."**
> Bob Pullman, Pullman Inc.

Pullman calls Inetcam "the cleanest-looking software I have seen in the past 10 years. It gives me a better picture than other systems, at a fraction of the price." Today, his electronic publishing company, Pullman Inc., uses Inetcam to stream live video over the Internet from each of its four regional e-zine sites in Renton, Covington, Kentucky, Victoria, B.C., and Kingston, Jamaica.

INETCAM
Live...From Anywhere!

Inetcam, from San Diego-based Inetcam Inc., is a system that can stream video to any viewer on the Internet. Inetcam offers two complete, turnkey systems for transmitting live video from as many as four sources. Inetcam's VTS 4001 system includes the Inetcam server software, 4-Port Video Switcher, transformer, and a black-and-white camera. For full color and audio capabilities, you can opt for Inetcam's VTS 8001 package, which includes Inetcam's 4-Port Video/Audio Switcher and a color camera. The Inetcam server software—which runs on Windows 95, 98, and NT platforms—sends video to your viewers without the need for plug-ins or remote viewing software.

Unlike ordinary digital cameras, Inetcam's cameras can be set up hundreds of yards away from the host without losing image quality. This makes Inetcam more useful for event coverage or security applications. For example, Inetcam can emulate standard security video switching system functionality: It lets you view four attached video sources on one screen simultaneously, or periodically switch between active video sources.

Adjustable Features

"But the real beauty of Inetcam," Pullman says, "is that it supports video in three formats: Java, JPEG, and FTP." To stream live video from your Web site, you can embed both Inetcam's Java applets and "push JPEG" images into your Web pages, or upload them from any "Video for Windows" compatible camera or video grabbers via FTP. Viewers can adjust virtually all aspects of the images they receive, from brightness and contrast to saturation and compression levels.

Inetcam's Java applets run seamlessly on virtually any operating system, including Macintosh and Unix. Viewers need only a standard, Java-compatible Internet browser—such as Microsoft Internet Explorer or Netscape Navigator—to directly view streaming video from your site. "I tried several Web camera systems but they were all very heavy with viewing software and larger applets," says Eric Goiset, a Web site developer based in Montreal. "Inetcam's Java applets, on the other hand, are very light. It's one of the reasons I think Inetcam is the best streaming video package I have seen."

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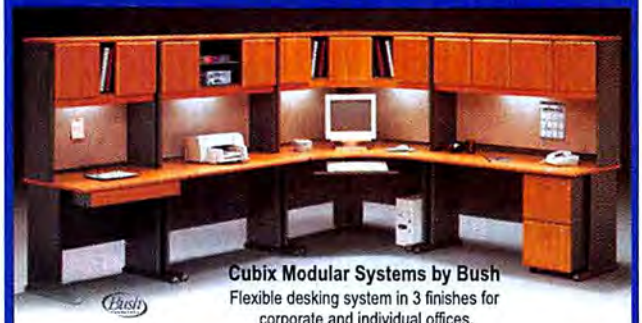

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Once, while standing in the middle of a furniture showroom, Paul Smith, chief of staff at the State University of New York at Brockport, thought, "This stuff looks great, but I wonder if we can get it cheaper somewhere else." Smith surfed the Internet for savings, and found them at OfficeFurniture.com. "OfficeFurniture.com was the site that had the prices and convenience I was looking for," Smith says. "Even with the cost of shipping, their prices were better."

OfficeFurniture.com is the Internet's largest online furniture resource. The company behind it, Advanced Furnishing Concepts, LLC, based in Danville, Calif., has been in the furniture business for over 15 years. You can search for furniture in OfficeFurniture.com's extensive online catalogue by brand name or product category. OfficeFurniture.com also offers its customers secure online payment, and welcomes phone and fax orders. The company's customer service representatives are available 9 a.m. to 6 p.m. PST, Monday through Saturday.

officefurniture.com

"OfficeFurniture.com's telephone support is really good—they always follow up with me," says Muna Issa, treasurer for Kingston, Jamaica-based SuperClubs Resorts International Ltd. When the company was moving some of its people to a new 2,500 square foot office space in nearby Ocho Rios, Issa sent OfficeFurniture.com a copy of the floor plan. "They called us right back, and told us exactly what we needed," Issa says.

"OfficeFurniture.com offered me discounts on large orders where the office superstores could not," Issa adds. "They were able to send me what I needed, when I needed it, and at a lower price."

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Complete Systems

Millennium Image 600 (Shown)

intel inside pentium III

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- Integrated Wavetable 32 Sound
- Tiny CPR50 Stereo Speakers
- Lexmark Z11 Color Jet Printer
- 56K Modem with V.90 Standard Compatibility
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- 20GB Ultra DMA Hard Drive
- 17" Color Monitor
- AGP 64 Graphics
- DVD ROM Drive
- Integrated Wavetable 32 Sound
- Tiny CPR50 Stereo Speakers
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A monthly update of the best desktop PCs, notebooks, printers, monitors, graphics boards, and modems

PC WORLD

TOP 100

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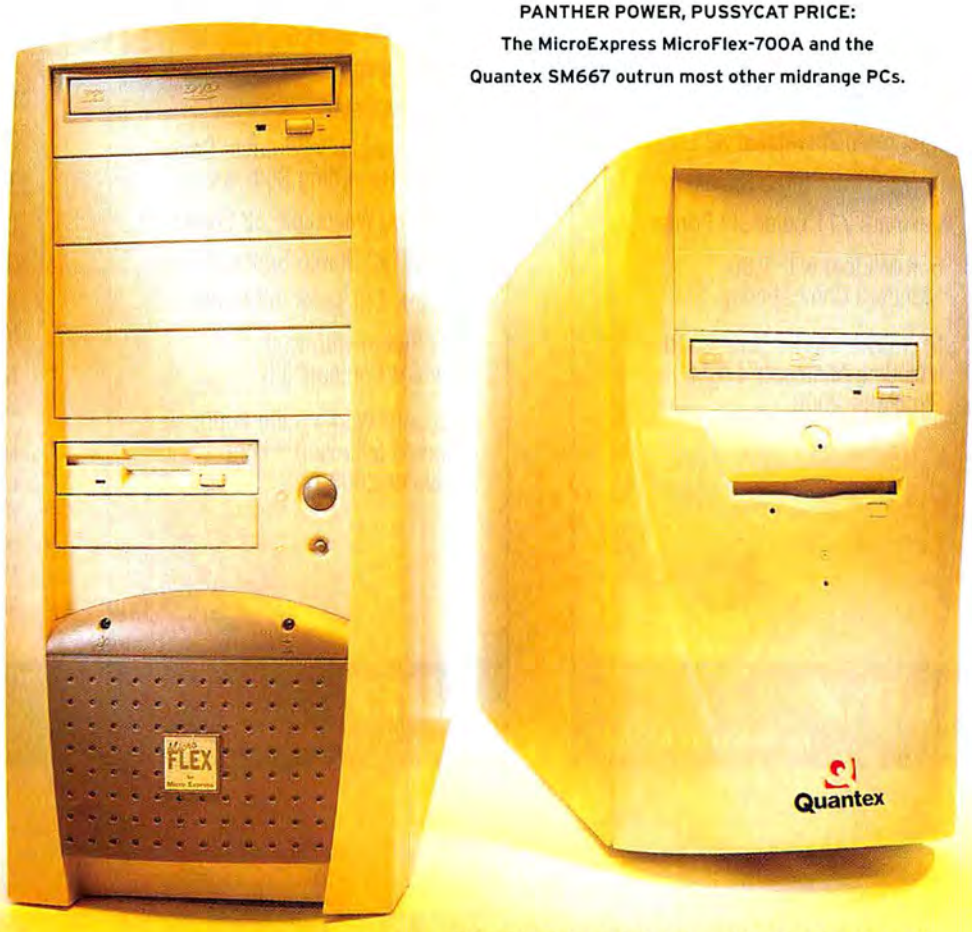
Fast and Lean Midrange Machines

PANTHER POWER, PUSSYCAT PRICE: The MicroExpress MicroFlex-700A and the Quantex SM667 outrun most other midrange PCs.



Edited by Alan Stafford and Katharine Dvorak

IT'S GETTING TOUGH to tell the cheetahs from the alley cats on our Top 30 desktop charts. Four-legged speed typically comes paired with fearsome prices, but we've recently started seeing some very fleet systems prowling our midrange chart. Normally, the hottest new machines debut on the power chart and then migrate to the midrange Top 10 as they grow older and cheaper. This month, two fast models debut on the midrange chart.

Micro Express tops our midrange list with its new $1499 MicroFlex-700A (AMD Athlon-700 power inside), while Quantex snares third place with a fast new Pentium III-667 system, the SM667, at $1749. The money you save has to come from somewhere; where are these vendors cutting their costs?

STRAY CATS SHOW CLAWS—AND FLAWS

COMPARED TO THE big cats occupying the power chart, the MicroFlex and the SM667 scrimp on some components, but depending on what you use your system for, you may not notice. The MicroFlex uses an ATI Rage Pro graphics card, which was merely middle-of-the-road a year ago but remains more than adequate for business use. MicroExpress includes a DVD-ROM drive, but it's an older, 6X version. For its part, Quantex supplies a lower-quality 17-inch monitor—no Trinitron here. Neither bundles any pricey business software, and you certainly don't get extras such as a Zip or CD-RW drive, or even a network card.

STEP AWAY FROM THE PC: Intrusion detectors guard against pilfering.

These systems are great if you need something fast and lean—and you want to put off upgrades for another day. However, remember that those upgrades—a new graphics board here, a removable media drive there—can cost much more when purchased off the shelf than when obtained as part of a system bundle.

BONUS BUSINESS FEATURES

TWO NEW ACER MODELS—the AcerPower 4400 and AcerPower 8600—feature extras that corporate buyers expect. Acer not only equipped each with a case lock, but added chassis intrusion detection as well. A button under the exterior panel connects via a wire to the motherboard; in conjunction with Intel LANDesk management software, it can alert an IS manager via the company network when anyone opens the system, thereby protecting the company's investment. The 4400 also includes a network interface card with Wake-on-LAN, a feature that lets you or your MIS guru boot it remotely for software installations during off-peak hours. Neither Acer PC made it onto the charts this month, but you can read reviews of them at PC World Online.

Other units on our charts do offer some of these corporate features, including the Dell OptiPlex GX100 and the Gateway E-1400, both of which made our *Top 10 Budget PCs* chart.

Corporate features can differentiate companies' product lines. Dell's OptiPlex models include them, but its Dimension PCs do not. Other corporate-focused lines are Compaq's Deskpro, Gateway's Enterprise, HP's Vectra, and Micron's ClientPro. For the home, Compaq offers the Presario line, Gateway the Essential, HP the Pavilion, and Micron the Millennia.

While remote diagnostic and monitoring features are rarely necessary for home users, they can be beneficial in the corporate environment where an IS staff may support hundreds of PCs. They may not always make the charts, but systems such as the AcerPower units receive bonus points in our grading system for providing these business extras. —*Joel Strauch*

Joel Strauch contributes regularly to the Top 100. PC World editors Michelle Campanale-Surkan, Lisa Cekan, Katharine Dvorak, Mick Lockey, Kalai Murugesan, Kalpana Narayanamurthi, Karen Silver, and Alan Stafford contributed to the Top 100 this month. Testing was performed by Ulrike Diehlmann, Robert James, Elliott Kirschling, Jeff Kuta, Sean Tieu, and John Tjon of the PC World Test Center. ▶

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YOUR GUIDE TO THE TOP 100

QUESTIONS ABOUT OUR CHARTS? The following information should answer them.

How do the charts work? Each month we test a large number of PCs, printers, scanners, monitors, graphics boards, and modems, and compare them with previously reviewed products. Only the best products land on the Top 10 charts, which are refreshed monthly. System configurations are shown as tested. Vendors may have since changed components.

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 70s is above average.

What does the PC WorldBench 98 score mean? It's a measure of how fast a PC can run a mix of common business applications as compared with our baseline machine, a Gateway PMMX-200 with 32MB of RAM, a 2GB hard drive, and 512KB of secondary cache. For example, a PC that scores 200 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 on anonymous support calls made by *PC World* staff. The policies score is based on vendor support policies.

PHOTOGRAPHS: MARC SIMON

PC WORLD

TOP 10 POWER PCs

	SYSTEM: $2000 AND OVER	Month tested	★ Overall rating	Street price (1/7/00)	PC WorldBench 98 performance score [1] Faster ▶	Base configuration
1	Dell Dimension XPS T700r 800/388-8542 www.dell.com	Feb 00	93	Average: $2519	Outstanding 373	**Good:** Pentium III-700, 128MB of RAM, 512KB L2 cache, 20.4GB hard drive, 17-inch monitor, Windows NT 4.0
2	Gateway GP7-700 800/315-2536 www.gateway.com	Mar 00	85	Inexpensive: $2137	Very good 295	**Good:** Pentium III-700, 128MB of RAM, 256KB L2 cache, 10GB hard drive, 17-inch monitor, Windows 98 SE
3	Micron Millennia Max 800/642-7667 www.micronpc.com	Mar 00	85	Average: $2374	Very good 293	**Very good:** Pentium III-667, 128MB of RAM, 256KB L2 cache, 20GB hard drive, 19-inch monitor, Windows 98 SE
4	CyberMax Enthusiast A700W 800/437-4596 www.cybermaxpc.com	Feb 00	80	Inexpensive: $2199	Very good 288	**Outstanding:** AMD Athlon-700, 128MB of RAM, 512KB L2 cache, 27.3GB hard drive, 19-inch monitor, Windows 98 SE
5	Polywell Poly 800K7-650 800/999-1278 www.polywell.com	Dec 99	76	Very inexpensive: $2099	Very good 277	**Outstanding:** AMD Athlon-650, 128MB of RAM, 512KB L2 cache, 27GB hard drive, 19-inch monitor, Windows 98 SE
6	Axis Systems Terra AXM 800/378-9014 www.axissys.com	Feb 00	75	Average: $2347	Good 274	**Outstanding:** AMD Athlon-650, 256MB of RAM, 512KB L2 cache, 27GB hard drive, 19-inch monitor, Windows 98 SE
7	Sys Performance 600A 888/722-2731 www.sys.com	Nov 99	74	Average: $2310	Very good 345	**Very good:** AMD Athlon-600, 128MB of RAM, 512KB L2 cache, two 13.6GB hard drives, 17-inch monitor, Windows NT 4.0
8	Compaq Prosignia Desktop 330 800/345-1518 www.compaq.com	Mar 00	73	Expensive: $2726	Very good 289	**Outstanding:** Pentium III-700, 128MB of RAM, 512KB L2 cache, 34GB hard drive, 19-inch monitor, Windows 98 SE
9	Amax MicroPlex 7000 800/800-6328 www.amax.com	NEW	73	Average: $2299	Good 260	**Outstanding:** Pentium III-667, 128MB of RAM, 256KB L2 cache, 27.2GB hard drive, 19-inch monitor, Windows 98 SE
10	Systemax Venture PV0-700A 800/830-3121 www.systemaxpc.com	Mar 00	72	Average: $2299	Very good 283	**Very good:** AMD Athlon-700, 128MB of RAM, 512KB L2 cache, 26GB hard drive, 17-inch monitor, Windows 98 SE
	Best Buy	Percent of overall rating ▶		Price: 15 percent	Performance: 20 percent	Base configuration: 10 percent

[1] A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 193.

[2] We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compacts (shorter than 5 inches).

[3] For more information about all of the products listed in this table, select number 904 on the product information card or visit www.pcworld.com/productinfo.

A SYSTEM NEEDS at least 600 MHz of processing might to make our power chart these days, whether its CPU is a Pentium or an Athlon. But pumped-up processors don't tell the whole story—graphics cards are getting buffed, too. Seven cards in this month's power Top 10 systems carry 32MB of RAM.

1 DELL DIMENSION XPS T700R

WHAT'S HOT: What happens when you cross Intel's new enhanced 700-MHz Pentium III processor with Windows NT? You get the fastest system we've ever seen, with a PC WorldBench 98 score of 373. The 17-inch, Trinitron-based Dell UltraScan P780 monitor adds beautiful display quality to the mix. Our test images had rich, vibrant colors, and text remained sharp all the way up to the maximum resolution of 1600 by 1200. A network card, a 4X CD-RW drive, a modem, and an Iomega Zip 100 drive round out the package.

WHAT'S NOT: Despite a $240 price drop since last month, the XPS T700r still requires a sizable investment. The side of the tower pops off easily, but getting it back in place requires finesse.

WHAT ELSE: The Dimension XPS T700r includes a detailed system manual with extensive troubleshooting information. The Altec Lansing ACS340 speaker set provides crisp sound with powerful bass. You get adequate expansion room, with three open PCI slots and three open bays.

BEST USE: Power users will appreciate this swift, reliable unit's many backup options and its high-capacity hard drive.

2 GATEWAY GP7-700

WHAT'S HOT: With a PIII-700 processor, the GP7-700 earned a searing 295 on our PC WorldBench 98 tests—the highest score on the power chart for a Windows 98 SE–based machine. The 17-inch EV700 monitor produced sharp text and rich, saturated colors in our test images, and the low price includes an Iomega Zip 100 drive and an APC surge suppressor that protects eight outlets and two phone lines. Getting inside the system is simple, thanks to a side panel that slides off smoothly after you twist a couple of thumbscrews. And the GP7-700 includes both a modem and a network card.

WHAT'S NOT: You get just two open expansion slots—one of which is a lesser-used ISA slot—and interior cabling obstructs access to memory upgrade slots. The system's 10GB hard drive is puny by our power chart standards.

Extra features	Design and expandability [2]	Vendor's system reliability	Tech support quality/ policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)	Product info number [3]
Outstanding: STB NVidia TNT2 graphics board with 32MB of RAM, 4X CD-RW drive, V.90 modem, network card, Iomega Zip 100 drive	**Good:** beautiful display; midsize tower; 3 open drive bays, 3 open slots	Outstanding	Good/ Good	24/7, toll-free	3/1	–
Very good: 3dfx Voodoo3 3000 graphics board with 16MB of RAM, 17X-40X CD-ROM drive, V.90 modem, network card, Iomega Zip 100 drive, Microsoft IntelliMouse	**Good:** easy access to slots/bays; midsize tower; 5 open drive bays, 2 open slots	Good	Fair/ Outstanding	24/7, toll-free	3/3	648
Good: Creative CT6960 graphics board with 32MB of RAM, 8X DVD-ROM drive, V.90 modem	**Good:** large interior; midsize tower; 4 open drive bays, 4 open slots	Good	Good/ Outstanding	24/7, toll-free	Varies [4]/3	649
Good: 3dfx Voodoo3 3500 TV graphics board with 16MB of RAM, 8X DVD-ROM drive, V.90 modem, Iomega Zip 100 drive	**Good:** one-piece cover; midsize tower; 5 open drive bays, 4 open slots	Fair [5]	Good[6]/ Good	24/7, toll-free	3/1	650
Good: Diamond Viper V770 graphics board with 16MB of RAM, 6X DVD-ROM drive, V.90 modem, Iomega Zip 100 drive, Logitech three-button mouse	**Good:** fuzzy monitor; midsize tower; 3 open drive bays, 4 open slots	[5]	Fair [5]/ Good	24/7, [6] toll-free	3/5	651
Good: NVidia TNT2 Pro graphics board with 32MB of RAM, 8X DVD-ROM drive, 4X CD-RW drive, V.90 modem	**Good:** lots of storage; midsize tower; 2 open drive bays, 4 open slots	[5]	Good [5]/ Outstanding	24/7, toll-free	3/3	652
Good: Matrox Millennium G400 DH graphics board with 32MB of RAM, 17X-40X CD-ROM drive, network card, scroll mouse, RAID card	**Good:** two hard drives; midsize tower; 4 open drive bays, 3 open slots	[5]	Good [5]/ Good	24/7,[6] toll-free	Varies [7]/5	653
Outstanding: Diamond Viper V770 Ultra graphics board with 32MB of RAM, 10X DVD-ROM drive, 2X CD-RW drive, network card, Microsoft IntelliMouse	**Satisfactory:** ample storage; midsize tower; 1 open drive bay, 3 open slots	Good	Fair/ Outstanding	24/7, toll-free	3/1	654
Outstanding: ATI Rage 128 graphics board with 32MB of RAM, 8X DVD-ROM drive, V.90 modem, network card, Iomega Zip 100 drive	**Good:** crisp monitor, flimsy case; mini-tower; 2 open drive bays, 2 open slots	[5]	[5]/ Outstanding	24/7, toll-free	3/1	655
Very good: Creative 3D Blaster RIVA TNT2 graphics board with 32MB of RAM, 10X DVD-ROM drive, 4X CD-RW drive, V.90 modem, network card	**Good:** on-screen controls via USB; midsize tower; 2 open drive bays, 3 open slots	[5]	Poor [5]/ Good	24/7,[6] toll-free	Varies [4]/3	656
Extra features: 10 percent	Design and expandability: 15 percent	Reliability: 15 percent	Support and warranty: 15 percent			

[4] Five years on CPU and main RAM, three years on other parts.

[5] Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs. For tech-support quality, this rating may also depend on our anonymous support-quality calls.

[6] Tech support ceases to be 24/7 after the first year.

[7] Six years on CPU and main RAM, three years on other parts.

WHAT ELSE: Documentation includes a detailed setup guide and a system manual with many color illustrations. The two-speaker Cambridge SoundWorks SBS52 pumps out rich midrange sound, and the solid keyboard allows smooth typing.

BEST USE: For small to medium-size businesses, the GP7-700 combines the right office-ready features and raw power.

3 MICRON MILLENNIA MAX

WHAT'S HOT: Thanks in part to the GeForce 256–powered graphics card, our test images and text looked gorgeous on the unit's 19-inch Micron 900LX monitor. The fastest PIII-667 system we've tested with Windows 98, this Millennia Max romped to a score of 293 on our PC WorldBench 98 tests.

WHAT'S NOT: The side of the midsize tower case pops off easily via a handle, but replacing it required some careful maneuvering. The interior is a tad cluttered.

WHAT ELSE: The large interior offers four open PCI slots and four open drive bays, and the 8X DVD-ROM drive produces great images on the large monitor. The system manual offers useful troubleshooting information. We also tested this Millennia Max with a PIII-733, but that system scored only 16 points higher on PC WorldBench 98 and costs $200 more, knocking its overall rating down a few notches.

BEST USE: With its excellent multimedia features and modem (instead of a network card), the Millennia Max would make a great all-around performer for a small, graphics-oriented office.

SPEED TO BURN: Dell's Dimension XPS T700r earns a PC WorldBench 98 score of 373 with Windows NT.

4 CYBERMAX ENTHUSIAST A700W

WHAT'S HOT: The Enthusiast A700W offers a great deal for its $2199 price. This Athlon-700 machine's PC WorldBench 98 score of 288 is the second-highest of all the Athlon-700s we've tested. Its CyberMax CX-900N 19-inch monitor displayed vibrant colors in our test images, and the 3dfx Voodoo3 3500 TV graphics board helps it deliver crisp ▶

PHOTOGRAPHS: KEN SMITH

images and includes a TV tuner, a digital VCR, and an FM tuner. An Aureal Vortex2 sound card and Altec Lansing ACS33 speakers generate clear sound with solid bass. For storage, you get a 27.3GB hard drive and an Iomega Zip 100 drive.

WHAT'S NOT: You must remove the entire case (not just a side panel) to reach the interior, and getting the case on and off requires some effort. Inside, bundled cabling obstructs access to the RAM slots.

WHAT ELSE: The 8X DVD-ROM drive, complete with software MPEG-2 decoder, automatically played our test movie smoothly. With four available slots and five open drive bays, the interior offers generous expansion room.

BEST USE: An impressive blend of power, features, and relatively low price makes this system an attractive choice for power users spending their own cash.

5 POLYWELL POLY 800K7-650

WHAT'S HOT: The 800K7-650 claims the prize as least expensive system on the power chart. Inside the case, neatly bundled wires allow easy access to all components. You get ample expansion room, with four open slots (three PCI and one ISA) and three open drive bays (one of the occupied bays holds a Zip 100 drive).

WHAT'S NOT: The 19-inch DecaView G400 monitor produces fuzzy text and dull colors at all resolutions, though it's fine for standard business use.

WHAT ELSE: The one-piece cover opens without tools, but you must remove the whole thing to get inside. Aiwa's TS-CD40 speakers deliver adequate sound, and video playback on the 6X DVD-ROM drive is smooth, even with other applications open. Polywell bundles Lotus SmartSuite 97 business software with the system—not the most popular office suite, but perfectly adequate for most business applications.

BEST USE: With moderate bang for modest bucks, the Poly 800K7-650 should handle most any task a small business can throw at it.

THE SOUND AND THE HURRY: Micron's Millennia Max comes with Monsoon speakers and a fast processor.

6 AXIS SYSTEMS TERRA AXM

WHAT'S HOT: This multimedia-ready system includes Cambridge SoundWorks' elaborate CSW 1000 five-piece speaker set, Creative Labs' capable Sound Blaster Live sound card, and 8X DVD-ROM and 4X CD-RW drives with excellent performance. The unit's 19-inch Jean Company JD199A monitor produces bright colors as well as crisp text.

WHAT'S NOT: The Terra AXM's score of 274 on our PC WorldBench 98 tests is the lowest of any Athlon-650 system we've tested, but only 2 percent below average.

WHAT ELSE: The Terra AXM's interior, though cluttered, provides lots of expansion room, with four open slots and two open drive bays. Its thorough system manual provides plenty of illustrations and tips to help less-technical users.

BEST USE: Although pricey for its CPU class, the Terra AXM offers multimedia features and removable storage that some small offices should love.

GATEWAY TO SPEED: Gateway's GP7-700 holds the top PC WorldBench 98 score for PCs with Windows 98.

7 SYS PERFORMANCE 600A

WHAT'S HOT: Equipped with a 600-MHz AMD Athlon chip and Windows NT, the Performance 600A racks up a score of 345 on our PC WorldBench 98 test suite, easily outdistancing comparable Pentium III-600 PCs. Two 13.6GB hard drives connect to a Promise UltraDMA 66 PCI card in a RAID configuration to speed up some disk-intensive operations. If you plug two monitors into the Matrox Millennium G400 DH (dual-head) video card, you'll be able to view your desktop across both displays.

WHAT'S NOT: Faded colors and fuzzy text from the Sys Technology SPM17 MS display sandbag the system's graphics potential. One laser-printed setup sheet and a pair of component manuals for the CD-ROM drive and monitor constitute the minimal hardware documentation.

WHAT ELSE: You need a screwdriver to get inside the 600A's all-metal case, but its side panel detaches quickly and slides back on easily—the fit and finish are impressive. The soft-touch keyboard comes with a removable wrist rest.

BEST USE: With a better monitor (or two), the Sys would make a killer 2D graphics workstation: You could keep work on one monitor and tools on the other.

8 COMPAQ PROSIGNIA DESKTOP 330

WHAT'S HOT: The unit's 19-inch Compaq S900 monitor delivered deep, rich colors in our test images and sharp text up to the maximum resolution of 1600 by 1200. Running on a PIII-700 CPU, this Prosignia Desktop earned a PC WorldBench 98 score of 289—average for its processor class. The system's 34GB hard drive is the largest ever on a chart maker.

WHAT'S NOT: At $2726, this unit is the costliest on the chart. Despite its high price, the floppy eject button on our test unit wiggled like a loose tooth. With only one open drive bay, the PC offers limited expansion room, and two thick audio cables extend across the interior, partly blocking access to expansion slots. ▶

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WHAT ELSE: The system includes a 10X DVD-ROM drive and a 4X/2X/24X CD-RW drive—a combination far more useful to a business than a DVD-ROM drive alone. After loosening two large thumbscrews, we were able to pull off the side of the case with minimal effort, but replacing the panel is a bit trickier.

BEST USE: The Prosignia Desktop 330's network card and bundled Microsoft Office 2000 SBE suit it well for small to medium-size businesses.

9 AMAX MICROPLEX 7000

NEW **WHAT'S HOT:** The Iiyama Vision Master 451 19-inch monitor produced rich colors and crisp text even at the maximum resolution of 1600 by 1200. Amax packs all its documentation, which includes a thick manual with troubleshooting tips and upgrading information, into an easily accessible box. The system also comes with storage aplenty, including an Iomega Zip 100 drive and a 27.2GB hard drive, as well as a couple of connection options—a network interface card and a modem.

WHAT'S NOT: With a score of only 260 on our PC WorldBench 98 test suite, the MicroPlex 7000 ran about 11 percent slower than the competing Micron Millennia Max PIII 667, the fastest system with the same CPU that we've tested. The fairly neat interior doesn't offer much in the way of expansion, having only two open slots and two open bays, and the case feels somewhat flimsy.

WHAT ELSE: Getting at the interior requires little work, because the case comes off and goes back on smoothly. At first we noticed jitters and pixelation when we played our test video at full screen with the 8X DVD-ROM drive, but after we used the DVD player's built-in calibration tool, playback became sharp and steady.

BEST USE: With both a modem and a network interface card, this well-equipped Amax would fit in a networked small office with presentation needs.

GOT YOUR DECODER RING? Amax's MicroPlex 7000 uses an MPEG decoder card to ensure terrific playback on its 8X DVD-ROM drive. A calibration utility also helps it perform up to snuff.

10 SYSTEMAX VENTURE PVO-700A

WHAT'S HOT: This small-business–oriented unit includes two connection options: a network card and a modem. The solidly constructed keyboard allows smooth, quiet typing and includes many programmable buttons. This midsize tower offers nearly effortless access to the interior through a sliding side panel. You also get a 4X CD-RW drive and a 10X DVD-ROM drive.

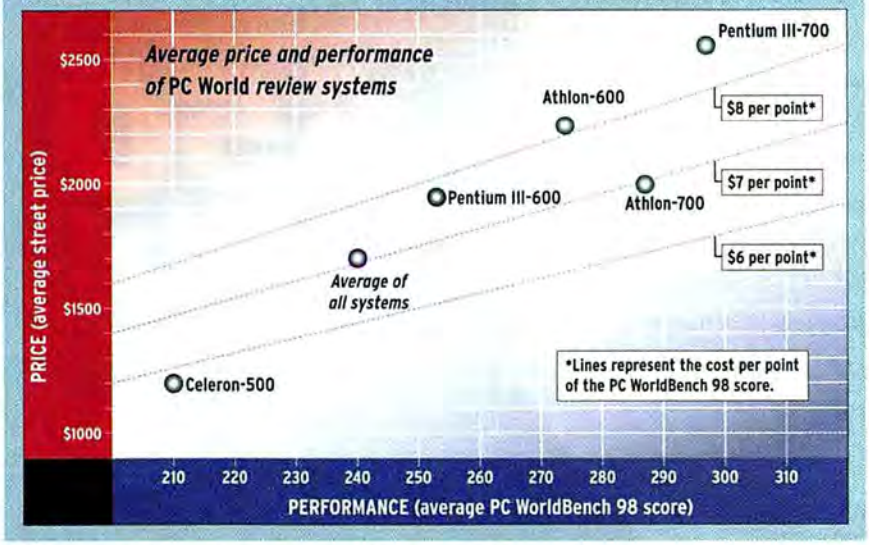
WHAT'S NOT: The system's interior is so cluttered that you can't see the RAM slots, but fortunately you'll find ample room for expansion once you wade in. No DVD software player was installed with the DVD-ROM drive on our test system, though playback looked smooth after we installed a player ourselves.

WHAT ELSE: Text looks crisp on the AOC Spectrum 7Glr monitor at a resolution of 1600 by 1200, but you probably won't want to crank it up that high. The Altec Lansing ADA305 three-speaker set permits on-screen control when connected through the USB port. A PC WorldBench 98 score of 283 puts the Venture PVO-700A slightly below the average for Athlon-700 machines we've tested, but it's still very quick.

BEST USE: With its CD-RW drive, DVD-ROM drive, modem, and network card, this computer is ready for any office that can pay the $2299 price. ▶

Snapshot: How Much Do Systems Cost?

TECH TREND Desktop systems with the hottest new processors cost an arm and a leg—or do they? This chart shows how much the systems competing for spots on our charts cost, organized by the processor they use. Bear in mind that system configurations vary; the components installed will cause a PC's price to differ from the averages shown here.



ALSO NEW THIS MONTH

online

WE EVALUATED the following systems along with the others, but they didn't score high enough to reach the *Top 10 Power PCs* chart. For write-ups, visit PC World Online (www.pcworld.com/t10pcs).

- **ABS Performance 1**
- **Acer AcerPower 8600**

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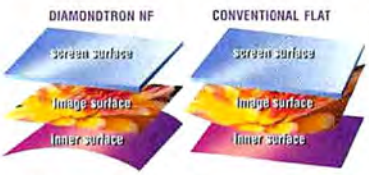

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PC WORLD	Macworld	CADENCE LAB verdict	PC MAGAZINE EDITORS' CHOICE	1998 Eddy WINNER	Desktop Publishers
Diamond Pro 900u July 1999	Diamond Pro 2020u June 1999	Diamond Pro 2020u June 1999	Diamond Pro 930u Jan. 19, 1999 Best 19" upgrade March 9, 1999	Diamond Pro 900u March 1999	Diamond Pro 900u February 1999

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PC WORLD

TOP 10 MIDRANGE PCs

	SYSTEM: $1200 TO $1999	Month tested	★ Overall rating	Street price (1/7/00)	PC WorldBench 98 performance score [1] (Faster)	Base configuration
1	Micro Express MicroFlex-700A 800/989-9900 www.microexpress.net	NEW	85	Inexpensive: $1499	Outstanding 282	**Good:** AMD Athlon-700, 128MB of RAM, 512KB L2 cache, 18GB hard drive, 17-inch monitor, Windows 98 SE
2	Xi Computer 700K MTower 800/432-0486 www.xicomputer.com	Mar 00	83	Average: $1699	Outstanding 295	**Very good:** AMD Athlon-700, 128MB of RAM, 512KB L2 cache, 22GB hard drive, 17-inch monitor, Windows 98 SE
3	Quantex SM667 800/896-4898 www.quantex.com	NEW	81	Average: $1749	Outstanding 282	**Very good:** Pentium III-667, 128MB of RAM, 256KB L2 cache, 20.4GB hard drive, 17-inch monitor, Windows 98 SE
4	Axis Systems Orion CXV 800/378-9014 www.axissys.com	Mar 00	79	Expensive: $1888	Very good 270	**Outstanding:** Pentium III-600EB, 128MB of RAM, 256KB L2 cache, 20.5GB hard drive, 19-inch monitor, Windows 98 SE
5	Micron Millennia Max 800/642-7667 www.micronpc.com	Dec 99	76	Average: $1797	Good 250	**Good:** Pentium III-600, 128MB of RAM, 512KB L2 cache, 13.6GB hard drive, 17-inch monitor, Windows 98 SE
6	Systemax Venture PVO-600A 800/830-3121 www.systemaxpc.com	Mar 00	75	Average: $1649	Very good 273	**Very good:** AMD Athlon-600, 128MB of RAM, 512KB L2 cache, 20GB hard drive, 17-inch monitor, Windows 98 SE
7	CyberMax Enthusiast A650W 800/437-4596 www.cybermaxpc.com	NEW	74	Expensive: $1999	Outstanding 276	**Good:** AMD Athlon-650, 128MB of RAM, 512KB L2 cache, 13GB hard drive, 19-inch monitor, Windows 98 SE
8	IBM PC 300GL 800/426-2968 www.ibm.com/pc	Jan 00	72	Expensive: $1859	Very good 255	**Good:** Pentium III-600, 128MB of RAM, 512KB L2 cache, 13.6GB hard drive, 17-inch monitor, Windows 98 SE
9	NEC PowerMate ES 5250 888/863-2669 www.nec-computers.com	Jan 00	71	Average: $1758	Satisfactory 228	**Good:** Pentium III-500, 128MB of RAM, 512KB L2 cache, 13GB hard drive, 17-inch monitor, Windows 98 SE
10	PC Connection Epiq BPS 8000 888/467-1212 www.pcconnection.com	Feb 00	71	Average: $1622	Good 253	**Good:** Pentium III-600, 128MB of RAM, 512KB L2 cache, 13.6GB hard drive, 17-inch monitor, Windows 98 SE
	Best Buy	Percent of overall rating ▶		Price: 17 percent	Performance: 18 percent	Base configuration: 10 percent

[1] A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 193.

[2] We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compacts (shorter than 5 inches).

[3] For more information about all the products listed in this table, select number 905 on the product information card or visit www.pcworld.com/productinfo.

THREE NEW SYSTEMS on the midrange chart bring excellent performance scores to the ball but leave the high-priced pumpkin outside. The new MicroFlex-700A from Micro Express captures the number one spot, but the Xi Computer 700K MTower edges out all others with a PC WorldBench 98 score of 295.

1 MICRO EXPRESS MICROFLEX-700A

WHAT'S HOT: This MicroFlex makes upgrades a snap. One large thumbscrew secures the top of the NEW case, after which either side pops off and goes back on smoothly. Though the interior's a bit cluttered, you'll find four open expansion slots and four open drive bays. The smooth and comfy Microsoft Natural ergonomic keyboard makes typing a pleasure—if you are accustomed to the design. Micro Express offers an above-average four-year parts and labor warranty.

WHAT'S NOT: The thick system manual contains lots of photos and illustrations, but it looks as if it was photocopied, and the pictures are tough to make out. When we started up other applications while playing our test movie on the 6X DVD-ROM drive, the system paused occasionally. Micro Express's tech support quality rates only Fair in our anonymous calls.

WHAT ELSE: While the MicroFlex's PC WorldBench 98 score of 282 is slightly slower than average for Athlon-700 systems we've looked at, this score shows that the system is still very fast. The Impression 7Plus DE-770 17-inch monitor displays deep, rich colors; text blurred somewhat a resolution of 1280 by 1024, but remained sharp at 1024 by 768.

BEST USE: This MicroFlex would be at home in any small office that needs athletic PC performance at a bargain price.

2 XI COMPUTER 700K MTOWER

WHAT'S HOT: A $250 price drop pushes this fast AMD Athlon–powered system down to $1699. With a PC WorldBench 98 score of 295, it's quicker than most similarly configured systems and the fastest on the midrange chart. It also has the largest hard drive on the chart—22GB. The Xi's easy-open case pops on and off smoothly. The uncluttered interior features plenty of expansion room, with three open PCI slots and four open drive bays.

WHAT'S NOT: While the 700K MTower ships with solid documentation for most of its hardware components, it lacks an

Extra features	Design and expandability [2]	Vendor's system reliability	Tech support quality/ policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)	Product info number [1]
Very good: ATI Rage 128 Pro graphics board with 32MB of RAM, 6X DVD-ROM drive, V.90 modem, Microsoft Natural keyboard	**Very good:** roomy, easy-access case; midsize tower; 4 open drive bays, 4 open slots	[4]	Fair [4]/ Outstanding	24/7, toll-free	4/4	657
Good: Diamond Viper V770 graphics board with 32MB of RAM, 10X DVD-ROM drive, V.90 modem, Logitech scroll mouse	**Very good:** funky blue case is easy to open; midsize tower; 4 open drive bays, 3 open slots	[4]	Fair [4]/ Good	24/7, toll-free	3/3	658
Good: Creative Labs CT5823 graphics board with 32MB of RAM, 8X DVD-ROM drive, V.90 modem	**Very good:** multimedia keyboard; minitower; 4 open drive bays, 4 open slots	[4]	Good [4]/ Good	24/7, toll-free	3/1	659
Very good: Visiontek NVidia TNT2 Pro graphics board with 32MB of RAM, 8X DVD-ROM drive, 2X CD-RW drive, V.90 modem	**Very good:** lots of storage; midsize tower; 2 open drive bays, 4 open slots	[4]	Good [4]/ Outstanding	24/7, toll-free	3/3	660
Good: STB NVidia TNT2 graphics board with 16MB of RAM, 8X DVD-ROM drive, V.90 modem	**Good:** huge tower case with unique handle; 5 open drive bays, 4 open slots	Good	Good/ Outstanding	24/7, toll-free	Varies [5]/3	661
Good: NVidia Vanta graphics board with 16MB of RAM, 4X CD-RW drive, V.90 modem	**Very good:** case pops off very easily; midsize tower; 4 open drive bays, 4 open slots	[4]	Poor [4]/ Good	24/7, toll-free	Varies [5]/3	662
Good: Creative Labs NVidia GeForce 256 graphics board with 32MB of RAM, 8X DVD-ROM drive, V.90 modem, microphone	**Outstanding:** great monitor, roomy; midsize tower; 6 open drive bays, 4 open slots	[4]	Fair [4]/ Good	24/7, toll-free	3/1	663
Satisfactory: Number Nine SR9 graphics board with 16MB of RAM, 20X-48X CD-ROM drive, DMI management	**Good:** video card requires adapter for analog; desktop; 1 open drive bay, 3 open slots	Good	Good/ Good	24/7, toll-free	3/1	–
Very good: ATI Rage Pro graphics board with 8MB of RAM, 10X DVD-ROM drive, network card, LS-120 drive, Logitech mouse, DMI management	**Good:** multimedia buttons on case; midsize tower; 3 open drive bays, 5 open slots	Good	Poor [4]/ Outstanding	24/7, toll-free	3/3	664
Satisfactory: Joytech NVidia Riva 128ZX graphics board with 8MB of RAM, 12X-48X CD-ROM drive, V.90 modem	**Very good:** ample expansion room; midsize tower; 6 open drive bays, 4 open slots	[4]	Fair [4]/ Good	24/7, toll-free	1/1	665
Extra features: 10 percent	Design and expandability: 15 percent	Reliability: 15 percent	Support and warranty: 15 percent			

[4] Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs. For tech support quality, this rating may also depend on our anonymous support-quality calls.

[5] Five years on CPU and main RAM, three years on other parts.

overall system manual. The funky blue midsize tower gives the system a nice "fortress of solitude" look, but trying to find the awkwardly located power button can seem like a game of Where's Waldo?

WHAT ELSE: The 17-inch Optiquest Q71 monitor produced bright colors and crisp text at 1024 by 768 resolution, but it blurred at 1280 by 1024. The Koss SW/115 three-speaker set has a svelte design but produces slightly thin sound. The ergonomic keyboard includes a wrist rest and a unique set of mouse keys—presumably to handle mouse cursor functions in case of an input device meltdown.

BEST USE: The 700K MTower delivers the goods for power-hungry users without maxing out your credit card.

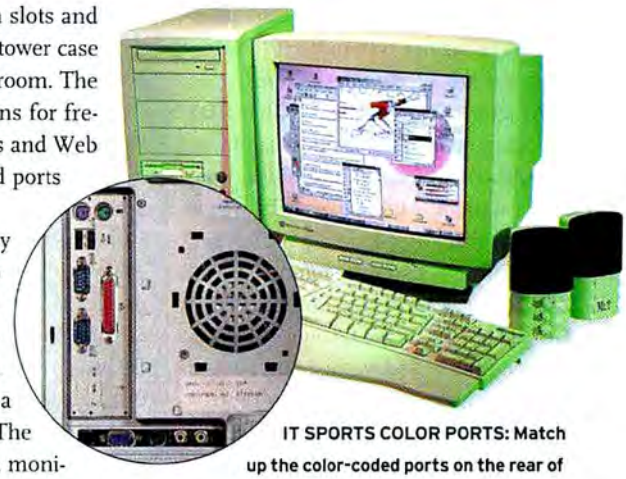
3 QUANTEX SM667

NEW **WHAT'S HOT:** The SM667's score of 282 on our PC WorldBench 98 tests is several points above average for PIII-667 systems. With four open slots and four open bays, the minitower case has plenty of expansion room. The keyboard provides buttons for frequently used applications and Web sites, and the color-coded ports assist setup.

WHAT'S NOT: The flimsy side panel requires you to remove two screws, and the plastic tabs that secure it can be bent easily. Once inside, you'll find a fairly cluttered interior. The Quantex XP175N 17-inch monitor displays washed-out colors and blurry text at normal resolutions.

WHAT ELSE: The Altec Lansing ACS 33W three-speaker set delivered crisp and loud sound through the Aureal Vortex2 sound card. The system manual, although fairly slim, provides you with lots of helpful screen shots, and documentation includes a setup guide for Windows 98.

BEST USE: Fine speed and price make general business computing the best fit for this Quantex. We suggest you upgrade the monitor, however. ▶



IT SPORTS COLOR PORTS: Match up the color-coded ports on the rear of the Micro Express MicroFlex-700A with the colored component cords to figure out which ones go where.

PHOTOGRAPHS: KEN SMITH

STRONG VITAL SIGNS: Quantex's SM667 scores a 282 on PC WorldBench 98, a healthy showing for its class.

4 AXIS SYSTEMS ORION CXV

WHAT'S HOT: Its PC WorldBench 98 score of 270 makes the Orion one of the fastest Pentium III-600 systems we've tested with Windows 98 installed. The system carries a 8X DVD-ROM drive (which played smoothly and clearly) and a 4X/2X/24X CD-RW drive.

WHAT'S NOT: Expanding this standard beige midsize tower is a chore: You must remove four screws and take off the entire case to get inside; there, you'll find messy cables and wires hindering access to the RAM slots and two open bays. Though the Axis contains ample documentation for individual components, it lacks a printed manual for the system itself (an electronic one is loaded on the system).

WHAT ELSE: The Adobe Acrobat PDF manual contains lots of information on troubleshooting and setup, as well as myriad illustrations. Audiophiles will love the three-speaker Altec Lansing ACS33 set, which delivers crisp sound and powerful bass in concert with the Sound Blaster Live card. Colors on the Optiquest V95 19-inch monitor looked washed out, but text remained sharp, even at 1600 by 1200.

BEST USE: Billed as a member of Axis's multimedia line and lacking a network card, this Orion would be best as a standalone PC for general business use.

5 MICRON MILLENNIA MAX

WHAT'S HOT: The system's mammoth case opens easily—push down a handle on the back, and the side panel slides off. (To reattach it, press the handle again.) The Millennia Max's 8X DVD-ROM drive gave smooth playback.

WHAT'S NOT: Despite the huge interior, cables impede access to the RAM slots. The 17-inch Micron 700VX monitor produced bright colors but slightly blurry text. (You can upgrade to a sharper Trinitron monitor for $99 extra.) The Advent AV009 three-piece speaker set mustered disappointingly weak audio.

WHAT ELSE: The system's PC WorldBench 98 score of 250, while speedy, is average for a PIII-600. Accessing expansion cards for upgrades is simple: Loosen a thumbscrew on a small metal rail that secures them, and you're in.

BEST USE: The Millennia Max PIII-600 fills the bill as a powerful, upgradable, bare-bones multimedia system.

6 SYSTEMAX VENTURE PV0-600A

WHAT'S HOT: Solid multimedia hardware surrounds this reasonably priced ($1649) machine. The AOC Spectrum 7Glr 17-inch monitor produces impressively rich, saturated colors and crisp text, and the Cambridge SoundWorks SBS52 three-speaker set pumps out powerful sound. The 4X/4X/24X CD-RW drive enables you to write and rewrite data to your heart's content. Unless you traffic in gargantuan files, the 20GB hard drive will take a long time to fill up. Interior access is outstanding: The midsize tower case pops off smoothly when you depress a lever on the side.

WHAT'S NOT: The cheap feeling keyboard flexes easily, and though typing is quiet, the keys—especially backspace—are so small they invite mistakes.

WHAT ELSE: The Venture PV0-600A earned a 273 on our PC WorldBench 98 tests—average for an Athlon-600 system running Windows 98. Though some cables crisscross the interior, you'll enjoy unimpeded access to the four open slots (three PCI and one ISA) and four open drive bays.

BEST USE: With its CD-RW drive, high-grade monitor, and top-notch sound, this is an excellent multimedia PC. ▶

Gimme a B, Gimme an E

TECH TREND SOME OF THE new Pentium III systems showing up on our charts use processors with extra letters in their names—PIII-600B or PIII-550E, for example. Curiously, the letters have no relation to each other, and you could even end up spying a PIII-600EB (see the number-four midrange PC).

The E in a processor's name denotes that it is a .18-micron Pentium III, says Intel spokesperson George Alfs. Intel is transitioning from a .25-micron to the smaller .18-micron process of creating chips. The smaller size allows Intel to make faster processors with more transistors (and added capabilities) on a smaller chip. But during the transition, Intel will be making chips with both processes—hence the need to differentiate the CPUs with an added letter.

However, a .18 micron PIII won't include the trailing E if there's no .25 micron PIII of the same speed. The E shows up only on midrange Pentiums, such as 533-MHz, 550-MHz, and 600-MHz speeds. "You won't normally see it on a 650-MHz, 700-MHz, or 733-MHz, because those are all Coppermines—the PIIIs made with the .18-micron process," Alfs says.

The B can be spotted on several processors, including a version of Intel's fastest 800-MHz CPU. The B indicates a 133-MHz bus, as opposed to a 100-MHz bus processor. Again, if Intel makes a 133-MHz bus PIII but no 100-MHz bus version, you won't see a trailing B.

Intel makes four different combinations, so you can see a B, an E, neither letter, or both.

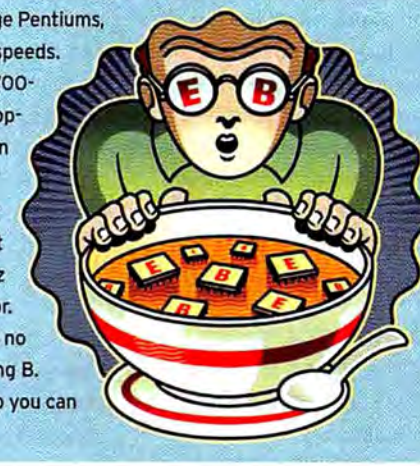
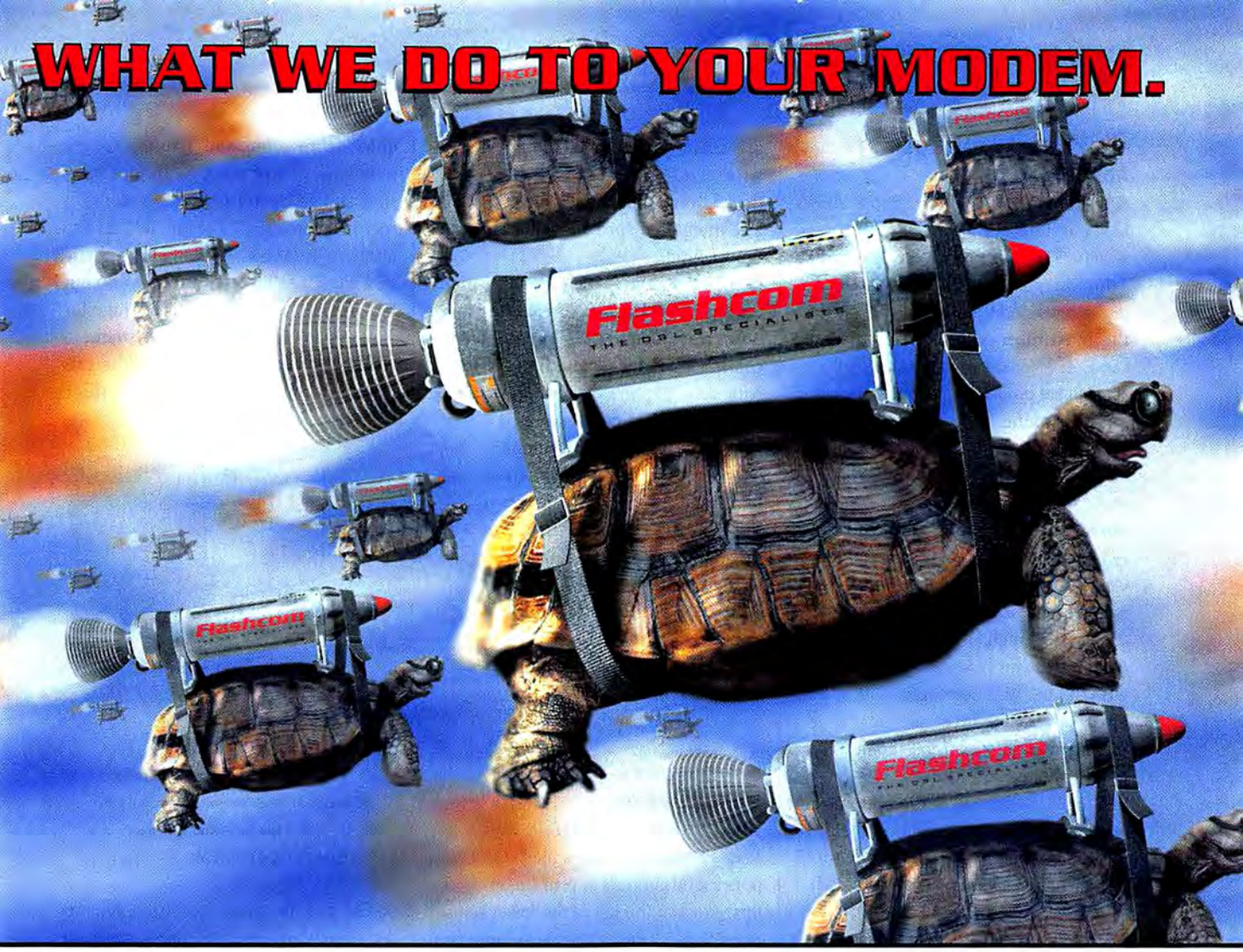


ILLUSTRATION: PETER HOEY



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7 CYBERMAX ENTHUSIAST A650W

NEW **WHAT'S HOT:** The A650W shows how multimedia should be on a high-end system. The CyberMax AT1097F 19-inch Trinitron monitor displayed rich colors in test images, and text remained crisp up to the maximum resolution of 1600 by 1200. The Altec Lansing ADA305 three-speaker set produces excellent sound and has USB connectivity for digital controls. The 8X DVD-ROM drive played our test video smoothly, even when we opened other applications.

WHAT'S NOT: To get inside, you must remove the entire case; however, the case uses thumbscrews and requires no tools to open. The A650W posted a 276 on our PC WorldBench 98 tests—low for the Athlon-650s we've tested but not far off.

WHAT ELSE: With four open slots and six open bays in the mostly clear interior, finding room for expansion shouldn't be a problem for quite a while.

BEST USE: A little bit of everything from business applications to occasional gaming. This PC should attract experienced users who are spending their own cash.

8 IBM PC 300GL

WHAT'S HOT: Powered by a PIII-600 processor, the 300GL managed a PC WorldBench 98 score of 255—slightly above the average for similarly equipped PIII-600s running Windows 98. Three thumbscrews make opening the desktop case a breeze, and the detailed system manual contains lots of excellent diagrams and troubleshooting information.

WHAT'S NOT: The PC 300GL contains neither a network interface nor a modem. The integrated speakers generate weak, tinny sound.

WHAT ELSE: The 17-inch IBM G74 monitor produces sharp text even at the maximum resolution of 1280 by 1024, but the colors look faded. Though the Number Nine SR9 graphics card features a digital output jack (for connecting flat-panel displays), the analog monitor we received required an adapter that stuck out several inches from the back. The PC 300GL offers three open slots and a single open drive bay.

BEST USE: The IBM PC 300GL is a fast, basic system for offices with extra modems or network cards on hand.

NO NEED TO SHOVE: CyberMax's Enthusiast A650W provides room for everyone, with six open drive bays and four open expansion slots (two PCI and two ISA).

9 NEC POWERMATE ES 5250

WHAT'S HOT: The $1758 PowerMate ES 5250's well-designed case puts useful controls at your fingertips. A bar at the top of the tower houses power and sleep buttons, a volume control, and a headphone jack. The interior leaves room for substantial expansion, with five open slots (four PCI and one ISA) and three open drive bays.

WHAT'S NOT: Expansion cards fit into the case upside down, making installation awkward, and messy wiring impedes your access to them.

WHAT ELSE: Color on the NEC S770 17-inch monitor looks washed out, but text was sharp at 1024 by 768 resolution. The PowerMate's chassis features color-coded ports and a case lock.

BEST USE: The affordable, network-ready PowerMate ES 5250 should fit well in offices that don't demand overwhelming speed.

BELLY UP TO THE BAR: A bar on the NEC PowerMate ES 5250's case puts useful controls at your fingertips.

10 PC CONNECTION EPIQ BPS 8000

WHAT'S HOT: The Epiq BPS 8000 is easy to set up: It includes a thorough system manual, a handy quick-setup guide, and manuals for the individual components. With four open slots and six open bays, there's plenty of room for expansion. The bundled cabling obstructs RAM access, but not the expansion slots. The Epiq's score of 253 on our PC WorldBench 98 tests is average for similarly configured PIII-600 systems.

WHAT'S NOT: Gaining access to the spacious interior requires removing three screws and the entire case. Colors in our test images appeared dark and washed out on the 17-inch Pionex Technologies P70S monitor. Though text looked sharp at the standard resolution of 1024 by 768, it blurred at the maximum 1280 by 1024.

WHAT ELSE: The Altec Lansing ACS22 two-speaker set provides decent sound but limited bass. The lightweight keyboard was a tad flimsy but permitted smooth and quiet typing.

BEST USE: Though a bit pricey for its configuration, the Epiq BPS 8000 PIII will do a solid job as a small-office system. ▶

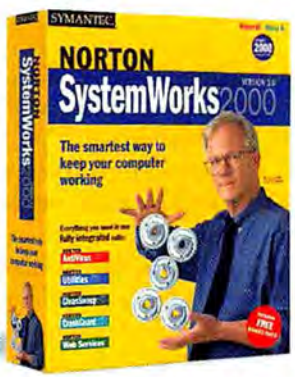
ALSO NEW THIS MONTH

online WE EVALUATED the following systems along with the others, but they didn't score high enough to make the *Top 10 Midrange PCs* chart. For write-ups, visit PC World Online (www.pcworld.com/t10pcs).

- Acer AcerPower 4400
- LEK Speed Pro 1500
- LEK Speed Pro 4600
- Polywell Poly LPC 1000
- Premio Centella CS2

Five New Solutions.

One Smart Answer.



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PC WORLD

TOP 10 BUDGET PCs

	SYSTEM: UNDER $1200	Month tested	★ Overall rating	Street price (1/7/00)	PC WorldBench 98 performance score [1] (Faster ▶)	Base configuration
1	Nutrend Celeron-500 888/482-6678 www.nutrend.com	Feb 00	84	Inexpensive: $929	Very good 214	**Good:** Celeron-500, 64MB of RAM, 128KB L2 cache, 13.5GB hard drive, 17-inch monitor, Windows 98 SE
2	Micro Express MicroFlex 55C 800/989-9900 www.microexpress.net	Mar 00	83	Expensive: $1199	Outstanding 242	**Good:** Pentium III-550, 64MB of RAM, 512KB L2 cache, 18GB hard drive, 17-inch monitor, Windows 98 SE
3	Racer PC500c 800/454-9713 www.racerpc.com	Feb 00	82	Very inexpensive: $799	Very good 218	**Good:** Celeron-500, 64MB of RAM, 128KB L2 cache, 6.4GB hard drive, 17-inch monitor, Windows 98 SE
4	Quantex SB500c 800/896-4898 www.quantex.com	NEW	81	Inexpensive: $979	Very good 215	**Good:** Celeron-500, 64MB of RAM, 128KB L2 cache, 13.6GB hard drive, 17-inch monitor, Windows 98 SE
5	Dell OptiPlex GX100 800/388-8542 www.dell.com	Dec 99	79	Expensive: $1152	Very good 260	**Good:** Celeron-500, 64MB of RAM, 128KB L2 cache, 6.4GB hard drive, 17-inch monitor, Windows NT 4.0
6	Gateway E-1400 800/315-2536 www.gateway.com	Jan 00	77	Average: $1029	Very good 211	**Satisfactory:** Celeron-500, 64MB of RAM, 128KB L2 cache, 6.8GB hard drive, 15-inch monitor, Windows 98 SE
7	Amax MicroPlex 5000 800/800-6328 www.amax.com	NEW	76	Inexpensive: $999	Good 206	**Good:** Celeron-533, 64MB of RAM, 128KB L2 cache, 10.2GB hard drive, 17-inch monitor, Windows 98 SE
8	Axis Systems Orion 100C DVD 800/378-9014 www.axissys.com	Oct 99	75	Expensive: $1168	Very good 210	**Very good:** Pentium III-450, 128MB of RAM, 512KB L2 cache, 10.1GB hard drive, 17-inch monitor, Windows 98
9	Polywell Poly 810CW 800/999-1278 www.polywell.com	Oct 99	73	Inexpensive: $888	Good 204	**Good:** Celeron-433, 64MB of RAM, 128KB L2 cache, 10GB hard drive, 17-inch monitor, Windows 98
10	PC Connection Epiq BPS4000 888/467-1212 www.pcconnection.com	Jan 00	71	Inexpensive: $987	Good 206	**Good:** Celeron-466, 64MB of RAM, 128KB L2 cache, 8.4GB hard drive, 17-inch monitor, Windows 98 SE
	Best Buy	Percent of overall rating ▶		Price: 22 percent	Performance: 13 percent	Base configuration: 10 percent

[1] A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 193.

[2] We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compacts (shorter than 5 inches).

[3] For more information about all the products in this table, select number 906 on the product information card or visit www.pcworld.com/productinfo.

RIGHT ON, CELERON: Eight out of ten budget systems this month use Celeron power to save money while keeping the data flowing. The majority of systems on the chart use integrated Intel graphics with a thrifty 4MB of RAM, but here's better news: Nine of the Top 10 offer 17-inch monitors.

1 NUTREND CELERON-500

WHAT'S HOT: Nutrend's $929 Celeron-500 earns a PC WorldBench 98 score of 214—a high number for a Windows 98 system in its CPU class. The 17-inch OptiQuest V71 monitor produces sharp text and vibrant colors. With four open slots (three PCI and one ISA) and four open drive bays, the NuTrend sets aside generous room for expansion.

WHAT'S NOT: Accessing the system's interior requires you to remove first the top, then one of the sides, though once there, we found everything neatly arranged. The flimsy plastic Multimedia EP-280 speakers delivered poor sound that distorted heavily at higher volumes.

WHAT ELSE: The skimpy system manual provides few illustrations, but Nutrend supplies decent documentation for the rest of the hardware. The multimedia keyboard includes various programmable buttons and a comfortable attachable wrist rest. The low price includes Corel's WordPerfect Office 2000 suite and a modem instead of a network card.

BEST USE: A solid, inexpensive, general-computing system for small offices or small businesses on a tight budget.

2 MICRO EXPRESS MICROFLEX 55C

WHAT'S HOT: With four open slots (three PCI and one ISA) and four open drive bays, the PC's large, well-organized interior allows ample expansion. The interior is easy to access, too: After loosening one large thumbscrew, you remove the top and pop off the side; the shell goes back on just as smoothly. Microsoft's Natural Keyboard permits comfortable, smooth, quiet typing.

WHAT'S NOT: Our test PC lacked any business suite or software designed for the small or home office.

WHAT ELSE: Among systems powered by a PIII-550 chip, the MicroFlex 55C earns a slightly above average 242 score on PC WorldBench 98. The 17-inch Impression 7VX monitor produces deep colors and sharp text at 1024 by 768 resolution. The MidiLand SW190 Super three-speaker set sports a funky rippled-plastic design; it

Extra features	Design and expandability [2]	Vendor's system reliability	Tech support quality/ policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)	Product info number [3]
Good: ATI Xpert98 graphics board with 8MB of RAM, 22X-48X CD-ROM drive, V.90 modem, microphone	**Very good:** neat interior; midsize tower; 4 open drive bays, 4 open slots	[4]	Fair [4]/ Outstanding	24/7, toll-free	3/lifetime	666
Very good: ATI Rage 128 graphics board with 32MB of RAM, 6X DVD-ROM drive, V.90 modem, Microsoft Natural Keyboard	**Very good:** easy access to roomy box; midsize tower; 4 open drive bays, 4 open slots	[4]	Fair [4]/ Outstanding	24/7, toll-free	4/4	667
Satisfactory: integrated Intel 810 graphics with UMA and 4MB of display cache, 4.8X DVD-ROM drive, V.90 modem	**Good:** side handles on case; minitower; 1 open drive bay, 3 open slots	[4]	Fair [4]/ Good	24/7, toll-free	Varies [5]/3	668
Good: integrated Intel 810 graphics with UMA and 4MB of display cache, 24X-48X CD-ROM drive, V.90 modem, network card	**Good:** removing side panel requires fiddling; minitower; 4 open drive bays, 1 open slot	[4]	Good [4]/ Good	24/7, toll-free	3/1	669
Satisfactory: integrated Intel 810 graphics with UMA and 4MB of display cache, 10X-40X CD-ROM drive, network card, Wake-on-LAN	**Satisfactory:** easy two-button access; desktop; no open drive bays, 2 open slots	Outstanding	Good/ Outstanding	24/7, toll-free	3/3	–
Good: integrated Intel 810 graphics with UMA and 4MB of display cache, 12X-24X CD-ROM drive, network card, Wake-on-LAN, chassis intrusion alarm	**Satisfactory:** interior has no cables; desktop; no open drive bays, 2 open slots	Good	Fair/ Outstanding	24/7, toll-free	3/3	670
Good: integrated Intel 810 graphics with UMA and 4MB of display cache, 8X DVD-ROM drive, network card	**Good:** well-kept interior; minitower; 2 open drive bays, no open slots	[4]	[4]/ Outstanding	24/7, toll-free	3/1	671
Good: Integrated Intel 740 graphics with 8MB of RAM, 10X DVD-ROM drive, V.90 modem	**Good:** crisp monitor, case hard to open, minitower; 4 open drive bays, 4 open slots	[4]	Good [4]/ Outstanding	24/7, toll-free	3/3	672
Satisfactory: integrated Intel 810 graphics with UMA and 4MB of display cache, 17X-40X CD-ROM drive, V.90 modem	**Satisfactory:** flimsy, cramped keyboard; minitower; 1 open drive bay, 2 open slots	[4]	Fair [4]/ Good	24/7, [6] toll-free	3/5	673
Satisfactory: integrated Intel 810 graphics with UMA and 4MB of display cache, 12X-48X CD-ROM drive, V.90 modem	**Good:** roomy; requires tools to open; midsize tower; 6 open drive bays, 3 open slots	[4]	Fair [4]/ Good	24/7, toll-free	1/1	674
Extra features: 10 percent	Design and expandability: 15 percent	Reliability: 15 percent	Support and warranty: 15 percent			

[4] Insufficient data to give a rating, or the rating is derived from the vendor's Reliability and Service survey scores for its home PCs. For tech support quality, this rating may also depend on our anonymous support-quality calls.

[5] Five years on CPU and main RAM, three years on other parts.

[6] Tech support ceases to be 24/7 after the first year.

pumps out adequate audio for most office environments. Documentation includes a quick-setup guide, a system manual, and some component manuals.

BEST USE: This feature-rich system should meet the needs of most home offices or small businesses, but you'll have to get productivity software elsewhere.

3 RACER PC500C

WHAT'S HOT: A $150 price drop gives this already cheap system the lowest price on the budget chart—$799. And with a score of 218 on PC WorldBench 98, this Racer ranks as one of the two fastest Celeron-500 systems we've recorded running Windows 98. A unique minitower design (with side handles for easy portability) simplifies access to the system's innards.

WHAT'S NOT: Colors appeared washed out on the ADI VD-697 17-inch monitor. The DVD-ROM drive, although a welcome feature at this price, did not play our test movie automatically, and playback images on the substandard monitor looked poor.

WHAT ELSE: The unit comes with documentation for all components, but it lacks an overall system manual—a potentially frustrating omission for first-time PC owners. The well-organized system interior offers limited expansion room—three open PCI slots but only one open drive bay.

BEST USE: Providing solid power at a rock-bottom price, this computer would be a suitable purchase for people who don't demand topflight multimedia performance.

HOW NOW, BROWN COW: The brown-and-white Racer PC500C runs like a thoroughbred, not a heifer.

4 QUANTEX SB500C

NEW **WHAT'S HOT:** With a 215 on our PC WorldBench 98 tests, this Quantex scored several points above the average for a Celeron-500 system. And at only $979, it delivers pretty good bang for your buck. Packing both a modem and a network interface card, this system is ready for any kind of network connectivity. The Quantex MON-XP170DP 17-inch monitor displayed our test images with deep, rich colors, and the text stayed sharp up to the ▶

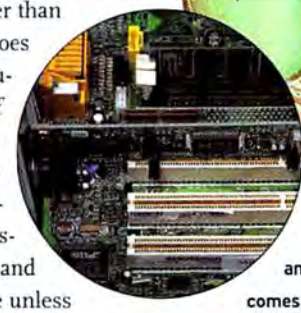
PHOTOGRAPH: KEN SMITH

maximum resolution of 1280 by 1024.

WHAT'S NOT: To take off the flimsy side of the minitower, you have to remove two screws and jimmy the side back and forth. The fairly cluttered interior lacks some expandability: There are four open bays but only one open slot.

WHAT ELSE: The large and solidly built keyboard features extra multimedia keys, but it clacks a bit when you type. The SB500c's slim system manual includes lots of screen shots; you also get a setup guide for Windows 98.

BEST USE: A strong performer for the price, this Quantex would fit into almost any business environment trying to tighten its budgetary belt.



NETWORKED WORKER: The SB500c, an entrant from Quantex's business line, comes with a network card as well as a modem, revealing its business focus.

5 DELL OPTIPLEX GX100

WHAT'S HOT: Dell's $1152 OptiPlex GX100, one of the few Celeron-based Windows NT systems the PC World Test Center has received, exceeded our expectations. Equipped with a Celeron-500 processor, the OptiPlex GX100 turned in a respectable PC WorldBench 98 score of 260, surpassing most PIII-450 systems we've tested running NT. The solidly constructed QuietKey keyboard permits smooth, soft typing. With an integrated network interface, a case lock, and built-in Wake-on-LAN management features, this machine ships business-ready.

WHAT'S NOT: The desktop case provides no unoccupied drive bays, only one open RAM slot, and just two free PCI slots. The accompanying system manual covers Windows NT only scantily and includes no information on the OptiPlex's hardware or on any component other than the monitor. (Dell does provide online documentation for all of these parts, however.) There's no way to upgrade the integrated Intel 810 system's AGP graphics and its 4MB of 3D cache unless you resort to a PCI graphics card.

WHAT ELSE: To access the GX100's interior, you simply press two buttons (one on either side of the rather flimsy plastic case) and lift off the top. Dell's 17-inch M770 monitor displays crisp text and bright colors at the standard 1024 by 768 resolution. Fortunately, Dell has replaced the original notebook-style CD-ROM drive with a faster, sturdier model.

BEST USE: With its compact size, integrated network interface, and built-in management features, the speedy OptiPlex GX100 seems destined to grace many a stall in corporate cubicle farms.

SPIN DOCTORED: Dell replaced the notebook-style CD-ROM drive in its OptiPlex GX100 with a sturdier model.

6 GATEWAY E-1400

WHAT'S HOT: This pint-size desktop takes up minimal space. And by standing it on its optional base, you can transform the E-1400 into a minitower. At the press of two buttons, the case slides off easily to display a well-organized interior where almost all add-in devices connect directly to the system board (instead of via cables).

WHAT'S NOT: You may have to struggle with the case to make it fit snugly on its chassis. Despite its neat appearance, the interior offers little expansion room, with just two open PCI slots and no available drive bays. The 6.8GB hard drive is small even for a budget system. The 15-inch Gateway EV500 monitor matches the rest of the system's compactness, but it yields fuzzy text and dull colors at the normal 800 by 600 resolution.

WHAT ELSE: Gateway supplies adequate documentation, including quick-setup and technical support guides, but it omits manuals for some of the individual components. The system's PC WorldBench 98 score of 211 is typical for a Celeron-500–based PC running Windows 98.

BEST USE: The space-saving, cable-shunning E-1400 will please corporate buyers.

7 AMAX MICROPLEX 5000

NEW **WHAT'S HOT:** System documentation comes in a great box, with a holder that slides out and dividers that keep all the manuals separated and filed—including the thick overall system manual with its detailed troubleshooting information. The standard minitower case feels a bit flimsy, but it removes and replaces easily. Even at $999, this Amax arrives with several extras, including a DVD-ROM drive and a network card.

WHAT'S NOT: On our test system, the 8X DVD-ROM drive played our movie sporadically (the image went in and out, and sometimes the player didn't work at all) until tech support instructed us to move the MPEG card to a different PCI slot. The Amax has a Celeron-533 processor, but its PC WorldBench 98 score of 206 ranks lower than the scores of most of the Celeron-500 systems we've tested.

WHAT ELSE: Although it features a well-kept interior, the Amax offers only two open bays and no open slots. The Impression 7VX 17-inch monitor shows sharp text, but colors appear a bit washed ▶

PHOTOGRAPHS: KEN SMITH

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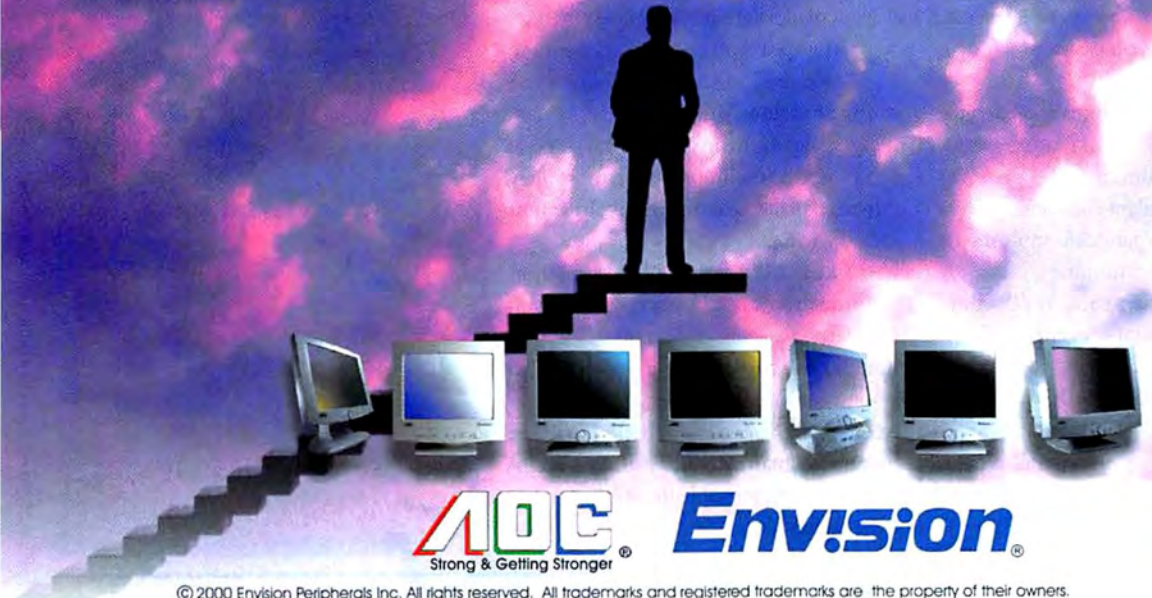

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out. The maximum resolution of 1600 by 1200 could be attained only at 256 colors—not a pretty sight.

BEST USE: With its built-in network card and low price, this Amax could be an excellent cost-cutter for the corporation that doesn't need bleeding-edge speed.

8 AXIS SYSTEMS ORION 100C DVD

WHAT'S HOT: Though the Orion 100C DVD lacks an MPEG decoder card, its 10X DVD-ROM player works well. The 17-inch ADI CM700 monitor displays crisp images. The system's documentation includes detailed diagrams and a thorough troubleshooting section.

WHAT'S NOT: With a PC WorldBench 98 score of 210, the Orion 100C DVD is a bit slower than the average Pentium III-450 machine running Windows 98. Manipulating the case cover requires considerable dexterity—and removal of four screws.

WHAT ELSE: The unit's $1168 price tag might appeal to budget-conscious buyers searching for an expandable multimedia machine with a good monitor.

BEST USE: The Orion 100C DVD would make a solid presentation system.

9 POLYWELL POLY 810CW

WHAT'S HOT: This very affordable $888 system posted a 204 on our PC WorldBench 98 tests, one of the highest scores we've seen for a Celeron-433 machine. It ships with an excellent bound manual full of in-depth computing data, and Polywell provides decent online help.

WHAT'S NOT: Accessing the interior of the tiny minitower case can be a pain: You have to remove three screws and fiddle with the cover to get it on and off. The small keyboard seemed flimsy, and the keys felt cramped when we typed. Polywell uses integrated video and sound to achieve this system's compact size; if you want to upgrade, you will have to buy a PCI graphics board.

WHAT ELSE: The Poly 810CW leaves two slots open for future upgrades, but it has no free internal drive bays and only one available externally accessible bay.

BEST USE: If space and money are constraints, this thrifty system will fit nicely into a budget office environment.

POPCORN AND PC: AMAX's budget-priced MicroPlex 5000 comes with an 8X DVD-ROM drive (complete with hardware decoding), perfect for kicking back and watching movies with your mouse.

10 PC CONNECTION EPIQ BPS4000

WHAT'S HOT: The Epiq BPS4000 ships with a quick-setup guide, a thick technical-support and warranty booklet, and a thorough system manual with detailed diagrams and illustrations. Its interior has six open drive bays and three open slots, but with a sticker price of $987, the Epiq BPS4000 is unlikely to break your budget.

WHAT'S NOT: The flimsy keyboard's keys rest too close together; the speakers produced poor sound; and the 17-inch Epiq Pionex P708 monitor yielded dull colors in our test images, headache-inducing fuzzy text at 1024 by 768 resolution, and almost illegible text at the maximum resolution of 1280 by 1024.

WHAT ELSE: To reach the Epiq's interior, you must remove three screws. The system earned a score of 206 on PC WorldBench 98—average for a Celeron-466 system running Windows 98.

BEST USE: Spending a little bit more money to obtain a better monitor might make the Epiq tolerable for offices on very tight budgets. ▶

PC Software Bundles

TECH TREND WHEN YOU open up the box containing a new PC, it's nice to find a decent software bundle: Microsoft's Office 2000 perhaps, or a good antivirus program. But what if you've got a corporate account for Office, or you've already purchased utilities? These software bundles could be a waste of money. Uninstalling software you won't use can also be a pain. We checked out several vendors to see what you could save by eliminating the software extras when you purchase a new PC.

Some budget systems include the barebones Microsoft Works suite or omit office software entirely. The default office suite bundled with CyberMax's Entrepreneur series is Corel's WordPerfect Office 2000—a capable suite, but if you already have it or another suite, you won't want to pay for it. Removing it from your system prepurchase saves you only $10, but you'll also save the time needed to uninstall it. Specifying Microsoft Office 2000 Small Business Edition instead would add $119 to the price.

Compaq's Prosignia 330 ships with Microsoft Office 2000 Small Business Edition as the default, but the company offers the same system with only Microsoft Word for $75 less. Similarly, checking out the Dell OptiPlex GX110, we found we could knock $44 off the price by eliminating Symantec Norton Antivirus from the bundle.

You might not save loads of cash, but by examining the software bundle closely, you could avoid throwing money away on software you already have.

PHOTOGRAPHS: ABOVE, KEN SMITH; BELOW, MARC SIMON

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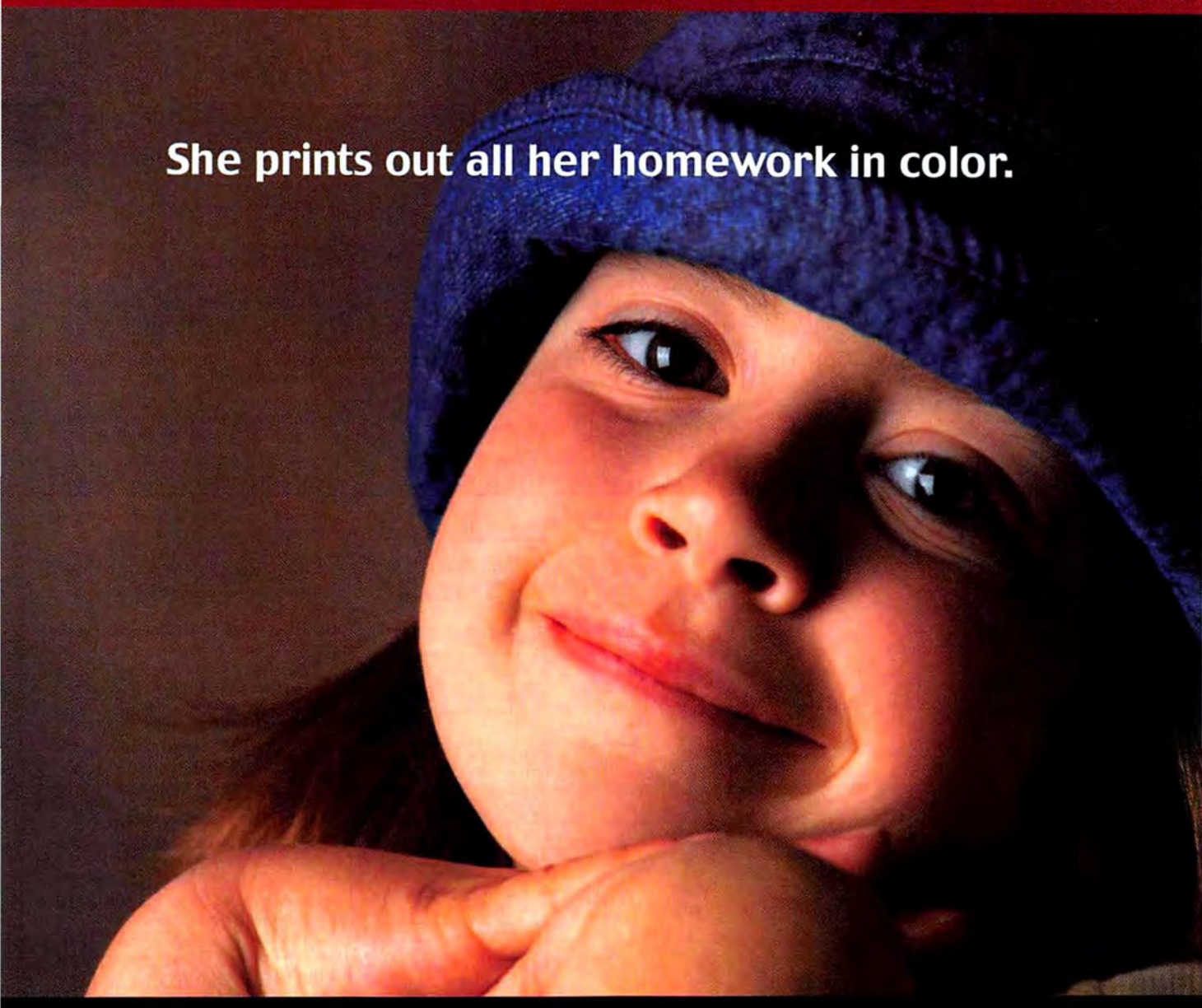

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PC WORLD TOP 15 NOTEBOOK PCs

	POWER NOTEBOOK: $2700 AND OVER	Month tested	★ Overall rating	Street price (1/7/00)	PC WorldBench 98 performance score (Faster ▶)	Base configuration
1	**Gateway Solo 9300LS** 800/846-2000 www.gateway.com	Feb 00	93	Average: $2866	Good 216	**Very good:** Pentium III-450, 15-inch active screen, touchpad, 64MB of RAM, 6GB hard drive
2	Acer TravelMate 732 TLV 800/733-2237 www.acer.com/aac	Mar 00	92	Average: $2999	Very good 235	**Very good:** Pentium III-500, 15-inch active screen, touchpad, 128MB of RAM, 9GB hard drive
3	Dell Latitude CPx H500GT 800/388-8542 www.dell.com	Mar 00	88	Expensive: $3657	Very good 222	**Very good:** Pentium III-500, 14.1-inch active screen, touchpad, eraserhead, 128MB of RAM, 6.4GB hard drive
4	Dell Inspiron 7500 R500VT 800/388-8542 www.dell.com	Feb 00	87	Very expensive: $4001	Outstanding 236	**Very good:** Pentium III-500, 15-inch active screen, touchpad, 128MB of RAM, 25GB hard drive
5	WinBook XL3 800/965-9349 www.winbook.com	Mar 00	84	Inexpensive: $2755	Very good 233	**Very good:** Pentium III-500, 14.1-inch active screen, touchpad, eraserhead, 128MB of RAM, 18GB hard drive
	MIDRANGE NOTEBOOK: $2000 TO $2699	Percent of overall rating ▶		Price: 14 percent	Performance: 20 percent	Base configuration: 5 percent
1	**Quantex W-1410** 800/896-4898 www.quantex.com	NEW	81	Inexpensive: $2199	Outstanding 229	**Very good:** Pentium III-500, 14.1-inch active screen, touchpad, 64MB of RAM, 6.4GB hard drive
2	WinBook XL2-C500 800/965-9349 www.winbook.com	NEW	79	Average: $2299	Very good 203	**Very good:** Celeron-500, 14.1-inch active screen, touchpad, 64MB of RAM, 6GB hard drive
3	NEC Versa FX 888/632-8701 www.nec-computers.com	NEW	78	Average: $2499	Good 194	**Good:** Pentium III-400, 12.1-inch active screen, touchpad, 64MB of RAM, 6GB hard drive
4	IBM ThinkPad I Series 1480 800/426-7255 ext. 4751 www.ibm.com/pc/us/thinkpad	Jan 00	78	Average: $2299	Satisfactory 183	**Very good:** Celeron-466, 14.1-inch active screen, eraserhead, 64MB of RAM, 6.4GB hard drive
5	Twinhead Powerslim 600-36 TZ43 800/995-8946 www.twinhead.com	Feb 00	76	Inexpensive: $2070	Satisfactory 182	**Good:** Pentium II-366, 12.1-inch active screen, touchpad, 128MB of RAM, 4.3GB hard drive
	BUDGET NOTEBOOK: UNDER $1999	Percent of overall rating ▶		Price: 17 percent	Performance: 17 percent	Base configuration: 5 percent
1	**HP Pavilion N3190 Notebook PC** 800/322-4772 www.hp.com	Jan 00	88	Average: $1573	Very good 185	**Satisfactory:** Celeron-433, 12.1-inch active screen, touchpad, 64MB of RAM, 4.8GB hard drive
2	Dell Latitude CPT V466GT 800/388-8542 www.dell.com	Mar 00	87	Expensive: $1978	Very good 188	**Very good:** Celeron-466, 14.1-inch active screen, touchpad, eraserhead, 64MB of RAM, 6.4GB hard drive
3	Chem USA ChemBook 7200B 800/866-2436 www.chemusa.com	NEW	85	Average: $1559	Good 166	**Satisfactory:** Celeron-366, 12.1-inch active screen, touchpad, 64MB of RAM, 4.3GB hard drive
4	Compaq Prosignia Notebook 150 800/345-1518 www.compaq.com	Nov 99	83	Average: $1499	Satisfactory 153	**Satisfactory:** AMD K6-2-380, 12.1-inch active screen, touchpad, 64MB of RAM, 4GB hard drive
5	WinBook XL2-C400 800/965-9349 www.winbook.com	Mar 00	83	Inexpensive: $1299	Very good 185	**Satisfactory:** Celeron-400, 12.1-inch dual-scan screen, touchpad, 64MB of RAM, 6.5GB hard drive
	Best Buy	Percent of overall rating ▶		Price: 20 percent	Performance: 14 percent	Base configuration: 5 percent

[1] Includes computer; adapter; power cord; and floppy, DVD-ROM, or CD-ROM drive.

[2] For more information about all the products listed in this table, select number 901 on the product information card or visit www.pcworld.com/productinfo.

[3] Due to insufficient data from survey, score is based on responses to anonymous calls for tech support.

LEXUS QUALITY FOR a Toyota price—that's what you'll get with this month's new midrange Best Buy, the Quantex W-1410. An incredible deal, this all-black, medium-size portable—loaded with a 14.1-inch screen, a respectable 6.4GB hard drive and a 6X DVD-ROM drive—is the cheapest Pentium III-500 notebook we've seen. In the power and budget charts, look to the Gateway Solo and HP Pavilion, Best Buy winners for three and four months running.

POWER NOTEBOOKS

1 GATEWAY SOLO 9300LS

WHAT'S HOT: Despite its featherweight price of $2866, the Pentium III-450–equipped Gateway Solo 9300LS posted a PC WorldBench 98 score of 216 and took the heavyweight title. Unlike many other big laptop screens, the Solo's 15-inch display feels

Extra features	Design and ease of use	Battery life (hours:min)	Travel weight (pounds) [1]	Vendor's system reliability	Tech support quality/ policies	Tech support (hours/days, charge)	Warranty for parts/labor (years)	Product info number [2]
Very good: 10X-24X CD-ROM drive, V.90 modem, ethernet adapter, multipurpose bay takes second lithium ion battery	**Outstanding:** smoothly designed presenter's dream	**Outstanding:** 5:13	**Average:** 8.6	**Good**	**Good/ Good**	24/7, toll-free	3/3	601
Outstanding: 6X DVD-ROM drive, V.90 modem, multipurpose bay takes second lithium ion battery	**Satisfactory:** comes network ready	**Very good:** 4:31	**Average:** 7.9	**Fair**	**Good [3]/ Fair**	24/7, toll-free	1/1	602
Good: 4X CD-RW drive, multipurpose bay takes second lithium ion battery	**Outstanding:** highly configurable	**Very good:** 4:02	**Average:** 8.3	**Good**	**Good/ Outstanding**	24/7, toll-free	Varies [4]/3	–
Outstanding: 6X DVD-ROM drive, V.90 modem, multipurpose bay takes second lithium ion battery, Zip 100 drive	**Very good:** storage galore and a CD-RW drive option	**Very good:** 4:22	**Very heavy:** 10.4	**Good**	**Good/ Outstanding**	24/7, toll-free	3/3	–
Good: 4X DVD-ROM drive,V.90 modem, multipurpose bay, lithium ion battery	**Average:** decked out, but a challenge to upgrade	**Satisfactory:** 2:44	**Average:** 8.4	**Fair**	**Fair/ Poor**	Varies [5]/6, toll-free	1/1	603
Extra features: 5 percent	Design and ease of use: 10 percent	Battery life: 8 percent	Weight: 8 percent	Reliability: 20 percent	Support and warranty: 10 percent			
Very good: 6X DVD-ROM drive, V.90 modem, multipurpose bay takes second lithium ion battery	**Very good:** includes TV-out port	**Good:** 3:00	**Average:** 7.7	•	**Fair [3]/ Fair**	24/7, toll-free	Varies [7]/1	604
Good: 4X DVD-ROM drive, V.90 modem, lithium ion battery	**Average:** conveniently located DVD-ROM and floppy drives	**Satisfactory:** 2:35	**Average:** 8.3	**Fair**	**Fair/ Poor**	13/6, toll-free	1/1	605
Good: 12X-24X CD-ROM drive, V.90 modem, unit takes second lithium ion battery via cable to underside of unit	**Average:** CD-ROM drive can be stand-alone CD player	**Poor:** 1:10	**Very light:** 4.1	**Fair**	**Fair/ Outstanding**	24/7, toll-free	3/3	606
Good: 4X DVD-ROM drive, V.90 modem, lithium ion battery	**Very good:** innovative Think-Light and screen covers	**Good:** 3:44	**Average:** 8.1	**Good**	**Good/ Fair**	24/7, toll-free	1/1	–
Very good: 10X-24X CD-ROM drive, V.90 modem, multipurpose bay takes second lithium ion battery	**Average:** lightweight but no docking connection	**Satisfactory:** 2:19	**Very light:** 5.4	•	**Fair [3]/ Poor**	12/5, toll-free	1/1	607
Extra features: 5 percent	Design and ease of use: 10 percent	Battery life: 8 percent	Weight: 8 percent	Reliability: 20 percent	Support and warranty: 10 percent			
Satisfactory: 10X-24X CD-ROM drive, V.90 modem, lithium ion battery	**Average:** all-in-one with external CD controls	**Satisfactory:** 2:42	**Average:** 7.4	**Good**	**Good [3]/ Poor**	24/7, toll call	1/1	608
Good: 10X-24X CD-ROM drive, multipurpose bay takes second lithium ion battery	**Outstanding:** highly configurable	**Good:** 3:05	**Average:** 8.3	**Good**	**Good/ Fair**	24/7, toll-free	1/1	–
Satisfactory: 12X-24X CD-ROM drive, V.90 modem, lithium ion battery	**Average:** easily removable hard drive	**Good:** 3:40	**Light:** 6.8	•	**Good [3]/ Fair**	24/7, toll-free	1/3	609
Satisfactory: 12X-24X CD-ROM drive, V.90 modem, lithium ion battery	**Very good:** superb built-in sound	**Satisfactory:** 2:19	**Average:** 8.1	**Fair**	**Fair/ Fair**	24/7, toll-free	1/1	610
Satisfactory: 8X-20X CD-ROM drive, V.90 modem, multipurpose bay, NiMH battery [6]	**Average:** includes TV-out and a nice screen	**Satisfactory:** 2:32	**Average:** 7.8	**Fair**	**Fair/ Poor**	Varies [5]/6, toll-free	1/1	611
Extra features: 5 percent	Design and ease of use: 10 percent	Battery life: 8 percent	Weight: 8 percent	Reliability: 20 percent	Support and warranty: 10 percent			

[4] One year on battery, three years on other parts.
[5] Thirteen hours a day M-F, 7 hours on Saturdays. No support on Sundays.
[6] Insufficient data to give a rating.
[7] Three years on CPU and main memory, one year on other parts.
[8] Unit tested with lithium ion, now ships with NiMH. Upgrading to lithium ion costs $199.

sturdy enough to withstand an occasional bump or accidental twist. The unit's 12-cell lithium ion battery far outlasted other laptop power packs in our tests, running a record-breaking 5 hours, 13 minutes.

WHAT'S NOT: Unlike Sony's VAIO notebooks (among others), Gateway doesn't provide any video-editing software to complement its high-speed IEEE 1394 port (often used to connect digital video cameras). The Solo's speakers produce fairly loud audio but have weak bass response and sound fuzzy at higher volumes.

WHAT ELSE: This beefy desktop replacement bulges with multimedia connections. In addition to the IEEE 1394 port, it comes with TV-in and -out ports and a Dolby jack for connecting a Surround Sound stereo system. The polished, black 9300LS also boasts external buttons ▶

GOT LAN? The Acer TravelMate 732 TLV's built-in RJ-45 jack plugs right into your network.

PHOTOGRAPHS: KEN SMITH

CAUSING A CHEMotion: Want to swap out or remove your hard drive for safekeeping? No worries. Taking out the ChemBook 7200B's hard drive doesn't even require a tool.

for launching applications. Two modular bays make configuration changes a snap. You can swap the floppy drive or CD-ROM drive with a second hard drive of up to 10GB (which costs $499), a SuperDisk drive ($75), or a second battery ($100).
BEST USE: Presenters and digital editors will appreciate this beautifully designed, reasonably priced notebook.

MIDRANGE NOTEBOOKS

1 QUANTEX W-1410

WHAT'S HOT: Quantex's $2199 W-1410, a bargain portable with speed and robust features, gives NEW us something to shout about. It offers Pentium III-500 performance without cutting corners on screen size, hard drive space, or vendor support.
WHAT'S NOT: The W-1410's boxy, monochrome-black looks could use a makeover. Sound quality is less than impressive.
WHAT ELSE: Speed and a big screen don't compromise the W-1410's better-than-average battery life. One power pack lasted a healthy 3 hours in our tests, and swapping out the notebook's DVD-ROM drive for a second battery ($119 extra) doubles your time. (The floppy drive is fixed.) Other nifty features include a TV-out port for watching DVD movies on a television set, an external charge gauge (so you can check battery power without booting up or removing the battery), and a volume button on the case.
BEST USE: A terrific deal for just about anyone who doesn't want to spend a lot of money for a speedy, loaded portable.

BUDGET NOTEBOOKS

1 HP PAVILION NOTEBOOK PC

WHAT'S HOT: This versatile notebook can double as a stand-alone audio CD player. Front-side buttons let you play CDs without turning the notebook on or raising the screen. The stereo speakers generate adequate sound.
WHAT'S NOT: The Pavilion's skimpy parts and labor warranty expires after one year, and extending the warranty to three years costs an extra $179. With a PC WorldBench 98 score of 185, the Celeron-433–based Pavilion performs no better than a typical PII-366 notebook.
WHAT ELSE: The $1573 Pavilion comes loaded with software, including Microsoft Works and Money 2000, as well as Quicken Basic 2000. It's relatively thin and light for a notebook with built-in floppy and CD-ROM drives: 1.7 inches tall and 6.6 pounds (not including the AC adapter).
BEST USE: Despite HP's stingy support, the Pavilion is a reasonably priced, well-designed notebook for either home or work.

ALSO NEW THIS MONTH

online **WE EVALUATED the following systems along with the others, but they didn't score high enough to reach the Top 15 Notebook PCs chart. For write-ups, visit PC World Online (www.pcworld.com/top400).**

- **Axis Systems Fusion 7700G**
- **Fujitsu LifeBook S Series**
- **Gateway Solo 9300SE**

Notebook Prices Climb

TECH TREND **UNLIKE MOST OF the computer products out there, notebook PCs aren't getting any cheaper. In fact, because of the recent memory shortage and a continued deficit in LCD materials, prices for many notebooks are increasing slightly. During our test period, the price of the Acer TravelMate 732 TLV (number two on the power chart) shot up $200 to $2999. To reflect this market trend, we've adjusted the price ranges for our budget and midrange charts, upping the price cap on budget notebooks by $300 to $1999 and raising the midrange category's ceiling to $2699. Power notebooks remain at $2700 or more.**

What's New

GOOD NOTEBOOK computers are coming in increasingly small packages these days. This month, a sub–5-pound portable makes our chart for the first time. NEC's $2499 Versa FX (see our midrange list) is the lightest, smallest notebook we've seen with a 12.1-inch active-matrix screen and a 6GB hard drive. It weighs only 4.1 pounds (3.4 pounds without the adapter, power cord, and floppy drive) and measures 11.1 inches wide, 8.8 inches deep, and just over an inch thick, yet has a near-full-size keyboard. (You must connect the CD-ROM and floppy drives externally.)

The other sub-5-pounder we reviewed this month, Fujitsu's $2699 LifeBook S Series, missed the chart. But this Fujitsu is the first ultraportable we've seen that comes standard with a modular internal bay for holding various devices, including a second battery.

Contributing Editor Carla Thornton regularly covers notebooks for PC World. ■

DOUBLE TAKE: Notebook or stand-alone CD player? When you attach the included cable, the NEC Versa FX can be either. It's one of only a few we've seen that does this double duty.

Hear the revolution

Turn your PC into a digital jukebox

The Internet is alive with great music. The MP3 revolution is changing the way we listen and record music. But this new world can be confusing and distorted if you don't have the right tools.

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PC WORLD

TOP 15 HOME PCs

	POWER SYSTEM: $2000 AND OVER	Month tested	★ Overall rating	Street price (1/17/00)	PC WorldBench 98 performance score [1] Faster	Base configuration [2]
1	**Dell Dimension XPS T650r** 800/388-8542 www.dell.com	Feb 00	93	Average: $2349	Outstanding 278	Pentium III-650, 128MB of RAM, 256KB L2 cache, 20.4GB hard drive, midsize tower case, 19-inch monitor, Windows 98
2	Quantex GX700 800/896-4898 www.quantex.com	Mar 00	91	Average: $2299	Outstanding 293	Pentium III-700, 128MB of RAM, 256KB L2 cache, 28.5GB hard drive, midsize tower case, 19-inch monitor, Windows 98
3	Micron Millennia Max 600 800/642-7667 www.micronpc.com	Mar 00	89	Inexpensive: $2124	Very good 253	Pentium III-600, 128MB of RAM, 512KB L2 cache, 20GB hard drive, midsize tower case, 17-inch monitor, Windows 98
4	Compaq Presario 5900Z-700 800/345-1518 www.compaq.com	Mar 00	88	Very expensive: $2839	Outstanding 288	AMD Athlon-700, 128MB of RAM, 512KB L2 cache, 34.2GB hard drive, midsize tower case, 19-inch monitor, Windows 98
5	HP Pavilion 8595c 800/752-0900 www.hp.com	NEW	87	Average: $2498	Outstanding 288	Pentium III-733, 128MB of RAM, 256KB L2 cache, 36.5GB hard drive, minitower case, 17-inch monitor, Windows 98
	MIDRANGE SYSTEM: $1200 TO $1999	Percent of overall rating ▶		Price: 10 percent	Performance: 20 percent	
1	**Dell Dimension L600r** 800/388-8542 www.dell.com	NEW	94	Average: $1649	Outstanding 263	Pentium III-600E, 128MB of RAM, 256KB L2 cache, 10GB hard drive, minitower case, 17-inch monitor, Windows 98
2	CyberMax Enthusiast A 550B 800/437-4596 www.cybermaxpc.com	NEW	87	Very inexpensive: $1299	Outstanding 264	AMD Athlon-550, 128MB of RAM, 512KB L2 cache, 10.3GB hard drive, midsize tower case, 17-inch monitor, Windows 98
3	Gateway Essential 500 800/315-2536 www.gateway.com	Dec 99	85	Inexpensive: $1449	Very good 230	Pentium III-500, 128MB of RAM, 512KB L2 cache, 13.6GB hard drive, midsize tower case, 17-inch monitor, Windows 98
4	Quantex M500c 800/896-4898 www.quantex.com	Dec 99	83	Very inexpensive: $1299	Good 213	Celeron-500, 128MB of RAM, 128KB L2 cache, 13GB hard drive, midsize tower case, 19-inch monitor, Windows 98
5	Micron Millennia Max 533 800/642-7667 www.micronpc.com	Feb 00	82	Average: $1717	Very good 236	Pentium III-533, 128MB of RAM, 512KB L2 cache, 13.7GB hard drive, tower case, 17-inch monitor, Windows 98
	BUDGET SYSTEM: UNDER $1200	Percent of overall rating ▶		Price: 20 percent	Performance: 15 percent	
1	**Gateway Astro** 800/315-2536 www.gateway.com	Mar 00	90	Very inexpensive: $799	Good 181	Celeron-400, 64MB of RAM, 128KB L2 cache, 4.3GB hard drive, all-in-one case, 15-inch monitor, Windows 98
2	Micron Millennia C466 800/642-7667 www.micronpc.com	Dec 99	89	Average: $953	Outstanding 203	Celeron-466, 64MB of RAM, 128KB L2 cache, 4.3GB hard drive, minitower case, 15-inch monitor, Windows 98
3	Quantex M466c 800/896-4898 www.quantex.com	Feb 00	86	Average: $999	Outstanding 209	Celeron-466, 64MB of RAM, 128KB L2 cache, 13.6GB hard drive, midsize tower case, 17-inch monitor, Windows 98
4	Dell Dimension L400c 800/388-8542 www.dell.com	Dec 99	85	Inexpensive: $909	Good 185	Celeron-400, 64MB of RAM, 128KB L2 cache, 6.4GB hard drive, minitower case, 15-inch monitor, Windows 98
5	CyberMax Enthusiast 500 CBG 800/437-4596 www.cybermaxpc.com	Mar 00	83	Expensive: $1149	Outstanding 216	Celeron-500, 128MB of RAM, 128KB L2 cache, 13GB hard drive, midsize tower case, 17-inch monitor, Windows 98
	Best Buy	Percent of overall rating ▶		Price: 25 percent	Performance: 15 percent	

[1] A system's performance word score is relative to the scores earned by other PCs running the same operating system. For more details, see "Your Guide to the Top 100" on page 193.

[2] We define vertical cases as towers (taller than 20 inches), midsize towers (15.5 to 20 inches), or minitowers (shorter than 15.5 inches); and horizontal cases as desktops (5 inches or taller) or compacts (shorter than 5 inches).

THERE'S ACTION this month on the midrange chart, as two new systems debut. One of them, Dell's Dimension L600r, grabs the top spot; it's an excellent choice if you need fast performance, a good monitor, and superior reliability. If space constraints and a tight budget limit your options, check out Gateway's $799 Astro, which remains our number one pick in the budget category.

POWER HOME PCs

1 DELL DIMENSION XPS T650R

WHAT'S HOT: Though we're beginning to see faster systems carrying more-powerful processors, this Pentium III-650 system boasts great speed for its CPU class, sprinting to a PC WorldBench 98 score of 278. In our mul-

PHOTOGRAPHS: KEN SMITH

Extra features	Setup/ ease of use	Graphics	Reliability/ support	Comments	Product info number [3]
Outstanding: NVidia GeForce 256 AGP graphics board with 32MB of RAM, 8X DVD-ROM drive, V.90 modem, Iomega Zip 100 drive	Outstanding/ Very good	Good	Outstanding/ Outstanding	**PRO:** Sizzling performance, top-notch reliability and support. **CON:** Tinny audio, requires clunky toggling between DVD and other tasks.	–
Outstanding: 3D Blaster Annihilator graphics board with 32MB of RAM, 8X DVD-ROM drive, V.90 modem, Iomega Zip 100 drive	Good/ Satisfactory	Good	Good/ Good	**PRO:** Fastest home PC we've tested, swift 3D-gaming performance. **CON:** Poorly illustrated setup sheet, inadequately marked connectors.	612
Very good: 3D Blaster Annihilator graphics board with 32MB of RAM, 8X DVD-ROM drive, V.90 modem	Outstanding/ Good	Good	Good/ Good	**PRO:** Speedy gaming performance, easy-open case. **CON:** Monitor displays fuzzy small text, documentation too basic.	613
Outstanding: 3D Blaster RIVA TNT2 Ultra graphics board with 32MB of RAM, 10X DVD-ROM drive, V.90 modem, CD-RW drive	Very good/ Good	Very good	Fair/ Fair	**PRO:** Colossal storage. **CON:** Most expensive system here, few illustrations on its setup sheet.	614
Good: NVidia Vanta TNT2 AGP graphics board with 8MB of RAM, 8X DVD-ROM drive, V.90 modem	Outstanding/ Very good	Good	Fair/ Fair	**PRO:** Storage galore, helpful tutorials and documentation. **CON:** Relatively weak graphics performance, cramped interior.	615
Extra features: 15 percent	Setup/ease of use: 5 percent	Graphics: 15 percent	R & S: 35 percent		
Good: integrated Intel 810 graphics with UMA and 4MB of 3D cache, 22X-48X CD-ROM drive, V.90 modem.	Outstanding/ Very good	Good	Outstanding/ Outstanding	**PRO:** Zippy performance; monitor displays lush colors; built-in ethernet port. **CON:** Limited expandability, fast 3D games look blocky.	–
Good: 3dfx Voodoo3 graphics board with 16MB of RAM, 8X DVD-ROM drive, V.90 modem	Satisfactory/ Satisfactory	Good	Fair/ Good	**PRO:** Very low price, fast performance, lots of room for expansion. **CON:** Monitor displays mediocre image quality.	616
Very good: 3dfx Voodoo3 3000 graphics board with 16MB of RAM, 6X DVD-ROM drive, V.90 modem, ink jet printer	Satisfactory/ Very good	Good	Fair/ Good	**PRO:** Terrific speed for the price, speedy in games, built-in ethernet port. **CON:** Low-quality monitor.	617
Very good: integrated Intel 810 graphics with UMA and 4MB of 3D cache, 6X DVD-ROM drive, V.90 modem, Iomega Zip 100 drive	Good/ Very good	Satisfactory	Good/ Good	**PRO:** Bargain price, pleasing graphics quality. **CON:** Slow 3D graphics performance, mediocre speakers.	618
Good: Diamond Viper V770 graphics board with 16MB of RAM, 8X DVD-ROM drive, V.90 modem	Outstanding/ Good	Good	Good/ Good	**PRO:** Easy access, lots of room to add peripherals, quick setup. **CON:** Highest-priced midrange PC, small fonts fuzzy at high resolutions.	619
Extra features: 10 percent	Setup/ease of use: 10 percent	Graphics: 10 percent	R & S: 35 percent		
Satisfactory: integrated Intel 810 graphics with UMA and 4MB of 3D cache, 17X-40X CD-ROM drive, V.90 modem	Outstanding/ Very good	Good	Fair/ Good	**PRO:** Lowest-priced home PC we've reviewed, incredibly easy to set up. **CON:** A tad slow, lackluster built-in speakers.	620
Satisfactory: integrated NVidia RIVA 128zx graphics with 8MB of RAM, 17X-40X CD-ROM drive, V.90 modem	Satisfactory/ Good	Satisfactory	Good/ Good	**PRO:** Relatively speedy performer, multimedia keyboard. **CON:** Limited expandability, poor-sounding speakers.	621
Satisfactory: integrated Intel 810 graphics with UMA and 4MB of 3D cache, 6X DVD-ROM drive, V.90 modem, Canon BJC-1000 printer	Good/ Satisfactory	Satisfactory	Good/ Good	**PRO:** Terrific value, fast, roomy interior with easy access. **CON:** Small fonts blurry, scant software bundle, rudimentary manual.	622
Satisfactory: integrated Intel 810 graphics with UMA and 4MB of 3D cache, 17X-40X CD-ROM drive, V.90 modem	Very good/ Very good	Good	Outstanding/ Outstanding	**PRO:** Reasonable price, integrated ethernet port. **CON:** Lackluster performance, limited range of software titles.	–
Good: integrated Intel 810 graphics with UMA and 4MB of 3D cache, 6X DVD-ROM drive, V.90 modem	Good/ Satisfactory	Satisfactory	Fair/ Good	**PRO:** Speedy, twice the memory of other budget PCs here. **CON:** Pricier than other budget systems, slow in 3D graphics.	623
Extra features: 5 percent	Setup/ease of use: 10 percent	Graphics: 10 percent	R & S: 35 percent		

[3] For more information about the products listed in this table, select number 902 on the product information card or visit www.pcworld.com/productinfo.

timedia tests, we obtained spiffy frame rates on AVI video playback and 3D games, thanks in part to the high-end NVidia GeForce 256 AGP graphics board. Dell's 19-inch M990 monitor displayed luscious colors in our graphics tests and generated crisp text (even at small font sizes) at 1280 by 1024 resolution. Dell's version of Microsoft's Natural Keyboard Pro features programmable buttons, multimedia controls, and two USB ports.

WHAT'S NOT: The swank Harman/Kardon HK595 speakers and subwoofer account for some of this PC's $2349 price. But the hefty subwoofer is paired with speakers that deliver only moderate volume and middling tonal quality. Another quibble: We had to bump up the mon- ▶

WHERE'S THE WOOF? Fancy speakers sound flat on Dell's $2349 Dimension XPS T650r.

itor's brightness to view DVD movies comfortably, and then return to the original settings for other tasks.

WHAT ELSE: The XPS T650r offers great expandability, with three open drive bays (two external and one internal) and three open slots. A plastic bar (which you can easily remove) spans the front of the case, blocking access to several of the slots. The system comes with an Iomega Zip 100 drive. Dell includes a well-illustrated setup poster, and its nicely organized troubleshooting guide tackles key maintenance issues well. The accompanying software bundle includes Microsoft Works 4.5 and Microsoft Web Publishing.

BEST USE: A great PC for the power user who wants lots of room to expand.

MIDRANGE HOME PCs

1 DELL DIMENSION L600R

WHAT'S HOT: The L600r, one of two Pentium III-600E systems we've seen, earned a PC WorldBench 98 score of 263. Graphics on the 17-inch Trinitron monitor look lush. Text was easy to read at 1024 by 768 resolution, though at higher resolutions we had to adjust the refresh rate to eliminate some distracting flicker. The Altec Lansing ACS 304 speakers and subwoofer produce rich sound. Want to create your own home network? The L600r packs a 3Com networking card that uses your phone lines to connect PCs. (You'll need to install a similar card in each of your other PCs to make a connection.)

WHAT'S NOT: The L600r posted disappointing frame-rate marks in our 3D gaming tests. Video playback looked blocky on both Redline Racer and Incoming. Frame rates for AVI playback, on the other hand, were excellent. Both results are consistent with those of other systems that use Intel's integrated 810 chip set. One free PCI slot and one free drive bay limit the system's expandability.

WHAT ELSE: System setup is a snap thanks to a helpful, well-illustrated instruction sheet and clearly marked cables and connectors. A reference and troubleshooting manual provides lots of basic maintenance advice. A comprehensive help system resides in the PC's hard drive. The robust software bundle includes Microsoft's Worksuite 99.

BEST USE: The speedy L600r can handle most home or home-office tasks, as long as you avoid fast-moving games and other demanding graphics applications.

BEHIND THE GREEN LATCH: The power supply on the Dell Dimension L600r swings out for easy access when you press the release mechanism on the case interior (see inset).

BUDGET HOME PCs

1 GATEWAY ASTRO

WHAT'S HOT: The Astro's all-in-one case makes it easy to set up. A well-written manual and an online-based "Quick Answers" database cover maintenance and how-to topics. The entire system is the size of a 15-inch monitor, with a slightly swollen base. Budget shoppers will like the Astro's $799 price.

WHAT'S NOT: The compact design makes upgrades almost impossible. You can't remove the case to add new components, and you have to send the unit to Gateway for repairs. With a PC WorldBench 98 score of 181, the Astro trails other Celeron-400–based home PCs.

WHAT ELSE: Text on the Astro's 15-inch monitor looked crisp at 800 by 600 resolution. Colors appeared realistic but not rich.

BEST USE: The compact, user-friendly Astro suits PC novices looking for a reliable, low-cost machine.

A GENEROUS $390 price cut raises Compaq's souped-up Presario 5900Z-700 a notch in the power rankings.

What's New

WE TESTED SEVEN new systems this month, but only three of them managed to achieve the scores necessary to muscle their way onto the charts.

Debuting at number two on the midrange chart is CyberMax's Enthusiast A 550B. Its AMD Athlon-550 CPU performs on a par with Intel's PIII-600, and the 550B costs less than many PIII systems. Our advice? Use those savings to upgrade from the monitor bundled with the system to a flat-screen display.

Also new is Hewlett-Packard's 8595c, the first system packing a Pentium III-733 CPU to grab a *Top 15 Home PCs* ranking. The HP 8595c has a huge 36.5GB hard drive, too. Despite the HP's impressive PC WorldBench 98 score of 288, however, the PIII-700–based Quantex GX700 remains the fastest home PC we've seen, with a PC WorldBench 98 score of 293.

Kirk Steers is a contributing editor for PC World. ■

ALSO NEW THIS MONTH

We evaluated the following systems along with the others, but they didn't score high enough to reach the *Top 15 Home PCs* chart. For write-ups, visit PC World Online (www.pcworld.com/top400/newhomepcs).

- Compaq Presario 3550
- CompUSA HSP667
- Idot Explora A400
- Sony PC 547DS

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PC WORLD

TOP 10 PRINTERS

	INK JET PRINTER	Street price (1/13/00)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/color graphics	Comments	Product info number
1	HP DeskJet 812C 800/752-0900 www.hp.com	$149	91	3.7/0.5	Good/ Good	**FEATURES:** Rated 5.1 ppm monochrome/3.1 ppm color. 600-by-600-dpi maximum resolution. 100 sheets input, 50 output. **SUMMARY:** Admirable print quality, especially at this price. Printer is nearly identical to the HP DeskJet 882C but costs $100 less and is slower at both graphics and text. Costs of consumables add up quickly.	625
2	HP DeskJet 932C (NEW) 800/752-0900 www.hp.com	$199	89	3.6/0.7	Good/ Good	**FEATURES:** Rated 4.5 ppm monochrome/2 ppm color. 2400-by-1200-dpi maximum resolution. 100 sheets input, 50 output. **SUMMARY:** The 932C debuts at number two with good text quality, sharp gray-scale images, and detailed—if somewhat light—color graphics. It has acceptable speed for both text and graphics, especially for the price.	626
3	Lexmark Z51 Color Jetprinter 800/539-6275 www.lexmark.com	$199	87	3.9/0.5	Good/ Very good	**FEATURES:** Rated 10 ppm monochrome/5 ppm color. 1200-by-1200-dpi maximum resolution. 100 sheets input, 50 output. **SUMMARY:** A $50 drop in price bumps the Z51 into the home market, but it's still a small-business wonder. It has great extras, including a USB port and top-notch paper-handling. Print quality is good, but speed could be better.	627
4	Canon BJC-6000 800/652-2666	$179	86	4.4/1.1	Very good/ Adequate	**FEATURES:** Rated 8 ppm monochrome/5 ppm color. 1440-by-720-dpi maximum resolution. 130 sheets input and output. **SUMMARY:** The quick BJC-6000 is now $20 cheaper. It delivers fast text speed and strong print quality, but graphics are merely adequate. The printer also offers optional networking.	628
5	HP DeskJet 970Cse 800/752-0900 www.hp.com	$399	85	4.3/0.7	Very good/ Good	**FEATURES:** Rated 6.5 ppm monochrome/5.3 ppm color. 600-by-600-dpi maximum resolution. 150 sheets input, 50 output. **SUMMARY:** Great SOHO printer with built-in duplexer produces good-looking text and lines. Colors on graphics appear a bit faded, though output improves dramatically using ink-jet paper.	629
6	Compaq IJ750 800/345-1518 www.compaq.com	$149	82	2.7/0.3	Good/ Good	**FEATURES:** Rated 7 ppm monochrome/3.5 ppm color. 1200-by-1200-dpi maximum resolution. 100 sheets input, 25 output. **SUMMARY:** A great deal for the price, this model delivers good all-around print quality and reasonable text performance. Images are detailed, but colors can be off somewhat.	630
7	HP DeskJet 882C 800/752-0900 www.hp.com	$249	80	4.3/0.8	Good/ Good	**FEATURES:** Rated 5.1 ppm monochrome/3.6 ppm color. 600-by-600-dpi maximum resolution. 100 sheets input, 50 output. **SUMMARY:** Impressive print quality on text and graphics—including realistic photographs—is still the hallmark of this small-office model. Consumables cost less for the 882C than for the DeskJet 812C.	631
8	Lexmark Z11 Color Jetprinter 800/539-6275 www.lexmark.com	$99	79	2.2/0.4	Good/ Adequate	**FEATURES:** Rated 4 ppm monochrome/2.5 ppm color. 1200-by-1200-dpi maximum resolution. 100 sheets input, 25 output. **SUMMARY:** Lowest-priced unit on the chart delivers acceptable output, particularly considering its single-cartridge design. Colors are adequate, if a bit oversaturated, and text is slightly shadowed.	631
9	Lexmark 3200 Color Jetprinter 800/539-6275 www.lexmark.com	$129	76	2.2/0.4	Good/ Good	**FEATURES:** Rated 6 ppm monochrome/2.5 ppm color. 1200-by-1200-dpi maximum resolution. 100 sheets input, 25 output. **SUMMARY:** Offers solid print quality for a reasonable price, but the unit could be sturdier, and it tends to run noisily. Produces better color graphics than the less-expensive Lexmark Z11 and has dropped in price by $20.	632
10	Epson Stylus Color 760 800/463-7766 www.epson.com	$229	74	3.8/1.2	Good/ Adequate	**FEATURES:** Rated 7 ppm monochrome/6 ppm color. 1440-by-720-dpi maximum resolution. 100 sheets input, 30 output. **SUMMARY:** Epson's midrange ink jet offers sharp text and quick printing. Color graphics printed on plain paper aren't great, but photographs are fit for framing when printed on glossy paper.	–

Best Buy | Recommended for home | Recommended for printing photos | All products: 903

TEST PC WORLD CENTER **HOW WE TEST** The overall rating we assign to each ink jet printer is based on a combination of six measures, given the following weightings: 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.

EVERYTHING OLD IS NEW again as price reductions move several veteran ink jet printers around on our Top 10 chart. Of the five units that came to our Test Center this month—two new models from Hewlett-Packard, two new Epsons, and a revamped high-end Lexmark—only one made the list.

HP's DeskJet 932C jumps onto the chart in second place, with an aggressive $199 price and speedy 3.6-page-per-minute text

printing that will definitely keep your home office moving. The 932C has both USB and parallel ports, and the removable back cover lets you install an optional $79 duplexer for printing on both sides of a page automatically. This DeskJet prints text clearly, though with a slightly grayish cast instead of solid black. It produces sharp, narrow lines that look almost as good as those from a monochrome laser, and it turns out lovely, subtly shaded gray-scale graphics. Color images appear rich and true to life, showing fine detail on ordinary paper and breathtaking quality on (slightly costlier) ink jet paper.

The 932C's design is undeniably cool. Its bulbous curving form eschews straight lines and blends several leathery shades of tan. Unfortunately, it doesn't look as cool with legal-size paper hanging out the front—HP skimped on plastic by snipping off the paper tray at letter-size length.

HP's other new printer, the DeskJet 952C, closely resembles the 932C. Print quality is identical: The 952C turns out the same sharp text, crisp lines, and rich graphics as the 932C. It prints text just a smidgen faster, at 3.9 ppm, but costs 50 percent more, at $299—keeping it off our chart. Digital photography initiates might like the 952C's paper tray, which has an extra slot to accommodate a stack of snapshot-size glossy paper. But otherwise, the printer offers no significant advantages over the less expensive 932C.

NETWORK NEWS?

LEXMARK DESIGNED the Optra Color 45n ink jet to be a network printer, but on its initial trip through the PC World Test Center in February 1999, the unit poked along at only 2.7 ppm on text and 0.3 ppm on graphics. The 45n ran as slowly as an inexpensive home ink jet, despite its exorbitant $1149 price. We expected new software drivers and testing on our ethernet network to set the 45n humming, but it performed no better on retests. Print quality also lagged: Text appears sharp and clear, even in small sizes, but narrow lines are smudged and graphics look dark and grainy, with noticeable banding. Clearly, the same pile of money would be more wisely spent on a low-cost color laser printer (see March *Top 10 Printers*, www.pcworld.com/maroo/printers). But the Lexmark has one advantage over color lasers: It prints tabloid-size documents for a lot less. You'd have to spend $3400 for the least-expensive tabloid-size color laser, the Minolta QMS Magicolor 6100N.

EPSON'S EFFORTS

EPSON'S NEW STYLUS Color 1160 also sports a wide body, and it prints documents up to 13 inches across and 44 inches long. A high $449 price tag keeps the 1160 off the Top 10 chart, but it still might be a good choice for some people. For one

AN IMPRESSIVE DEBUT at number two: The HP DeskJet 932C offers good print quality and stylish design for a very reasonable $199 price.

thing, it's fast—turning out text at a zippy 4.5 ppm and graphics at 1.2 ppm. We liked the 1160's clean text but were disappointed by the wretched job it did printing narrow parallel lines. Another weakness is the unit's somewhat washed-out color graphics (though they look much better on more expensive coated paper). And like many other Epsons, the 1160 includes a removable paper support that seems to fall off whenever you touch the printer. The 1160's driver, however, includes features more common in photo-editing software, such as sharpen-image and soft-focus settings, and a sepia-tone look. Epson does not bundle software with the 1160, but it includes a coupon for your choice of two free software packages and offers three other packages for a total of $60. A number of respectable business and graphics products are included.

Another new Epson, the Stylus Color 660, also misses the chart, despite a bargain $129 price. It's slow compared to other printers in its price range—2.3 ppm on text and 0.6 ppm on graphics—and its print quality leaves a lot to be desired. Text has a slight shadow, large letters are noticeably rough around the edges, and narrow lines run into each other to form blocks of ink. Both gray-scale and color graphics appear rough and somewhat out of focus. Plus, the 660 is noisy. On the positive side, Epson bundles a great photo-editing software package and provides a coupon for software geared toward children and various home uses.

—Dan Littman

PRINT QUALITY SAMPLES

HP Shines With Rich, Detailed Images

HP DESKJET 932C

HP's addition to the chart offers readable—if slightly faded—text, detailed grays, and rich color graphics. Try printing on ink jet paper for truly beautiful images.

EPSON STYLUS COLOR 660

A $129 price tag doesn't overcome the 660's slow speed and poor print quality. Jagged text, smudged narrow lines, and dark images keep it off the chart.

LEXMARK OPTRA COLOR 45N

We expect more from Lexmark. Text is sharp; but grays lack detail, while color images are grainy and show banding. An inexpensive laser printer is a better buy.

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TOP 10 MONITORS

	17-INCH MONITOR	Month tested	Street price (1/15/00)	Overall rating	Quality of text/graphics	Comments	Product info number
1	**Mitsubishi Diamond Plus 71** 800/843-2515 www.mitsubishi-display.com	Nov 99	$309	90	Excellent/ Excellent	**FEATURES:** 15.9-inch viewable area, .25mm stripe pitch Diamondtron tube, up to 85-Hz refresh rate,[1] Plug and Play ready,[2] TCO'95 compliant, three-year warranty, 12-hour daily toll-free support. **SUMMARY:** $20 price cut keeps model competitive; best picture quality. Easy-to-navigate controls are set on retracting panel.	678
2	**Sony CPD-E200** 888/476-6972 www.sony.com/displays	Feb 00	$379	89	Very good/ Excellent	**FEATURES:** 15.6-inch viewable area, .24-.25mm variable stripe pitch FD Trinitron tube,[3] up to 85-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, one-year warranty, 24-hour toll-free support. **SUMMARY:** Gorgeous colors, razor-sharp text override chintzy warranty. On-screen controls accessed under front bezel.	679
3	NEC MultiSync FE700 800/632-4636 www.nectech.com	Feb 00	$279	87	Very good/ Excellent	**FEATURES:** 15.6-inch viewable area, .25mm stripe pitch Diamondtron NF tube,[3] up to 97-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, three-year warranty, 11.5-hour weekday toll-free support. **SUMMARY:** Rich Web-page and photo colors. Text looks very good but lacks the Diamond Plus 71's sharpness.	680
4	CTX PR705F 800/888-9052 www.ctxintl.com	NEW	$349	86	Excellent/ Very good	**FEATURES:** 15.9-inch viewable area, .24-.25mm variable stripe pitch FD Trinitron tube,[3] up to 105-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, three-year warranty, 12-hour weekday toll-free support. **SUMMARY:** Great for word processing and spreadsheets. Includes one USB port but lacks advanced controls.	681
5	Princeton AGX 740 800/747-6249 www.princetongraphics.com	NEW	$299	86	Very good/ Excellent	**FEATURES:** 15.8-inch viewable area, .25mm stripe pitch Diamondtron tube, up to 85-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, three-year warranty, 9-hour daily toll-free support. **SUMMARY:** Competitive price; lively colors on photos. Offers high-end controls but limited zoom settings. Short support hours.	682
6	Hitachi SuperScan 650 800/441-4832 www.hitachidisplays.com	Jan 00	$319	86	Very good/ Excellent	**FEATURES:** 16-inch viewable area, .26mm dot pitch tube, up to 85-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, three-year warranty, 11.5-hour weekday toll-free support. **SUMMARY:** Space-saving design, brisk colors, and crisp text. Short support hours; on-screen controls require extra button-pressing.	683
7	Dell UltraScan P780 800/388-8542 www.dell.com	Nov 99	$385	84	Very good/ Excellent	**FEATURES:** 15.9-inch viewable area, .24-.25mm variable stripe pitch FD Trinitron tube,[3] up to 100-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, three-year warranty, 24-hour toll-free support. **SUMMARY:** Drops three notches as cheaper units deliver comparable image quality. Small type gets blurry on spreadsheets.	–
8	DecaView GF387 888/707-6688 www.decaview.com	Jan 00	$319	84	Very good/ Very good	**FEATURES:** 15.9-inch viewable area, .25mm stripe pitch Diamondtron tube, up to 118-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, three-year warranty, 10-hour weekday toll-free support. **SUMMARY:** $50 price drop brings monitor back on chart. Crisp text at small point sizes; on-screen controls are hard to use.	684
9	IBM P76 800/426-7255 www.pc.ibm.com/options	Feb 00	$429	83	Very good/ Excellent	**FEATURES:** 15.6-inch viewable area, .24-.25mm variable stripe pitch FD Trinitron tube,[3] up to 117-Hz refresh rate,[1] Plug and Play ready,[2] TCO'99 compliant, three-year warranty, 24-hour toll-free support. **SUMMARY:** Bold graphics offset high price and minuscule on-screen controls that are hard to press.	–
10	Panasonic Panasync E70i 800/742-8086 www.panasonic.com/alive	Jan 00	$299	83	Satisfactory/ Excellent	**FEATURES:** 15.9-inch viewable area, .27mm dot pitch tube, up to 87-Hz refresh rate,[1] Plug and Play ready,[2] three-year warranty, 10-hour weekday toll free support. **SUMMARY:** $90 price drop lifts model onto the chart. Great colors, but text blurs on word processing documents; shorter support hours than competitors offer.	685

Best Buy For reviews of products that didn't make the chart, visit www.pcworld.com/t10monitors. All products: 907

TEST PC WORLD CENTER **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), price (25 percent), features and ease of use (20 percent), and service and support (5 percent). The best possible overall rating is 100. Data based on tests designed and conducted by PC World Test Center. All rights reserved. [1]Highest refresh rate at 1024 by 768 resolution. [2] Plug and Play monitors and graphics cards can communicate bidirectionally. Windows 95 does not fully utilize monitor Plug and Play. [3] Uses an aperture grille with a variable pitch smaller at the center than around the perimeter.

TWO HANDSOME, competitively priced models from CTX and Princeton debut this month. The CTX PR705F offers first-rate text quality and a USB port. Princeton's AGX 740 comes with a low price, brisk colors and high-end controls. For a fourth month, Mitsubishi's Diamond Plus 71 clinches the top spot, thanks to its excellent image quality. Models from Acer, Compaq, Hansol, Iiyama, and NEC missed. Next month we tackle 19-inchers. ▶

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PC WORLD

TOP 10 GRAPHICS BOARDS

	AGP BOARD	Month tested	Street price (2/5/00)	Overall rating	Mixed-media business rating	3D rating	Features rating	Comments	Product info number
1	Guillemot Maxi Gamer Xentor 32 877/484-5536 www.guillemot.com	Feb 00	$189	91	Very good	Excellent	Good	**FEATURES:** 2X AGP, NVidia RIVA TNT2 Ultra chip, 32MB of SDRAM, 300-MHz RAMDAC, video-out, bundled 3D games—Interplay's Kingpin and UbiSoft's Speed Busters. **SUMMARY:** Great 3D speed and $11 price drop make this an excellent buy for gamers.	690
2	Matrox Millennium G400 Max 800/361-1408 www.matrox.com/mga	retested this month	$209	90	Excellent	Very good	Very good	**FEATURES:** 4X AGP, Matrox G400 Max chip, 32MB of SGRAM, 360-MHz RAMDAC, video-out, two VGA ports, bundled Micrografx Picture Publisher and Simply 3D, plus 3D game. **SUMMARY:** Performance and dual-display support overcome high price.	691
3	Diamond Viper II 800/468-5846 www.s3.com	Mar 00	$199	89	Very good	Excellent	Fair	**FEATURES:** 4X AGP, S3 Savage 2000 chip, 32MB of SDRAM, 350-MHz RAMDAC, video-out, bundled 3D game—Acclaim's TrickStyle. **SUMMARY:** Terrific choice for devotees of Quake 3 Arena, where it delivered 69 frames per second in 32-bit mode.	692
4	ELSA Erazor III Pro 800/272-3572 www.elsa.com	Feb 00	$149	88	Excellent	Good	Fair	**FEATURES:** 4X AGP, NVidia RIVA TNT2 Pro chip, 32MB of SGRAM, 300-MHz RAMDAC, bundled ELSA MainActor video-editing tool. **SUMMARY:** Attractive option for business graphics and gaming, thanks to solid performance and $20 price drop.	693
5	Matrox Millennium G400 32MB 800/361-1408 www.matrox.com/mga	Feb 00	$179	88	Excellent	Fair	Very good	**FEATURES:** 4X AGP, Matrox G400 chip, 32MB of SGRAM, 300-MHz RAMDAC, video-out, two VGA ports, bundled Micrografx Picture Publisher and Simply 3D, plus 3D game. **SUMMARY:** Slower in 3D than its G400 Max sibling, but gets $20 price cut.	694
6	Creative Labs 3D Blaster Annihilator 800/998-1000 www.creative.com	Feb 00	$250	87	Excellent	Excellent	Fair	**FEATURES:** 4X AGP, NVidia GeForce 256 chip, 32MB of SDRAM, 350-MHz RAMDAC, bundled E-Color Colorific and 3Deep color calibration tools. **SUMMARY:** An expensive upgrade (due to latest NVidia processor), but great for hard- core Quake 3 fans.	695
7	Diamond Stealth III S540 Xtreme 800/468-5846 www.s3.com	Feb 00	$129	87	Good	Good	Fair	**FEATURES:** 4X AGP, S3 Savage4 Xtreme chip, 32MB of SDRAM, 300-MHz RAMDAC, bundled PowerPoint plug-in from CrystalGraphics. **SUMMARY:** This board offers a viable choice for any budget-conscious graphics board shopper.	696
8	ELSA Erazor III 800/272-3572 www.elsa.com	retested this month	$129	86	Very good	Good	Fair	**FEATURES:** 4X AGP, NVidia RIVA TNT2 chip, 32MB of SDRAM, 300-MHz RAMDAC, no bundled applications. **SUMMARY:** Affordable for office use and occasional gaming. Costs $20 less than number-four sibling but is a tad slower in 2D business apps.	697
9	3dfx Voodoo3 3000 800/234-4334 www.3dfx.com	Feb 00	$150	86	Very good	Good	Fair	**FEATURES:** 2X AGP, 3dfx Voodoo3 chip, 16MB of SDRAM, 350-MHz RAMDAC, bundled 3D games—GT Interactive's Need for Speed III and Unreal. **SUMMARY:** Speed and video-out suit it for games, but it lacks 32-bit rendering support in 3D graphics.	698
10	Creative Labs 3D Blaster Annihilator Pro 800/998-1000 www.creative.com	NEW	$300	85	Excellent	Excellent	Very good	**FEATURES:** 4X AGP, NVidia GeForce 256 chip, 32MB of DDR SGRAM, 350-MHz RAMDAC, bundled color calibration tools and 3D games. **SUMMARY:** Most expensive board here is fastest in 3D, pumping out 78 frames per second in Quake 3 at 32-bit mode.	699

Best Buy For reviews of other new graphics boards that we tested this month, visit www.pcworld.com/t10graphics. All products: 908

TEST PC WORLD CENTER **HOW WE TEST** We test boards under Windows 98. Business tests include PC WorldBench 98. Our 3D-gaming score is based on four games, each evaluated on frame rate and image quality. We test AGP boards in a Dell Dimension XPS T600 with a PIII-600 and 128MB of RAM. Overall rating is based on performance (AGP 42.5 percent, PCI 45 percent), features (AGP 27.5 percent, PCI 25 percent), price (20 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.

WHETHER YOU'RE upgrading the graphics on your office PC or adding 3D punch to your gaming machine, you'll find the board you need here. Guillemot's Maxi Gamer Xentor 32 tops the all-AGP list with fine 3D performance and a moderate price. Meanwhile, Creative Labs' 3D Blaster Annihilator Pro runs like the wind even when handling 3D graphics in 32-bit mode; its 3D Blaster RIVA TNT2 Ultra sibling has been discontinued. ▶

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PC WORLD

TOP 10 MODEMS

	INTERNAL V.90 MODEM	Month tested	Street price (1/25/00)	Overall rating	56-kbps downloads/ 33.6-kbps transfers (min:sec per MB)	Comments	Product info number
1	Viking 56K Windows ISA Modem 800/338-2361 www.vikingcomponents.com	Feb 00	$40	84	3:40/6:11	**FEATURES:** Supports K56flex, ISA card, Lucent chip set, V.80 videoconferencing, MNP-10 error control, MNP-10EC, distinctive ring, voice mail, QuickLink Message Center III software. **SUMMARY:** Good performance and great price keep this controllerless modem at the top. Includes a five-year warranty and 24-hour toll-free support.	703
2	Creative Labs Modem Blaster Flash 56 PCI 408/719-5180 www.creative.com	Feb 00	$40	84	3:39/5:41	**FEATURES:** Supports K56flex, PCI card, Rockwell chip set, MNP-10 error control, V.80 videoconferencing, distinctive ring, voice mail, speakerphone, ASVD, Caller ID, QuickLink Message Center III software. **SUMMARY:** Full-featured, controllerless modem with good download rates. Backed by daily tech support and a three-year warranty.	704
3	Zoom FaxModem 56K PCI Dualmode 800/631-3116 www.zoom.com	Feb 00	$60	83	3:45/6:07	**FEATURES:** Supports K56flex, PCI card, Lucent chip set, V.80 videoconferencing, distinctive ring, voice mail, Communicate Lite software. **SUMMARY:** Reasonable price and attractive voice features, but as with the PCI Dualmode's ISA sibling, 33.6-kbps downloads are a bit slow. Backed by long support hours and a seven-year warranty.	705
4	Trendware Trendnet High Speed Internal Voice/Fax PCI Modem 888/326-6061 www.trendware.com	NEW	$40	83	3:12/5:51	**FEATURES:** PCI card, Rockwell chip set, V.80 videoconferencing, distinctive ring, voice mail, speakerphone, Cheyenne BitWare software. **SUMMARY:** True to its name, this "high-speed" model races on both clean and impaired lines. Five-year warranty and bargain price give this model a competitive edge.	706
5	MaxTech XPVS56P/RS NetPacer Pro Internal PCI Data/Voice/Fax Speakerphone Modem 800/936-7629 www.maxtech.com	Feb 00	$49	83	3:14/5:54	**FEATURES:** Supports K56flex, PCI card, Rockwell chip set, V.80 videoconferencing, distinctive ring, voice mail, speakerphone, Caller ID, SuperVoice software. **SUMMARY:** A $14 price increase knocks this modem down two spots. Fast and still inexpensive, but somewhat short on features and documentation.	707
6	3Com U.S. Robotics Winmodem PCI 800/638-3266 www.3com.com	Feb 00	$60	82	3:41/5:49	**FEATURES:** Supports x2, PCI card, USR/TI chip set, V.80 videoconferencing, distinctive ring, Caller ID, RapidComm software. **SUMMARY:** Data transfer with the Ascend dial-up server could be better, but this model still turns in solid performance. 3Com offers a lifetime warranty, but tech support calls are not toll free.	708
7	Diamond Multimedia SupraMax 56K PCI 800/468-5846 www.diamondmm.com	NEW	$40	82	3:27/5:41	**FEATURES:** Supports K56flex, PCI card, Conexant chip set, MNP-10EC, V.80 videoconferencing, distinctive ring, voice mail, Caller ID, FaxTalk software. **SUMMARY:** Above average performance overall and particularly fast on noisy lines. Five-year warranty and long support hours, but no toll-free phone support.	709
	PC CARD V.90 MODEM						
1	3Com Megahertz 56K Global GSM and Cellular Modem PC Card 800/638-3266 www.3com.com/mobile	retested this month	$199	86	3:34/5:59	**FEATURES:** Supports x2, 3Com/TI chip set, direct cellular connection, voice mail, speakerphone, Caller ID, digital line voltage protection and alert, Xjack pop-out phone jack, BVRP Phone Tools software. **SUMMARY:** Loaded but expensive. Linux and Windows compatible with fast 56-kbps download time. Comes with a lifetime warranty.	710
2	Psion Gold Card Global 56K + Fax 800/997 7466 www.psiondacom.com	retested this month	$165	80	3:50/5:38	**FEATURES:** Supports K56flex, Rockwell chip set, direct cellular connection, MNP-10 error control, MNP-10EC, V.80 videoconferencing, callback, digital line voltage protection and alert, BVRP Phone Tools software. **SUMMARY:** Geared for roadies, this well-priced modem works with some GSM cell phones. Backed by a lifetime warranty.	711
3	Linksys EtherFast 10/100+ 56K Modem 800/546-5797 www.linksys.com	retested this month	$179	78	3:34/6:01	**FEATURES:** Supports K56flex, Lucent chip set, MNP-10 error control, MNP-10EC, SuperFax software. **SUMMARY:** Business travelers will appreciate the dongleless modem features and built-in dual LAN and modem port. This modem shines when making 56-kbps connections but lacks voice features.	712

Best Buy For reviews of products that didn't make the chart, visit www.pcworld.com/t10modems. All products: 910

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 LOW-COST PCI internal modems make the chart this month, leaving number one Viking as the sole ISA survivor. Trendware's new model performed exceptionally fast, with the shortest 56-kbps downloads here, while Diamond's latest SupraMax did well overall. The PC Card chart adds a Linksys modem to its top three—the EtherFast offers network and modem connectivity in one PC Card plus great V.90 performance. ■

HERE'S HOW

WINDOWS TIPS SCOTT DUNN

See More, Get More From Windows 2000

THE WEB VIEW PANE of the Windows 2000 Explorer vastly improves your preview of common bit-map image formats (such as GIF, JPEG, and BMP), letting you zoom in and out or launch a larger preview window. To activate this feature for a given folder, right-click an empty area of the folder and choose *Customize This Folder*. Click *Next*, check *Choose or edit an HTML template for this folder*, uncheck the other boxes (if necessary), and click *Next* once again. If you haven't enabled the Web view for this folder, a prompt will remind you to do so. If you receive the prompt, click *OK*. Select *Image Preview* from the Customize list, and click *Next* and then *Finish*. To preview any file, just select its icon on the right; you'll see the preview to the left of the list of files.

If you wish, you can increase the preview size somewhat: Enlarge the Explorer window, close the Folder pane on the left (by clicking the *X* to the right of the word Folders at the top of the column), or do both. But this solution goes only so far. To enlarge the preview area, you have to click the *Full Screen Preview* button,

but this opens a separate window, defeating the convenience of previewing files as you browse the list. If you're willing to roll up your sleeves and edit the folder's template file (folder.htt), you can enlarge the preview area to better use the Web view column.

Here's what to do. As before, right-click an empty area of a folder that contains your images, and choose *Customize This Folder*. Click *Next*, make sure *Choose or edit an HTML template for this folder* is checked, uncheck the other boxes (if necessary), and click *Next* again. Select *Image Preview* from the list, but this time also check *I want to edit this template*. Click *Next* to see the folder.htt file open in Notepad. The HTML code may look scary, but you'll be making only a few changes.

First, find the line that begins with #ThumbDiv (it should be visible without any scrolling). In that line change 'top: 50%' to **top: 5%**. Then change 'height: 50%' to **height: 95%**. The preview will now use most of the height in the Web view column. Next, choose *Edit•Replace*. Type **300** in the 'Find what' box and **500** in the 'Replace with' box. Click *Find Next*. Make sure the 300 this search finds is part of an expression line containing 'panelwidth > 300' or 'panelwidth = 300'. Click *Replace* twice (there should be only two occurrences in the file). Click *OK*, and then click *Cancel* to close the Replace dialog box. This change allows the preview area to keep expanding as you increase the size of the Explorer windows—especially helpful if you use a high-resolution display.

The changes you've made so far will enlarge the preview area, covering up the file information that normally appears in the Web view column. This isn't a concern, since you can see most of that information in the file list just by choosing *View•Details*. However, the Web view col-

ILLUSTRATION: PHIL ANDERSON

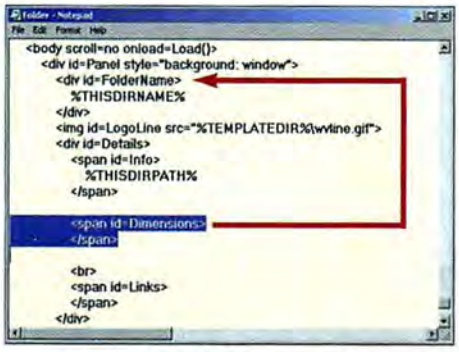


FIGURE 1: CUT AND PASTE lines in the folder.htt file to keep the image dimensions viewable.

umn gives some information not available in the file list's Detail view, like the dimension of the image in pixels. To make the image dimensions readily visible, you can move the image information to the top of the column so the preview image won't cover it. Choose *Edit•Find*, then type **** and click *Find Next*. When Explorer finds the text, click *Cancel* to close the Find dialog box. Now press **<Home>**, then press and hold down **<Shift>** while you press the **<Down arrow>** key two times to select the entire line that was found as well as the next line (which should read simply '') as shown in **FIGURE 1**. Choose *Edit•Cut*. Now move the cursor several lines up until it's positioned at the beginning of the line that reads ' '. Choose *Edit•Paste* so that the two lines you cut now come before the FolderName line. Then choose *File•Exit*, click *Yes* when prompted to save changes, and click *Finish* in the Customize This Folder Wizard.

Now when you open the folder and select a file on the right, the preview area will occupy most of the Web view column and show the image dimensions above the preview (see **FIGURE 2**). If you don't get the results you want, right-click an empty area in the folder and choose *Customize This Folder*. Click *Next*, select *Remove customizations*, click *Next*, make sure *Restore default folder template* is checked, click *Next*, and click *Finish*. Then try again.

The next tip helps you get the most out of this preview area. Happy browsing!

HIDDEN SHORTCUTS ENHANCE IMAGE PREVIEW

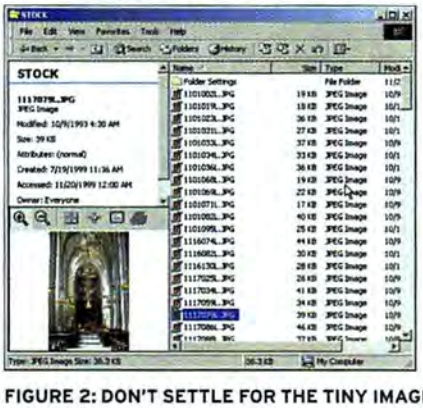
IF YOU HAVE one or more folders using Image Preview mode (see previous tip), a few keyboard tricks can make short work of zooming and panning: Hold down the **<Shift>** key to temporarily reverse the direction of zooming. Hold down **<Ctrl>** to pan around the image. For example, if you're using the zoom-in tool to enlarge an area and you go too far,

don't bother selecting the zoom-out tool to fix things; just **<Shift>**-click in the preview to zoom out. Conversely, when the zoom-out tool is active, **<Shift>**-clicking will magnify the image. To pan around a large or magnified image without using the scroll bars, just **<Ctrl>**-drag in the preview area; the pointer will change to a hand (as shown in **FIGURE 3**).

INSTANT FOLDER TREES

IN WINDOWS 95 and the first version of Windows 98, you managed files using one of two views—a two-pane Explorer window (with a folder tree on the left and file icons on the right) or a single folder window displaying only files, without the tree pane. There was no switching back and forth. You *could* click the Control menu icon (the upper left icon on any window's title bar) and select Explore to open the dual-paned Explorer, not a very elegant solution. IE 4's Desktop Update component added the ability to remove the tree pane if you started out with an Explorer window, but if you started with a folder window, you couldn't add the tree pane.

In Windows 98 Second Edition and Windows 2000, you can turn the folder tree on or off instantaneously by clicking the *Folders* button on the toolbar. Clicking the *Search*, *History*, or *Favorites* buttons will also replace the folder tree pane with one of those panes. That changeable area is known as the Explorer Bar. (The Favorites button is not on the toolbar by default; you have to right-click the ▶



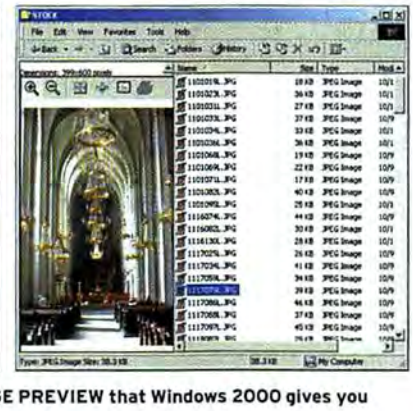


FIGURE 2: DON'T SETTLE FOR THE TINY IMAGE PREVIEW that Windows 2000 gives you (left); edit the folder.htt file to see the larger view on the right.

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toolbar and choose *Customize* to add it.) To activate the Explorer Bar from the keyboard, press **<Ctrl>-E** (Search), **<Ctrl>-H** (History), or **<Ctrl>-I** (Favorites). Folders, unfortunately, don't get their own <Ctrl> key. To launch that bar, press and release **<Alt>**, then type **veo** (which translates to *View•Explorer Bar•Folders*). And of course, you can close an Explorer Bar by clicking the *X* in the pane's upper right corner.

If you're running in full-screen view (press **<F11>** to toggle this mode), you can autohide any Explorer Bar by clicking the *Push-pin* button next to the Explorer Bar's Close (X) icon. One click keeps the pane in sight; clicking again and moving the pointer over the file icon pane makes the Explorer Bar disappear until you move your pointer to the left edge of the screen.

THE CLEAN AND EFFICIENT DESKTOP

AREN'T YOU TIRED of scanning your desktop, trying to find the icon you need amid the clutter you've allowed to accumulate? Here's a way to clean up the clutter and still have access to all the applications, folders, shortcuts, and other icons on your desktop. The trick is to hide the existing icons

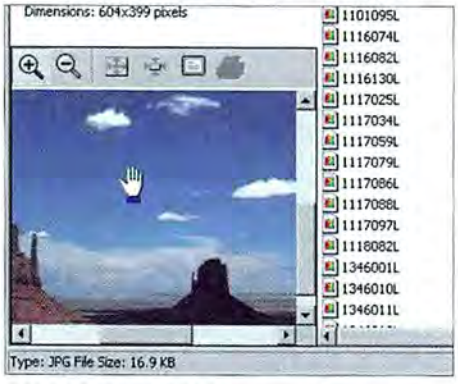


FIGURE 3: IN WIN 2000, pan around the image preview by holding down the <Ctrl> key as you drag.

but make them accessible through a Desktop toolbar. To do this, you'll need Windows 95 with IE's Desktop Update feature installed, or Windows 98 or later.

First, let's make the existing icons invisible. In Windows 95, double-click *My Computer* and then choose *View•Folder Options*. Click the *View* tab, then scroll down and check *Hide icons when desktop is viewed as Web page* under Visual Settings. In Windows 98, right-click the Desktop and choose *Properties*. Click the *Effects* tab and check *Hide icons when desktop is viewed as Web page*. In either version of Windows, you'll have to view the desktop as a Web page to make the invisibility take effect. (If you haven't already done so, right-click the desktop and choose *Properties*. Make sure there's a checkmark by *View my Active Desktop as a Web page*. Then click *OK*.) Unfortunately, Windows 2000 doesn't allow you to hide your desktop icons. To achieve that, you'll need an application that has this capability, such as WallMaster Pro, a complete wallpaper management utility available at www.tropicalwares.com as well as from FileWorld.

The desktop looks cleaner, but now you need access to the items that used to be there. Right-click an empty area of the Windows taskbar and choose *Toolbars•Desktop*. You should now have a new toolbar on your taskbar with the familiar icons.

If the new toolbar crowds your taskbar, position the pointer over the double lines near the toolbar name and either drag it to the desktop (for a floating toolbar) or to another available edge of the screen.

Note: Before you attempt this tip, be sure to minimize all your running applications so you'll have access to your desktop. I find that minimizing to a vertical edge works best, as the toolbar icons align vertically the way your desktop icons used to.

Next, I recommend you right-click the toolbar title *Desktop* and choose *View•Small* to make the icons fit more comfortably on the toolbar without the need to scroll (Windows 98 or Internet Explorer 4) or use the >> menu to get the extra items (Windows 98 SE or Internet Explorer 5). If you need more room, you can right-click and uncheck *Show Title*.

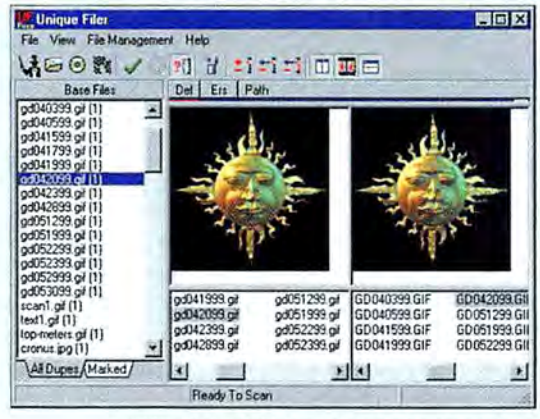
Feel free to set other desktop and taskbar attributes, such as Always on Top, Auto Hide or both. Note that you can drag and drop icons within the taskbar to suit your style, but you can't move system icons like My Computer and the Recycle Bin. By reducing your icons to a single column (or a single row) of buttons, you make it easier to scan for whatever item you need.

Note that you can still drop items on the desktop; they'll simply appear on the toolbar rather than on the desktop itself. ▶

WINDOWS TOOLBOX

Eliminate Duplicate Graphics

IF YOU DOWNLOAD a lot of multimedia files—sounds, film clips, or especially images, chances are you'll end up with duplicates that serve no purpose and waste disk space. One solution is Unique Filer, a handy $15 shareware utility that quickly and cleverly ferrets out the duplicates so you can review and send them straight to the Recycle Bin. You can choose from a variety of strategies for determining which files are duplicates, and compare results in side-by-side preview panes. Available from FileWorld or at www.sohosoft.com/uniquefiler.



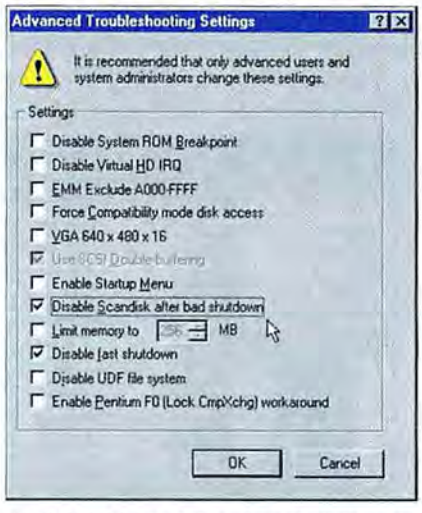


FIGURE 4: DISABLE the automatic disk checking schedule so it runs only when you choose.

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MAKE SCANDISK MIND

SOMETIMES WINDOWS 98 crashes (can you believe it?) or I accidentally shut off the computer without waiting for the 'Safe to Shut Down' message. The next time I boot up, Windows automatically runs Scandisk. It never finds any problems. I want to run Scandisk on my own schedule, rather than each time Windows starts up after a hard landing. Can you help?

Joe Dorazio, Seattle

ALTHOUGH DISK maintenance after a crash is a good idea, there's no reason you have to let Scandisk dictate when you perform this important chore. Here's your alternative: Choose *Start•Run*, type **msconfig**, and press **<Enter>**. With the General tab in front, click the *Advanced* button. Then check the box for *Disable Scandisk after bad shutdown* (**FIGURE 4**). Click *OK* two times to close the Advanced Troubleshooting Settings dialog box and exit the System Configuration Utility. You can either click *Yes* to restart your computer, or click *No* and wait for the setting to be applied the next time you restart. You won't be bothered again.

EXPLORE FILES WITH KEYBOARD SHORTCUTS

IF I'VE SAID it once, I've said it a thousand times: You'll get around faster if you learn a few keyboard shortcuts. Here are some of the most useful for Windows Explorer. I've omitted all the so-called accelerator keys—the shortcuts you get by pressing <Alt> and an underlined letter of the menu. I've also omitted the navigation keys like <Page Up>, <Home>, the arrow keys, and so forth, since those work as you'd expect in any scrolling list. (Remember to add **<Shift>** to those keys to select a range of items. And note that in versions since Win 95, you can use **<Alt>-<Left Arrow>** and **<Alt>-<Right Arrow>** to go backward and forward just as you would in a Web browser.) Instead, I've assembled a list of shortcuts involving the **<Ctrl>** key plus a character (see **FIGURE 5**). And since they overlap, I've thrown in the most common function key shortcuts as well (see **FIGURE 6**).

Unfortunately, not all keys behave the same in Explorer as they do in the look-alike Web browser Internet Explorer. For example, <Ctrl>-D will delete a file in Explorer but add the current page to your Favorites menu in IE. These differences are noted in the accompanying figures.

The <F6> key is supposed to cycle through various window elements, but its behavior is inconsistent between versions of Windows. In addition, <Shift>-<F6> doesn't always reverse the order of the cycle as you'd expect. The <Tab> key does a better job of this, and <Shift>-<Tab> reliably does the same thing in reverse.

You can find files mentioned in this article at www.fileworld.com/magazine. Send your questions and tips to scott_dunn@pcworld.com. PC World *pays $50 for published items. Contributing Editor Scott Dunn is a principal author of* The PC Bible, 2nd Edition *(Peachpit Press, 1995).* ■

Take Control: <Ctrl>-Key Shortcuts for Explorer and Internet Explorer

KEY	Explorer	Internet Explorer
<Ctrl>-A	Select all	Select all
<Ctrl>-B	Organize Favorites (not in Win 95)	Organize Favorites (not in Win 95)
<Ctrl>-C	Copy selection	Copy selection
<Ctrl>-D	Delete selection (not in Win 95)	Add current Web page address to Favorites
<Ctrl>-E	Display/hide Search Explorer bar (Win 98 SE, Win 2000)	Display/hide Search Explorer bar (IE 5)
<Ctrl>-F	Find files in current folder (Explorer, same as <F3>), find Web page (IE), or toggle Search Explorer bar (Win 2000, same as <Ctrl>-E)	Not applicable
<Ctrl>-G	Show 'Go to Folder' dialog (Win 95 Explorer only—without Desktop Update)	Not applicable
<Ctrl>-H	Display/hide History Explorer bar (Win 98 SE, Win 2000)	Display/hide History Explorer bar (IE 5)
<Ctrl>-I	Display/hide Favorites Explorer bar (Win 98 SE, Win 2000)	Display/hide Favorites Explorer bar (IE 5)
<Ctrl>-O	Not applicable	Displays 'Open' dialog box
<Ctrl>-P	Print currently selected file (Win 2000)	Print current Web page
<Ctrl>-R	Refresh current folder (not in Win 95)	Refresh current Web page
<Ctrl>-V	Paste current clipboard selection	Paste current clipboard selection
<Ctrl>-W	Exit app and close window	Exit app and close window
<Ctrl>-X	Cut selection	Cut selection
<Ctrl>-Z	Undo last action	Undo last action

FIGURE 5: PERFORM TASKS FASTER by holding down the <Ctrl> key while you press a letter key.

Fun With Function Keys: Shortcuts for Explorer and Internet Explorer

KEY	Tasks performed
<F1>	Get help
<F2>	Rename currently selected item (Explorer only)
<F3>	Find files in current folder (Explorer, same as <Ctrl>-F), document folders (IE 4), or root directory of start-up drive (IE 5); or toggle Search Explorer bar (Win 2000, same as <Ctrl>-E)
<F4>	Drop down list for disk drives or Address bar
<F5>	Refresh current folder display (same as <Ctrl>-R)
<F6>	Switch focus to different parts of window (<Tab> works better)
<F10>	Switch focus to menu bar
<Shift>-<F10>	Open context menu (right-mouse menu)
<F11>	Toggle full screen view (not in Win 95)

FIGURE 6: WHILE THESE function key shortcuts speed up tasks, some perform differently in Explorer and IE.

When It Comes to Power Protection...

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1999-Internet Office 280

WIN 100 WINDOWS MAGAZINE 1997
1997-Internet Office 500LP

MVP 1997 PC Computing FINALIST
1997-Internet Office 500

MVP PC Computing Finalist
1998-Internet Office 500LP

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YOUR QUESTIONS ON: Changing screen res on the fly ◆ **Finding misplaced DLL files**

Which Files Can You Safely Delete?

I OFTEN NEED to free up room on my hard drive. Could you provide me with a list of file types that I can delete without asking for trouble?

Peter Cortland, Wallingford, Connecticut

IN A WORD, YES. See **FIGURE 1** for a list of those files. Because many deletable files are hidden, you must ferret them out by going to any open folder in Windows Explorer and selecting *View•Options* (or *View•Folder Options* or *Tools•Folder Options*). On the *View* tab, select *Show all files*, then click *OK*. Now use the Find tool (or Search Bar in Windows 2000) to begin your spring cleaning. To delete all the .bak files for example, select *Start•Find•Files or Folders* (or *Start•Search•For Files or Folders*), and in the Named (or 'Search for files named') field, type the extension exactly as you see it in Figure 1: ***.bak**. Click *Find Now* (or *Search Now*) and watch the deadbeats gather in the bottom pane. When the search is complete, click inside the file list pane, press **<Ctrl>-A** (for Select All), then **<Delete>**. All gone.

But before you start large-scale sweeping operations, here's some general advice about cleaning up your hard drive.

Leave new files alone: Even temporary files serve a purpose. Don't delete files dated today. Or, if you don't turn off your system each day, avoid deleting any temporary files created since you last booted up. They may still be in use.

Play it safe: If you're not sure whether it's safe to remove a file, move it to another folder or drive, or compress it into a .zip file. If you haven't missed it after three months, then delete it.

Uninstall unwanted programs: In Windows 9*x*, select *Start•Settings•Control Panel*. Double-click *Add/Remove Programs*. On the *Install/Uninstall* tab (or on the main pane in Win 2000), look for programs you no longer use. When you find one, select it and click *Add/Remove* (*Remove* in Win 2000). If you've upgraded Windows and are happy with the new version, go ahead and remove *Old Windows 3.x and MS-DOS System Files* and/or *Delete Windows 98 Uninstall Information*. Click the *Windows Setup* tab and then the *Add/Remove Windows Components* button, and uncheck any Windows features you don't want.

Clean out Internet files: It's astonishing how much garbage you pick up surfing the Web. In Internet Explorer, select *Tools• Internet Options*. On the *General* tab, click the *Delete Files* and *Clear History* buttons. In Navigator, open the Cache folder in your Netscape folder and delete all the icons in it. Note that when you delete cached files (as well as History archives), you may sacrifice some productivity, as some sites may take longer to load once the cached version has been zapped.

EXTENSIONS OF DELETABLE FILES	Location	Comments
.	C:\Windows\temp	You can remove any file in this folder that is more than one day old.
*.---	C:\	Backup files created by Windows.
*.lst	C:\	Delete these files only if you have backed up your Registry.
~$*.doc	Throughout your drive	Temporary Word files created whenever a document is open. Safe to delete only if the original document is closed (these "orphans" are often left behind during a crash).
*.bak	Throughout your drive	Backup files from various applications.
*.bmp	C:\Windows	Wallpaper files. Don't delete the one you're actually using.
*.cab	Throughout your drive	Installation files (see "Catch a .cab," www.pcworld.com/oct99/al).
*.chk	C:\	Files created by ScanDisk and its ancestor, ChkDsk.
*.dos	C:\	Safe to delete only if you don't dual-boot to DOS.
*.fts	Throughout your drive	Windows will recreate these files as needed.
*.gid	Throughout your drive	Windows will recreate these files as needed.
*.log	C:\ or C:\Windows	Log files created by various programs tracking certain jobs; if they're more than a few days old, they're not being used anymore.
*.old	C:\	Old versions of files that have been replaced by newer versions.
*.prv	C:\	Log files created by past Windows boots.
*.shs	Desktop or throughout your drive	Scrap objects; temporary files created in OLE-supporting applications.
*.tmp	Throughout your drive	Temporary files from various applications.
*.wbk	C:\My Documents and its subfolders	Word backup files.

FIGURE 1: HERE ARE FILES THAT YOU CAN SAFELY delete and where you'll find them.

Throw Away the Windows CD

ALTHOUGH YOUR Windows CD-ROM seems literally indispensable, there's no need to hold on to it. With a little preparation and the sacrifice of some hard drive space, you'll never need to hunt for this disc again. Just pop the CD-ROM into your drive for the last time and copy the \win98 (or \win95) folder to your hard drive. The next time that an installation tells you it can't find the Windows CD-ROM, click the *Browse* button and point to *x*:\WIN98 (where *x*: equals the drive on which you saved the Windows files).

ILLUSTRATION: JEFFREY PELO

Use software to simplify the cleaning job: I recommend Symantec's CleanSweep, which is available by itself or as part of Norton SystemWorks, a very comprehensive collection of utilities.

CleanSweep's Fast & Safe Cleanup feature is an excellent tool for finding the files you don't need. By default, it does not look for all the file types in my list, but you can click the *Settings* button to add them.

AUTOMATICALLY CHANGE YOUR SCREEN

WE HAVE A number of children's games on our computer. Each requires different resolutions and color settings, and I have to change them every time I start up the games. Can I set up my computer so that it changes the display settings before launching a program and returns to my standard settings afterwards?

Mark Leugner, Regina, Saskatchewan

YOU CAN SET this up with MultiRes, a free program from EnTech Taiwan that you can download from FileWorld or from www.entechtaiwan.com.

MultiRes (see **FIGURE 2**) is similar to Microsoft's free PowerToy utility, QuickRes. It sits in the system tray, letting you quickly and easily change resolution and color depth on the fly without a system reboot. But MultiRes 1.14 or higher has some features QuickRes lacks, including command-line parameters that let you create shortcuts and batch files for setting a particular resolution or color depth.

The best solution for you, though, is a batch file that lets you run a program in one resolution and then return to the existing one. To create such a file, select *Start•Programs•Accessories•Notepad*. Once notepad is up, enter the following lines:

start /w multires.exe /640,480,8
start /w *[Program you wish to launch]*
multires.exe /800,600,24
cls

This sequence assumes that you want to run the program in 640 by 480 resolution with 256 colors, and that you normally work in 800 by 600 with 24-bit full color. Replace the text *[Program you wish to launch]* with the path and file name of the program you want to run in that mode, such as **c:\disney\poohrtr\zpooh.exe**. Make sure nothing, not even a return, follows **cls**.

Save this file with the **.bat** extension: **pooh.bat**, for example. Put it in a convenient place, like the desktop or a subfolder of C:\Windows\Start Menu.

Now, when you want to play the game, double-click on the batch file rather than on a shortcut.

But what about games that you start by inserting a CD-ROM? There's no way to automate those, but a variation on the batch file solution will help. Simply replace the second line with **pause**. Then you can run the batch file to change the resolution before inserting the CD-ROM and starting the game. When you're done playing, return to the DOS window running the batch file, press any key, and your default resolution returns.

MUST HAVE THAT DLL

I RECENTLY downloaded and tried to run a shareware program, but it gave me an error message stating that 'a required .DLL file, MSVBVM60.DLL was not found'. How do I fix this?

Peter Tomasulo, via the Internet

A DLL FILE, or dynamic linked library, contains code that one or more programs may need to do their job. That message sometimes occurs when a DLL has been corrupted or accidentally deleted.

Try reinstalling the app or Windows again to see if that fixes the problem. Relax—I'm not talking about wiping out your hard disk and reinstalling Windows anew, just installing Windows over itself, so corrupted files can be overwritten.

But in your case, the scenario isn't even *that* serious. The msvbvm60.dll file is the Visual Basic 6.0 *runtime*. You must have this file on your hard drive, preferably in the \Windows\System folder, to run any any program written in Visual Basic (and many shareware programs are).

Other versions of Visual Basic have their own runtimes, and depending on your shareware collection, you may need to install their specific DLLs. These include msvbvm50.dll (for Visual Basic 5), vb40016. dll or vb40032.dll (VB4), and vbrun300.dll (VB3).

FIGURE 2: MULTIRES ALLOWS YOU to change screen resolution and color depth without system reboots.

These runtimes are all free. You can download them, complete with their installation programs, from FileWorld or from support.microsoft.com/support/vbasic/runtime.asp.

CleanSweep
$40 list; 800/441-7234; www.symantec.com
Norton SystemWorks
(includes CleanSweep) $60 list; 800/441-7234; www.symantec.com
PRODUCT INFO NO. 624

You can find additional tips and files from this article at www.fileworld.com. Send your questions to answer@pcworld.com. We pay $50 for published items. Contributing Editor Lincoln Spector writes the syndicated humor column Gigglebytes. ■

View newsgroups without a reader ◆ Topo maps on the Web ◆ Heads-up e-mail

Explore and Survive the Usenet Jungle

SEARCH ENGINES get all the press, trying to outdo each other at tracking down absolutely every Web site dedicated to the study of early-twentieth-century Hungarian cinema or the mating rituals of Amazonian tree slugs. But even if these search sites could index every single Web page, they might still set you barking up the wrong tree. When it comes to arcane or highly specific material, you might have better luck searching Usenet—the ownerless, amorphous, ever-expanding collection of ad hoc newsgroups that proliferate daily across the Internet. Some newsgroups are maintained by companies offering tech support (for example, any group name that has a moniker such as microsoft.public.access is hosted by Microsoft), but most of the Usenet forums out there are run by devoted enthusiasts.

The problem with Usenet is its size. There are thousands of groups, and each may contain thousands of messages at any given time. Even if you're an expert with your newsreader (Microsoft's Outlook Express and Forte's Free Agent or Agent programs are my personal favorites), you can easily waste hours scanning the Usenet universe in vain for an explanation of the correct use of the Mixolydian mode in ancient Greek music.

Fortunately, several search sites let you focus exclusively on news messages. The best is Deja.com, which not only archives and indexes Usenet and other newsgroups (see **FIGURE 1**), but lets you post your own news messages as well. Originally called Dejanews, Deja.com has tried to downplay its close connection to Usenet, but that remains the site's strength. To start searching, simply type what you're looking for into the Quick Search window in the upper right-hand part of the screen. If the search engine returns too many matches, try adding more specifics to the search string; if you get too few matches, broaden the search by reducing the number of required terms. Use the *Power Search* link if you want to narrow your search down to certain newsgroup categories (jobs, for sale, or adult, for example), specific groups, time periods, or message authors.

Deja.com provides another handy free service, too. When you post messages to a newsgroup, you invite spam. Though you can take steps to hide your real e-mail address from spammers, such action makes it harder for other Usenet denizens to respond to your postings. By registering with Deja's My Deja service, you receive a spam-free address (something like myname@mydeja.com) that appears in your postings. Deja.com screens your incoming mail for postings and notifies you at your real e-mail address of new messages of probable interest to you. This service is free (ad-supported, that is). The only information you need supply is a valid e-mail address and your zip code. Deja.com also will provide you with full-blown ad-free news server accounts for $10 a month—you should consider one of these if your ISP's news server is overloaded, carries too few newsgroups, or expires messages faster than you can download them.

Deja.com hasn't cornered the news market, however. Another search site, RemarQ (www.remarq.com), offers practically the same free searches and pay services that Deja.com does. It even calls its personalization service MyRemarQ.

Many Web search engines give you the option of searching newsgroups instead of or in addition to the Web (usually by borrowing the service from Deja.com or RemarQ). AltaVista (www.altavista.com),

FIGURE 1: SOME SITES like Deja.com let you search newsgroups for information unavailable elsewhere.

ILLUSTRATIONS: PHIL ANDERSON (LEFT); JEFFREY PELO (RIGHT)

Never a Dull In-Box

TIRED OF ALL the cheerful, tasteful, predigested e-mail newsletters filling your inbox? For a change of pace, try Keith Bostic's deadpan mailing list, Nev/Dull (a geeky pun referring to the UNIX directory Dev/Null). Bostic's missives document the misdirected e-mails, improbable Web sites, and potpourri of jokes, hoaxes, and breaking stories that characterize the Internet. This is weird, disturbing, and true stuff (with no ads). To subscribe to the list, just send Keith a request at nev@bostic.com.

allows you to find search results in News rather than via the Web, but you'll most likely do better if you choose their *Discussion Groups* (AltaVista's euphemism for newsgroups) instead. The news option only looks for your search terms among the day's current wire stories.

GETTING STARTED WITH A NEWSREADER

DEJA.COM OFFERS a quick and easy way to find something on a newsgroup, but regular participation in discussion threads requires strong tools. If you don't want to miss part of an important thread, you will need a program that tracks what you've read, downloads and saves new postings for offline reading, and helps you weed out unwanted chatter and spam (yes, like e-mail, newsgroup postings are cluttered with junk messages).

If you use Internet Explorer, you already have a decent newsreader installed on your system. In addition to its e-mail capabilities, Outlook Express lets you create multiple news server accounts. Forte's Free Agent (a free download available from PC World Online's FileWorld or at www.forteinc.com) increases your control over message downloading. The company's $29 Agent adds a complete e-mail client. Netscape's Messenger also incorporates a newsreader, though its interface is somewhat clunkier than those on Microsoft's and Forte's services.

In practice, I use both Forte's Agent and Microsoft's Outlook Express—Agent for managing the newsgroups I follow closely, and Outlook Express for those I browse only occasionally. To activate your newsreader, all you need is a news server address and permission to use it. Most ISPs provide such addresses—just call and ask what yours is. If your service doesn't provide you with one of these or if performance is lackluster, you can pay for access from Deja.com or RemarQ (see above). Or try one of the free news servers on the Internet; Smith Barley Software's $10 NewSeek utility will help you find them (smithbarley.webjump.com).

TOPOGRAPHY HITS THE WEB

NEED DRIVING directions from your hotel to a client's office? Customized maps are among the most useful free features available online. MapQuest has long made road navigation a piece of cake—just point your browser to the service's site (www.mapquest.com), click the driving directions link, and enter the addresses of your starting point and your destination. MapQuest will display a map with the driving route marked for you. All you have to do is print it out and hit the road. Yahoo (maps.yahoo.com) offers a similar service.

FIGURE 2: SCROLL YOUR WAY ACROSS the nation courtesy of the U.S. Geological Survey and TopoZone.

But what if you prefer the road less traveled? TopoZone (www.topozone.com) is the first map site to offer U.S. Geological Survey maps of the entire country—including coverage of those big empty spaces between the freeways—for free. Though you can't currently download maps at TopoZone (a fee-based service should be available by the time you read this), you can locate the map of your choice simply by entering a place name—a town, a national park, a lake, or the like. If you find yourself a mile or two in the wrong direction, just scroll to the correct spot. TopoZone stitches together the thousands of USGS maps into a single seamless view—so you can mouse your way from coast to coast if you wish.

Though TopoZone's concept is good, I recommend taking the USGS maps with a grain of salt. The map of my town, Boulder, Colorado (see **FIGURE 2**), still shows street names, railroad tracks, and other features that vanished decades ago.

LOOKING FOR OUTLOOK'S OUT-OF-OFFICE ASSISTANT

IN THE "Rules and Filters" section of the December "Postmasters" article (www.pcworld.com/dec99/email_tips) I noticed what I think is an error. In answer to the question "How can I create an automatic reply when I'm away?" for Outlook 98/2000 (page 214), you provide a long list of instructions requiring the user to "Take a deep breath" before starting and then breathe a sigh of relief when finished. Although your instructions will get the job done, there is a much easier way to do it. Simply choose *Tools•Out of Office Assistant*, click *I am currently out of the office*, type your out-of-office message, and then click *OK*.

Name withheld by request

YOU ARE RIGHT, but only under certain circumstances. Outlook runs in one of two modes, depending on whether you get your mail from an Exchange Server on a corporate LAN, or from a POP3 server (the mail-server protocol that most ISPs use). The above method will work when Outlook is running as an Exchange Server client because the Out-of-Office Assistant appears only in that mode. So, lucky you!

One word of warning: According to Microsoft, Exchange Server 5.5 by default blocks all automatic replies to addresses outside the LAN (see support.microsoft.com/support/kb/articles/q181/6/36.asp for complete details). If correspondents outside your company are not receiving your out-of-office messages, you'll have to sweet-talk your mail administrator into enabling that feature for you.

online

Find files mentioned in this article at www.fileworld.com/magazine. Send your questions and tips to nettips@spanbauer.com. We pay $50 for published items. Scott Spanbauer is a contributing editor for PC World. ■

Return to where you left off ◆ Run selective spelling checks ◆ **Flag confusing words**

Protect E-Mailed Documents From Changes

IF YOU NEED to send a document as an e-mail attachment but want to make sure the recipients can't modify it, you have two options. One is to save the file as Read Only. To do this in Word 97, select *File•Save As•Options*, and then put a check in the *Read-only recommended* box; in Word 2000, choose *File•Save As*, select *Tools•General Options* in the Save dialog box, and click the *Read-only recommended* box. Alternatively, you can make the files Read Only by right-clicking their icons within a Windows folder, selecting *Properties*, and clicking the *Read-only* box.

Unfortunately, determined power users will find it fairly easy to undo this operation and gain full edit rights to your document. My work-around is simple: Convert your document to a format that can't be edited easily but can still be opened and viewed. This tip works in Word 97 and 2000, as well as in WordPerfect 9, but not in WordPerfect 8. Just follow these steps to create a more secure document:

1. If the document is only a page long, press **<Ctrl>-A** to select all of it. If the document is longer than a page, you must select its contents by highlighting one page at a time.
2. Select *Edit•Copy* or press **<Ctrl>-C** to copy the document to the clipboard.
3. Select *File•New* to create a new, blank document.
4. Select *Edit•Paste Special* to access additional options for reproducing the page.
5. In the 'As' list of the Paste Special dialog box, choose *Picture* if you use Word or *Picture (Metafile)* if you use WordPerfect, and then click *OK*.
6. If you are working with a multipage document, press **<Ctrl>-<Enter>** to create a fresh page in the new document. Select the next page in the original document and copy it to the clipboard before switching to the new document. Repeat steps 4 and 5 for each original page.
7. Select *File•Save As* and save the new document with a new file name. In Word, be sure to save the file in either Word 97 or Word 2000 format. (If you save it in Word 6.0/95, it won't be visible to the recipients.) Send them this new file, rather than the original.

Note: The new document file, composed of graphical images, will be larger than the original text document. But the graphics are in Windows Metafile format, so they won't be excessively large for e-mailing. If the size still worries you, zip the file before you send it.

Caution: Though files created in this way aren't easy to change, they can be altered in any editor application capable of working with WMF files (including Word itself, as well as Paint Shop Pro, Photoshop, and others) So you shouldn't think of these documents as *completely* secure.

FIGURE 1: CHECK THESE BOXES to send WordPerfect's cursor to the last edit when opening the document.

Prevent Disappearing Text in Word

HERE'S THE SITUATION: You've just selected several paragraphs for formatting, but instead of pressing <Ctrl>-I to italicize, you accidentally press <Shift>-I. What happens? The text disappears. You could select *Edit•Undo* or press <Ctrl>-Z to get it back, but if this accident happens frequently, you may prefer to turn off Word's replacement of highlighted text when you type. Just select *Tools•Options*, click the *Edit* tab, uncheck *Typing replaces selection*, and click *OK*. This tip applies to Word 7 through 2000.

HOLD MY SPOT

YOU'VE BEEN editing a long document for days, saving it and shutting down your word processor at the end of each workday, then resuming work later on. The trouble is, you have to scroll down in the document to find the exact place where you stopped working, right? Wrong. Both Word and WordPerfect will let you jump directly to the last word you typed or edited.

Word 97 and 2000

When you save a file, Word automatically records the last three locations in the document where you typed or edited text. To return to your last editing position, press **<Shift>-<F5>** as soon as the document opens. Press the key combination again and move to the previous editing location. If you wish, you can record a macro containing just this keystroke, naming it **AutoOpen**, to automate the jump. Thereafter, Word will execute the AutoOpen macro each time you open a document.

If you already have an AutoOpen Macro that performs another task, you can append this step by adding the macro command **Application.GoBack** as a separate line at the end of your existing macro.

WordPerfect 8 & 9

WordPerfect makes it easier (see **FIGURE 1**). You can simply tell the program to

ILLUSTRATION: JEFFREY PELO

remember your location when you save the document, and it will jump to that spot the next time you open it. To do this, select *Tools•Bookmark*. In the Bookmark dialog box, select *Set QuickMark on file save* and *Go to QuickMark on file open*. Then click *Close*. This becomes the default setting and applies to all documents.

SHUT DOWN WORD'S SPELLING CHECKER FOR ODD TEXT

IF YOUR DOCUMENTS use words from other languages or are crawling with technical jargon and abbreviations, you may want Word to skip that text when marking misspelled words or performing a normal spelling check. Fortunately, that's easy to do: Highlight text you want the spelling checker to skip, and then select *Tools•Language•Set Language*. In Word 97, choose *(no proofing)* from the 'Mark selected text as' list in the Language dialog box and click *OK* (see **FIGURE 2**). In Word 2000, select *Do not check spelling or grammar* in the same dialog box and click *OK*.

FIGURE 2: WHEN YOU CHOOSE '(no proofing)' in Word 97, the spelling checker will skip the text you have highlighted.

OPEN HTML FILES AS TEXT IN WORDPERFECT 9

I'VE JUST STARTED using WordPerfect 9 and have a problem. I want to use the program to edit the code in HTML documents directly. I could do this in version 8 by specifying *Text* when I opened the file. But for some reason, I can't get Version 9 to ask me how I want the file opened. Do you have the answer?

Andrew L. Waterhouse, Davis, California

THE SOLUTION is obscure (and poorly documented), so I'm not surprised you couldn't find it. Here's the drill: Select *Tools•Settings*. Double-click the *Environment* icon in the Settings dialog box, then click the *XML* tab in the Environment Settings dialog box. Put checks in the boxes next to *Import HTML documents using the XML component* and *Prompt for file type when importing XML/SGML documents* (see **FIGURE 3**). Then click *OK*.

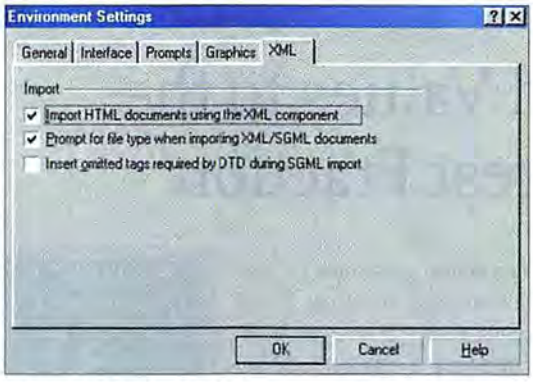

FIGURE 3: EDIT HTML CODE in WordPerfect 9 by checking these two options in the Environment Settings dialog box.

From now on, WordPerfect's Open dialog box will display the Convert File Type dialog box when you open an HTML document. Select *ASCII DOS Text* in the 'Convert file format from' list and click *OK* to open the file as text for editing. When saving the file after editing, select *ASCII DOS text* as the file type in either the Save or the Save As dialog box.

ANOTHER WAY TO FLAG CONFUSING WORDS

MY OCTOBER 1999 column contained a tip for highlighting words that are correctly spelled but frequently misused. Pairs like filed/field, form/from, and it's/its are common examples of this error. Reader Tony Powell of New York City suggests another way to arrange for highlighting; his method doesn't involve color changes and is built into Word 97 and 2000. A little-known file contains exceptions to Word's standard dictionary and will automatically highlight any of the words contained in it, even if they are spelled correctly. Here's how to set up a Word exclude dictionary file:

1. Select *File•New* and create a new blank document.
2. Type the list of words you want Word's spelling checker to flag, one word per line, and press **<Enter>** after each word. Use lowercase letters, and Word will recognize both capitalized and lowercase versions of the words.
3. Determine the directory where your copy of Word stores its dictionaries. To do this, right-click the *Start* button and select *Find* in Windows 9*x* or *Search* in Windows 2000. In the Find All Files dialog box (Search Bar in Windows 2000), type ***.lex** in the Named field ('Search for files or folders named' in Word 2000). Then choose *My Computer* in the 'Look in' field and click *Find Now* (*Search Now*).
4. For users of United States English, look for the file mssp2_en.lex for Word 97 or mssp3_en.lex for Word 2000. Make a note of the directory containing the file.
5. Back in Word, select *File•Save As*.
6. Navigate to and double-click the directory you noted in step 4.
7. Now choose *Text Only* under the 'Save as type' list.
8. In the File Name field, type **mssp2_en.exc** for Word 97 or **mssp3_en.exc** for Word 2000, then click *Save*. The file name must match the dictionary that Word uses, but it will have the extension **.exc**.
9. Select *File•Close*.
10. To edit or add words to this file after you've created it, open it as you would any other Word document.

Note: If you are using a different language version of Word, the dictionary name will obviously be different; though it will also begin with mssp2_ or mssp3_. Just be sure to save the **.exc** file with the name that matches your language.

Find additional tips at www.pcworld.com/heres_how. Send questions and tips to george_campbell@pcworld.com. We pay $50 for published items. George Campbell is a PC World *contributing editor. You can reach him on his Web page at www.osomin.com.* ■

Round Values to the Nearest Fraction

IS IT POSSIBLE to round a dollar amount to the nearest 25 cents? For example, if a number appears as $1.65, I would like to convert it to $1.75. The Round() function in Excel seems to work only with whole numbers.

Elaine Schuman, Eugene, Oregon

YES, YOU CAN use Excel's Round() function to achieve the rounding you want. The formula **=Round(A1/.25,0)*.25**, which assumes that your value is in cell A1, will take care of the job for you.

The formula divides the original value by .25 and then multiplies the result by .25. You can, of course, use a similar formula to round values to other fractions. For example, to round a dollar amount to the nearest nickel, simply substitute **.05** for each of the two occurrences of '.25' in the preceding formula.

If you work with 1-2-3, you can use the @Roundm function to accomplish the same thing, as in **@roundm(A1..25)**.

CHANGE THE FORMATTING OF CELL COMMENTS

EXCEL'S *Insert•Comment* command lets you annotate a cell by typing a comment. Once the comment is created, you can change its formatting. To do this, right-click the cell and select *Edit Comment* from the Shortcut menu.

When the comment is displayed, click anywhere on its border to select the entire comment object. Now you can use the standard toolbar buttons to change the font, text size, or colors.

To change the *default* formatting of your cell comments (so you don't have to repeat that process each time), you need to go outside Excel. These comments are Windows' ToolTips, and they appear whenever your pointer hovers near toolbar buttons as well as in several other environments. Select *Start•Settings•Control Panel* and double-click the *Display* icon. Click the *Appearance* tab and choose *ToolTip* from the Item list (see **FIGURE 1**). Use the controls to change the background color, text size and color, and text attributes (bold or italic). Click *OK* to close the dialog box. Comments you've already formatted will not be affected by this change. And remember, all your ToolTips will be formatted with the new scheme.

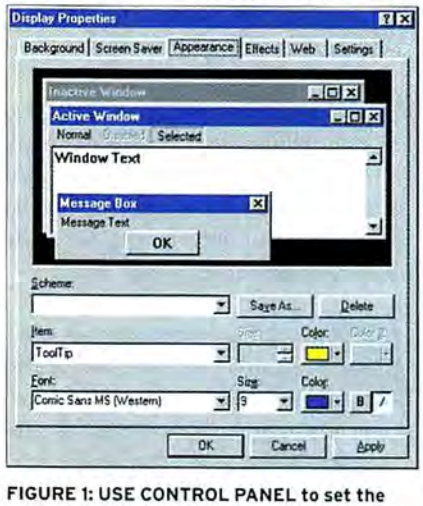

FIGURE 1: USE CONTROL PANEL to set the default formatting for Excel's cell comments.

TO AUTOSAVE OR NOT TO AUTOSAVE?

MANY USERS RELY ON Excel's AutoSave feature as a way to help prevent accidental loss of their data. AutoSave is implemented as an add-in. When you choose *Tools•AutoSave*, you will see the dialog box shown in **FIGURE 2**. (If you don't have an *AutoSave* item on your *Tools* menu, you need to select *Tools•Add-Ins* to make this feature available.) The AutoSave dialog box allows you to tell the program how often to save, which workbooks to save, and whether to prompt you before each save.

On the surface, AutoSave sounds appealing because it helps you avoid losing all your work (say, due to a power outage). But there is a downside too. Consider this scenario: You've just highlighted a column of data and accidentally pressed the <Delete> key. Before you realize your mistake, the AutoSave add-in kicks in and saves your workbook. Normally, you can select Edit•Undo to recover from the accidental deletion; but AutoSave wipes out the Undo stack, so you can't recover from your error. Even worse, AutoSave does not use a temporary file—your original workbook file is simply overwritten. The moral of this story? If you yearn for the protection of AutoSave, make sure that you select the *Prompt Before Saving* option. Or get in the habit of pressing **<Ctrl>-S** every few minutes.

FIGURE 2: IF THE AUTOSAVE add-in is installed, use this dialog box to change Excel's AutoSave settings.

Send your spreadsheet-related questions and tips to john@j-walk.com. We pay $50 for published items. Contributing Editor John Walkenbach is the author of Excel 2000 Formulas *(IDG Books, 2000), and he maintains The Spreadsheet Page (www.j-walk.com).* ■

Zap Input Cells, Keep Formulas

YOUR WORKSHEET may be set up with formulas that operate on a number of input cells. Here's an easy way to clear all input values while keeping the formulas intact. Press **<F5>** to display the Go To dialog box, and click the *Special* button. In the Go To Special dialog, choose the *Constants* button and select *Numbers*. When you click *OK*, the nonformula numeric cells will be selected. Press **<Delete>** to delete the values. The Go To Special dialog box has many other options for selecting cells of a particular type.

ILLUSTRATION: JEFFREY PELO

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Create hard drive images • Optimize PC sound • Track DVD's border patrol

A Backup a Day Keeps the Headaches Away

THE MOST PERNICIOUS threat to your PC's data isn't a dead hard drive, a rogue virus, or a stray bolt of lightning. It's human nature. The only surefire way to protect your files is to back them up. And that takes time and money, two things most people don't like to spend. Here are a few ideas that can speed the task of backing up while keeping costs to a minimum.

If you have relatively few data files to back up, choosing the right storage media is easy. If you measure your files in kilobytes, they'll fit on a floppy disk. If you have megabytes of data, you'll need the storage space of a Zip or a CD-RW drive. And to handle gigabytes, choose an Iomega Jaz drive or a similar device. Of course, the more data you back up, the more it costs and the longer it takes.

Still, backing up your entire hard disk—OS, applications, and all—has some great advantages. With everything saved, you can easily replace a dead hard disk and immediately restore Windows and all your applications and data without tedious reinstallations. In some cases, overwriting a troublesome install of Windows with an earlier, cleaner copy can save you hours of effort spent tracking down software incompatibilities or damaged program files.

Unfortunately, backing up an entire drive requires lots of storage space. Using a 100MB Zip drive to back up gigabytes of data is inconvenient at best. And larger-capacity drives such as CD-RW or Jaz drives, though faster, cost well over $200.

For a happy medium, consider buying a second hard drive. An 8GB drive costs between $100 and $200. And hard disks are relatively easy to install. These days just about every CMOS program has a hard disk autodetect feature. And unlike some removable storage drives, EIDE hard drives have few Windows-related compatibility problems or driver issues. Compared to most removable storage devices, EIDE hard drives are extremely fast, making them ideal for backing up or restoring data.

There is one catch: Because hard drives aren't removable, you can't store your backups off-site. And in case of fire or other disaster, you should keep a backup of any vital data in a different location.

FIGURE 1: BACKING UP YOUR HARD DRIVE selectively or in its entirety is easy when you use Windows' Backup utility.

SEND IN THE CLONES

A SECOND HARD drive lets you keep an exact copy of your working hard drive with virtually no effort, especially if your system has a good hard disk controller. Promise Technology's $99 PCI-based FastTrak ATA Raid Controller hard disk controller will automatically replicate on your backup drive every change you make to your original hard drive, thus maintaining an exact, timely duplicate.

After FastTrak is installed, backups are completely automatic. You never have to raise a finger. But instantly updating data can work against you, too. Any data corruption or human error—such as accidentally deleting or overwriting an important file—is instantly transferred to the backup drive.

One alternative to relying on the FastTrak is to use a second conventionally installed hard drive to back up your primary drive. This may require occasional manual data backup, but executed properly, this plan offers far more flexibility in recovering data and fixing intermittent software problems.

Windows 98 comes with a useful backup utility, functionally but unimaginatively called Backup; you can find it under *Start•Programs•Accessories•System Tools•Backup*. Backup can move all of your primary drive or selected parts of it to your second drive (see **FIGURE 1**). And you can arrange for subsequent backups to copy only new or altered files—a big time-saver if you want to back up your entire hard drive, Windows and all.

IMAGE IS EVERYTHING

WINDOWS' BACKUP is great for backing up data files, but after a hard disk crash, you may not be able to get your copied ver-

Shed a Little More Light

DOES YOUR MONITOR appear a tad dark and dingy even after you've switched the brightness to its maximum setting? Some graphics adapters—usually newer and higher-end adapters with 3D capability—have an additional brightness control as part of the graphics adapter controls. Right-click the Windows Desktop and select *Properties*. On the Settings tab, click the *Advanced* button. Examine each tab for a setting labeled 'Gamma Correction' or something similar. Adjust it to your liking.

ILLUSTRATION: JEFFREY PELO

sion of Windows up and running. That's because Backup may not have copied hidden or system files that Windows needs to run, and the settings in your MSDOS.SYS file may need to be altered. Also, corrupted files may slip into your Windows backup long before you see their effects—which may range from strange mouse behavior to system crashes.

None of the above is a problem if you create an exact image of your hard disk. You can do this with an imaging program such as PowerQuest's $50 Drive Image 2. This powerful utility can copy and compress your entire drive—system files, hidden files, your disk's file allocation table, and everything else—into a single file that can be stored on your second hard disk and restored at will.

FIGURE 2: TO GET FOUR-CHANNEL sound, select the proper speaker setup in Control Panel.

My advice is to get PowerQuest's PartitionMagic and create three partitions on your hard disk. Then install Windows into partition C:, your apps in D:, and your data in E:. Now you can make images of each partition. Subsequently, whenever Windows starts misbehaving and you can't isolate the trouble, you can restore your original Windows partition. Just remember to update the images after you add any new hardware or software and confirm that your system is functioning properly.

Drive Image 2
Street price: $50; PowerQuest; 800/379-2566; www.powerquest.com
PRODUCT INFO NO. 675

FastTrak ATA Raid Controller
Street price: $99; Promise Technology; 800/888-0245; www.promise.com
PRODUCT INFO NO. 676

PartitionMagic 5
Street price: $70; PowerQuest; 800/379-2566; www.powerquest.com
PRODUCT INFO NO. 677

MY SOUND BITES

I JUST BOUGHT a stellar new four-channel sound system for my PC, with four satellite speakers and a huge subwoofer. But when I plug it into my one-year-old Pentium II PC with its OEM Sound Blaster sound card, I can't get two of the satellite speakers to work.

Patrick Applegate, Sacramento

THERE ARE a couple of possible solutions. In the first place, to obtain four-channel sound on a PC, you need a sound card that supports four channels. All of Creative Labs' Sound Blaster Live audio cards support four channels.

The easiest way to check is to examine the sound card's ports on the back of your PC. If you can see two line-out jacks—one for each pair of channels—then the card supports four channels.

If, on the other hand, your card has only a single line-out jack, you can use an adapter available from Radio Shack to split the two-channel signal and send it to all four speakers. But to get true four-channel sound, you'll need to buy a new sound card.

If your Sound Blaster card does support four channels, and you're sure that you have attached both pairs of satellite speakers to the correct jacks on the card, your software may not be properly configured. To find out, first open Control Panel's Multimedia applet (Sounds and Multimedia in Windows 2000). Then, under the Audio tab, confirm that the Playback box is set for your sound card. Next, click the *Advanced* button and make certain that the Speaker Setup reflects your current audio configuration (see **FIGURE 2**). Finally, select *Control Panel•System•Device Manager•Sound Cards•Properties*, and confirm that your audio card has been set up to handle four-channel sound.

DVD'S BOUNDARIES

RETURNING FROM Asia, I purchased DVD movies for the flight home. But an error message on my laptop said that the DVD-ROM drive was not configured to play the disks. The same thing happened on my PC at home. Are there any restrictions on foreign-bought DVDs, and is there a way to get around them?

Katy Hancock, Los Angeles

TO DISCOURAGE piracy of DVD movies, DVD players and disks have been marked with a regional code that prevents a DVD player sold in one region from playing a DVD movie sold in a different region. Each geographic region is denoted by a number from one to six (see **FIGURE 3**). The United States is part of region 1.

Each DVD disk is set to play only in its assigned region. To identify the region of the DVD disk, look for a small globe with the region's number printed on the top of the disk. No number? Then the disk may be readable in all regions.

The region code for DVD drives, on the other hand, can usually be reset a handful of times—typically a maximum of five to nine times. After a drive reaches the preset limit, however, you'll have to return it to the manufacturer for service. You can find lots of hacks for resetting DVD players posted on the Internet, but be warned: Performing one of these operations may invalidate your DVD player's warranty.

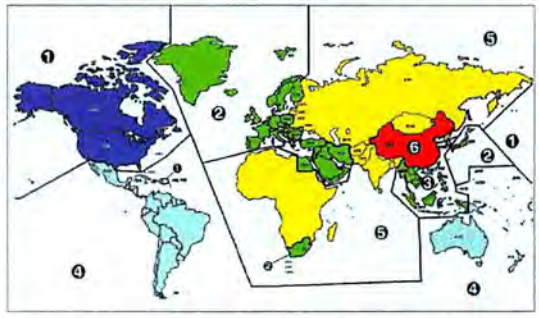


FIGURE 3: TO RUN ON YOUR PC, DVD movies must be from the region whose number appears inside your DVD player.

online

For additional hardware tips, see www.pcworld.com/heres_how. Send your questions and tips to kirk_steers@pcworld.com. We pay $50 for published items. Kirk Steers is a PC World *contributing editor.* ■

Beef Up Your Processor Power

DO YOU HAVE PROCESSOR ENVY? A CPU upgrade can satisfy your power lust, boosting your Pentium, Pentium MMX, or K6 CPU to between 333 and 400 MHz.

Most upgrade kits use the AMD K6-2 processor and cost between $150 and $200. And an older (up to 333-MHz) Pentium II system can be upgraded to 400 or 500 MHz with one of Evergreen Technologies' Performa upgrades, which use Celeron chips and sell for $130 to $230). Finally, if your Pentium II is fairly new (about 18 months or less) and your motherboard is compatible, you could upgrade to a new Pentium III, such as a PIII-500 (about $250) or a PIII-600 ($500).

As PC prices fall, consider whether upgrading the CPU is worth it. Usually, you can expect only about a 25 percent overall improvement when you upgrade an old PC. Getting more requires upgrading other components, like the hard drive.

If you can't double a system's speed, a CPU upgrade probably isn't worthwhile. Further, if the cost exceeds 75 percent of the price of a new system, buy a new PC.

If you decide to upgrade, do two things first: Back up your hard drive and check that your PC's BIOS is up to date (see the upgrade maker's Web site).

Stan Miastkowski is a contributing editor for PC World. ■

THE TOP DOWN

Benefits: Faster performance, multimedia commands speed up latest graphics software
Cost: Pentium or K6-2 processor upgrade, $150 to $200; Pentium II processor upgrade, $130 to $230; Pentium III processor upgrade, $250 to $500
Time required: 30 to 60 minutes
Equipment required: Phillips screwdriver, needle-nose pliers, antistatic wrist strap
Expertise level: Intermediate
Vendors: Evergreen Technologies (www.evergreennow.com), Intel (www.intel.com), Kingston Technology (www.kingston.com), PowerLeap (www.powerleap.com)

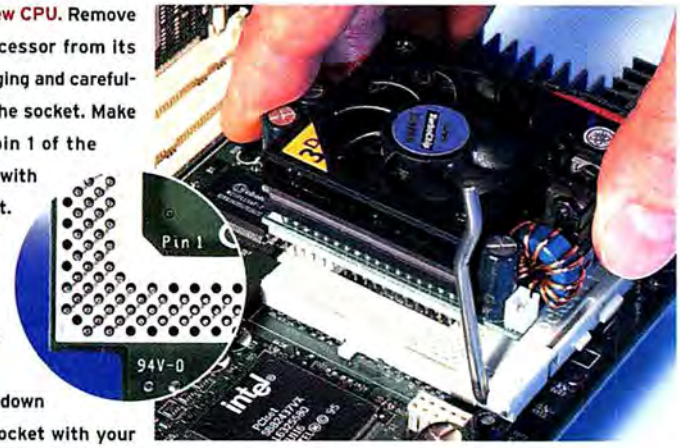
UPGRADING A PENTIUM- OR K6-BASED PC

1 Remove the old CPU. Turn off your PC, but leave it plugged in—a safeguard against static damage. To reach the CPU, you may first have to move cables or add-in cards. Disconnect the power cable to the CPU fan, if any. The fan or heat sink may have to come off separately.

Note which corner of the CPU has a small diagonal cut and (usually) a dot. That is pin 1. Put a masking tape mark near pin 1 on the motherboard to ensure easy insertion of your new CPU.

Touch a metal part of the case (to ground yourself) and with your other hand gently lift the CPU-release lever. Carefully pull the processor straight out of its socket.

2 Insert the new CPU. Remove the upgrade processor from its protective packaging and carefully insert it into the socket. Make sure you have pin 1 of the CPU well aligned with pin 1 of the socket. If it's aligned improperly, turning on the system's power may ruin your new CPU.



Press the CPU down firmly into the socket with your finger and push down the locking lever. Connect the CPU's fan to its power connector.

3 Set the motherboard jumpers. To get maximum performance from your processor upgrade, you must set your motherboard's bus speed to 66 MHz. In addition, you must set the motherboard's clock multiplier to its maximum value, usually 3.5X.

Although some motherboards clearly mark the setting, you'll probably need to check your board's manual. And some newer motherboards don't have jumpers, in which case the new CPU upgrade should set things up on its own.

Don't put the cover back on your PC until you're sure things are working correctly. If everything seems okay, run your applications to make sure. But if nothing happens when you turn it on, power down and check to see that the CPU is inserted properly. If you still have problems, don't hesitate to call tech support.

PHOTOGRAPHS: KEVIN CANDLAND

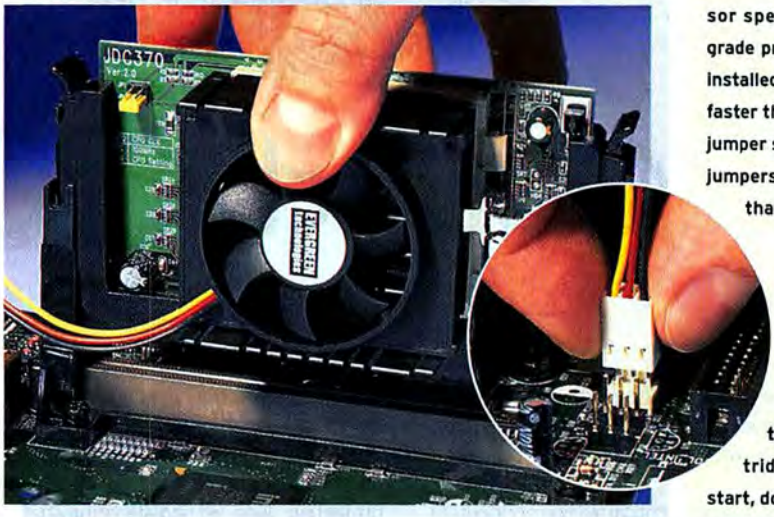
UPGRADING A PENTIUM II (SLOT 1) PC

1 Remove the old CPU. Since Pentium II-based PCs keep power flowing through the motherboard even when they're turned off, unplug the PC after you turn it off and use an antistatic wrist strap.

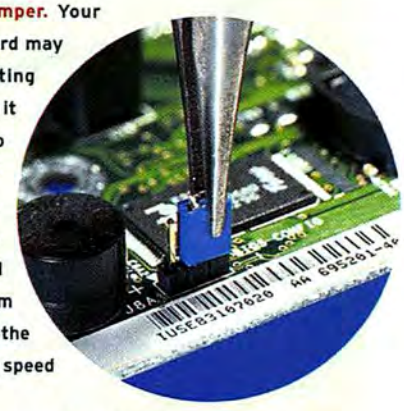
Remove the PC's cover. If your PII has a fan, unplug its power connector. If it has a heat sink instead, remove that. You won't reinstall it, since upgrade CPUs have a built-in fan.

Small levers hold the PII cartridge in a frame. Press them both until they pop into an open position. Grasp the cartridge firmly, and carefully rock it from side to side until it starts to loosen; then gently pull it out of the frame.

2 Insert the new processor cartridge. Remove the new processor from its packaging. Check the processor's manual to determine the proper orientation for its cartridge in the motherboard slot. Then gently slide the cartridge into the frame until it is above the slot. At that point, press down firmly until the levers on the frame click into place. Finally, connect the fan power connector to the motherboard.



3 Set the speed jumper. Your computer's motherboard may have a jumper for setting the processor speed. If it does, set the jumper to match the new processor speed. (If the upgrade processor you've installed runs at a speed faster than the maximum jumper setting, just set the jumpers to the fastest speed that is available.)



If your motherboard doesn't have jumpers, the CPU's speed is usually set from the built-in setup utility. (Procedures in this case vary.)

And some motherboards sense which processor is installed and set themselves up.

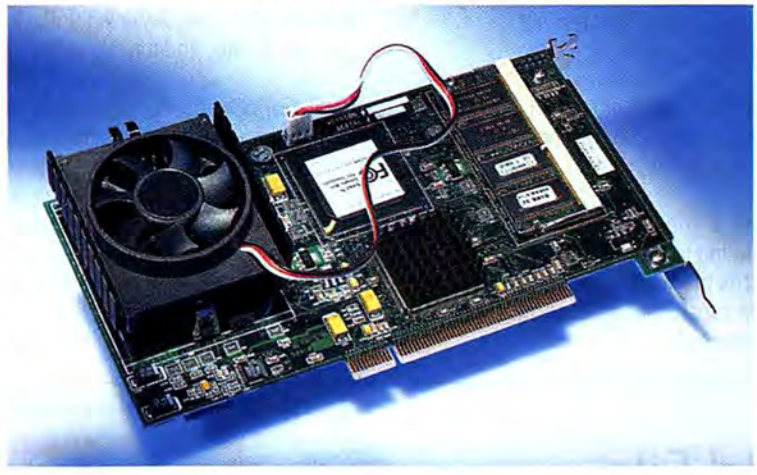
If your system won't start, switch it off and make sure the cartridge is firmly inserted in the slot. If your cartridge is in the slot correctly but your system still won't start, don't hesitate to call the upgrade company's tech support.

AND NOW FOR SOMETHING COMPLETELY DIFFERENT

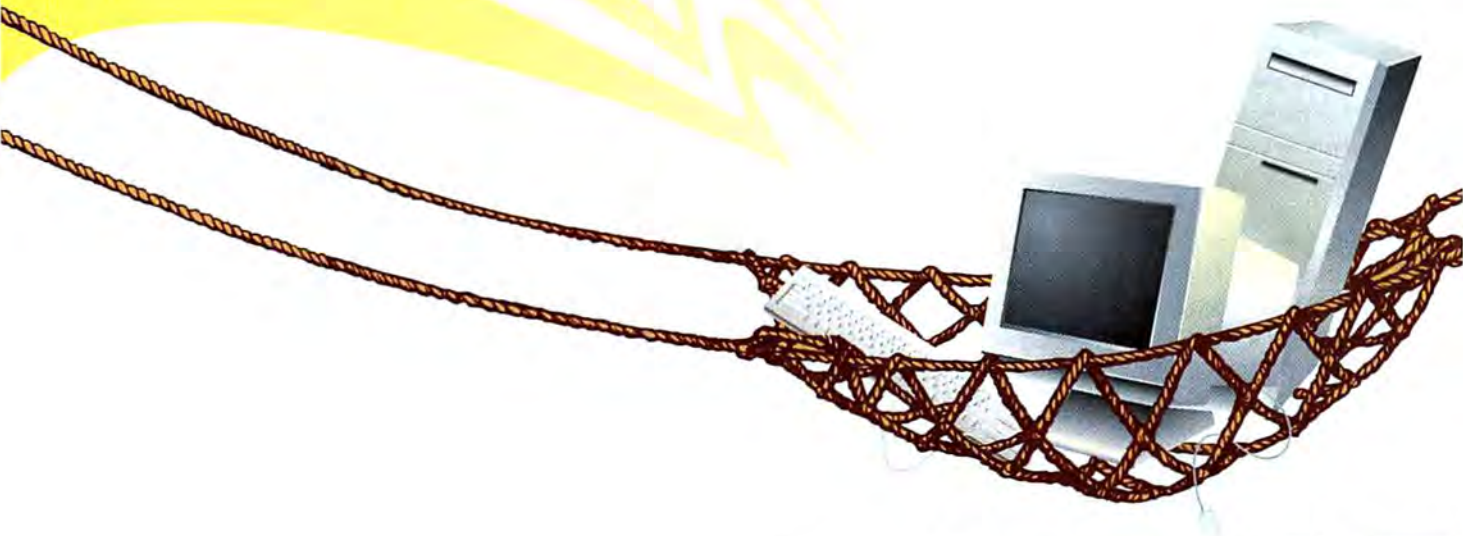
Evergreen Technologies offers a different type of CPU upgrade designed to get the maximum possible performance from older systems. The AcceleraPCI is a PCI add-in card with an onboard Celeron CPU coupled with dedicated high-speed PC-100 SDRAM.

After you plug it into a PCI slot, the AcceleraPCI takes over from your motherboard's CPU and memory (which you leave installed). Unfortunately, it is not compatible with all systems. To test for compatibility of the AcceleraPCI with your system, Evergreen provides "Pre-Qual" software that you can download from its Web site (www.evergreennow.com).

It's an expensive upgrade, too, with prices starting at $349 for a card supporting a 400-MHz Celeron and 64MB of PC-100 SDRAM.



When Computer Problems Strike...
You Need An Incredible Safety Net.



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HAS A SYSTEM CRASH OR VIRUS EVER SENT YOUR HEART RACING?

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With Wild File's award-winning GoBack software you can do this, and more!

How? GoBack provides immediate recovery from system crashes, virus attacks, failed software installations, even user error, by taking the computer back to a time when everything was okay. And because GoBack runs underneath the operating system, you can use it to restore a PC to working order even if Windows won't boot! (No special disks required.)

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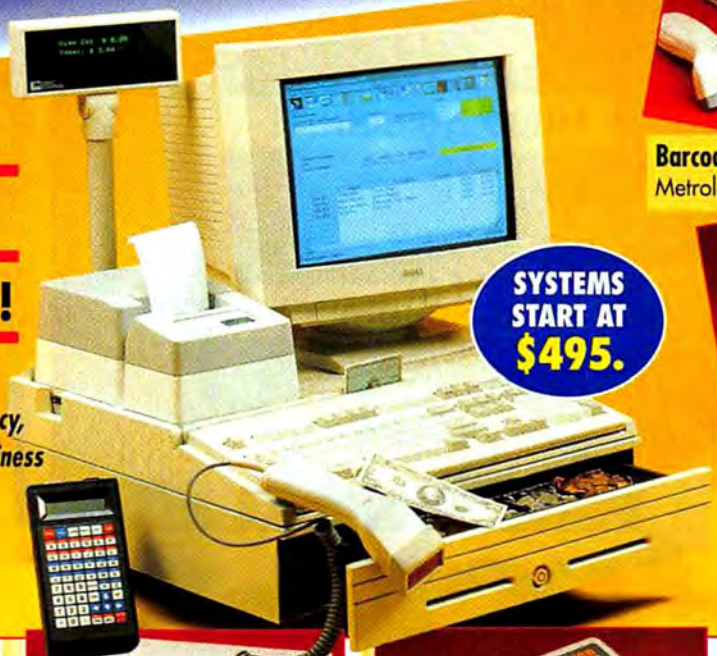

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Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#51819	2100CDS	400 K6-2	64	4.3GB	24X	12.1" DS	56K	W98	$1,099
#51822	2100CDT	400 K6-2	64	4.3GB	24X	12.1" TFT	56K	W98	$1,399
#56233	2140XCDS	450 K6-2	64	4.3GB	24X	13.0" DSTN	56K	W98	$1,299
#54910	2180CDT	475 K6-2	64	4.3GB	24X	12.1" TFT	56K	W98	$1,549

Tecra 8100

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#54552	8100	450 PIII MMX	64	6.0GB	24X	14.1" TFT	56K	W98	$2,899
#54561	8100	500 PIII MMX	64	12.0GB	24X	14.1" TFT	56K	W98	$3,089

Portege 7200CT

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#56921	7200CT	600 PIII MMX	64	12.0GB	—	13.3" TFT	56K	W95	$3,699
#56909	7200CT	600 PIII MMX	64	12.0GB	—	13.3" TFT	56K	W98	$3,699

ThinkPad 390

IBM

- 400MHz Intel® Celeron™ processor
- 64MB RAM
- 24X CD
- 4.8GB hard drive
- 56Kbps V.90 modem
- 12.1" Active Matrix display
- Windows 98

$1,849 #51817

Thinkpad 570

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#45785	570	366 PII	64	6.4GB	—	13.3" TFT	56K	Win 98	$2,879

Thinkpad 600X

Order#	Model	Processor	RAM	HD	CD	Display	Modem	O/S	Price
#52688	600X	500 PIII	64	12.0GB	24X	13.3" TFT	56K	Win 98	$3,289

Deskpro EP

COMPAQ

- 650MHz Pentium III® processor w/MMX™ technology
- 128MB RAM upgradable to 512MB
- 10GB hard drive
- 40X CD-ROM
- Windows 95/98

$1,909 #814150 *Monitor sold separately.*

Deskpro EP

Order#	Model	Processor	RAM	HD	CD	Modem	O/S	Price
#814150	6500	650 PIII	128	10GB	40X	—	Win 95/98*	$1,899
#53375	6400CDS	533 PIII	64	6.4GB	40X	—	Win 95	$1,909
#53374	6550	550 PIII	64	10GB	32X	—	Win 95/98*	$1,439

*Choose O/S @ Bootup.

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#53369	V300	400 Celeron	64	4.3GB	24X	12.1" TFT	56K	Win 95/98*	$1,829
#53371	V300	466 Celeron	64	4.3GB	24X	14.1" TFT	56K	Win 95/98*	$2,229

*Choose O/S at bootup.

IBM Desktops

IBM

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- 64MB RAM
- 10GB Hard Drive
- 40X CD-ROM (model dependent)

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IBM Desktops

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#53105	6563430	500 PIII	64MB	10.1GB	—	W98	DT	$999
#52422	6563442	500 PIII	64MB	13.5GB	40X	W98	DT	$1,219

Presario 7360

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- 10GB hard drive
- 40X Max. CD-ROM
- 56K modem
- Windows 98

Only $199* #54502 *Monitor sold separately.*

Presario Desktops

Order#	Model	Processor	RAM	HD	CD	Modem	Form	System	Price
#54506	7470	533 AMD-K6-2	64	20GB	CD-RW	56K	MT	W98	$449
#54507	7970	700 AMD Athlon	128	40GB	DVD/CD-RW	56K	MT	W98	$1,449

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Base Monthly Server Cost	$18.95	$59.95	$149.95		$18.95	$7.95
Max. per domain cost @ $2.00/domain/mo	N/A	$50.00	$150.00	Managed solutions host 255 domains & up (VST)	N/A	N/A
Max. possible cost to you/ month	$18.95	$109.95	$299.95		$18.95	$7.95
Your monthly gross profit @ $19.95 domain	N/A	$498.75	$1,496.25		N/A	N/A
Your monthly net profit	N/A	$388.80	$1,196.30		N/A	N/A

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Lefler, Evelyn	Personnel Files	07/09/1999 10:37:40 PM	1 Key Authorized
Lefler, Evelyn	Personnel Files	07/09/1999 10:38:00 PM	Authorization timed out
Master Key	Personnel Files	07/10/1999 08:02:37 PM	Master Key
Lee, Richard	Financials	07/10/1999 10:33:58 PM	Key 1 of 2
Whitney, Kevin	Financials	07/10/1999 10:39:02 PM	Not in Time Zone
Lee, Richard	Personnel Files	07/10/1999 10:47:01 PM	1 Key Authorized
**********	Personnel Files	07/10/1999 10:50:41 PM	Closed
Walsh, Darin	Supplies	07/10/1999 11:21:11 PM	1 Key Authorized
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Lefler, Evelyn	Financials	07/11/1999 08:35:32 PM	Key 1 of 2 Authorized
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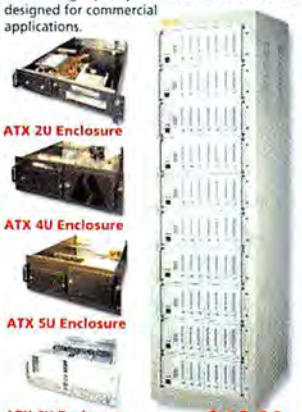

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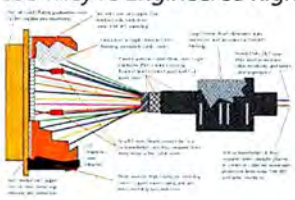

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956 Graphics software
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958 Printers
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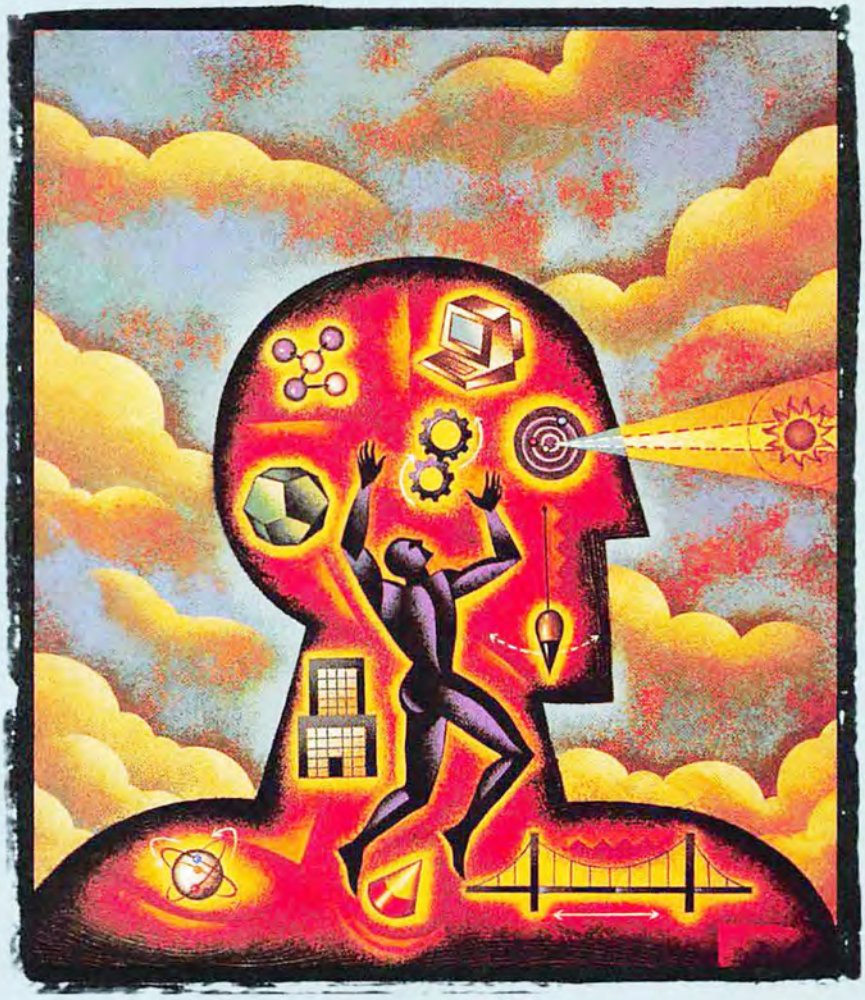

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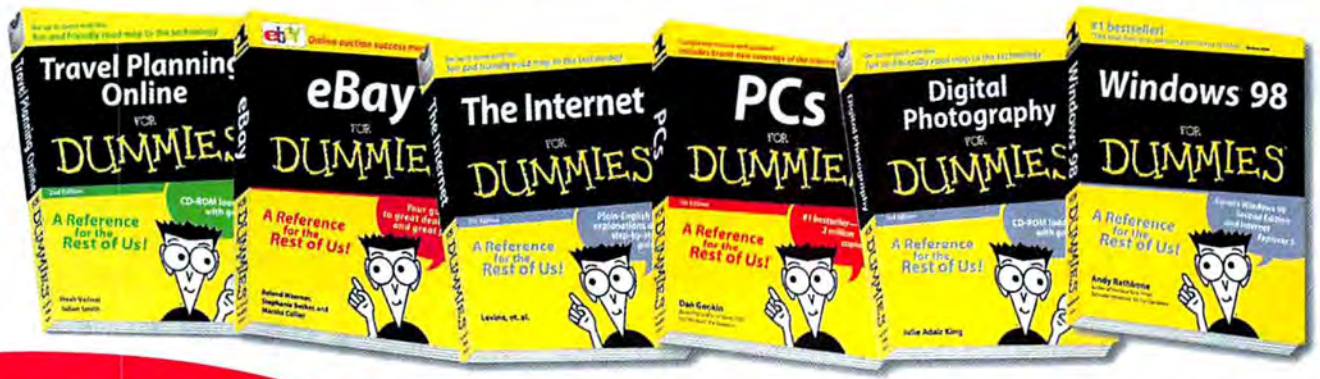

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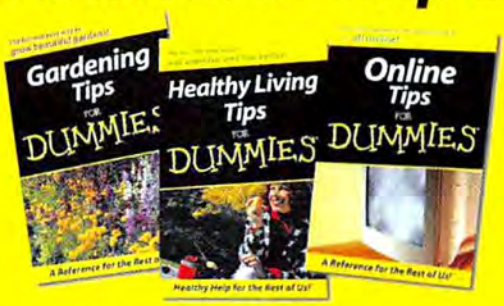

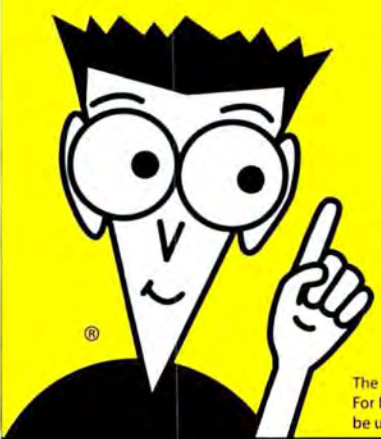

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Free at Last, Free Forever?

IN THE EARLY 1980s, *PC World*'s founding editor, the late Andrew Fluegelman, developed PC-Talk. It wasn't just the best computer communications package of its day; it was also the first important freeware, distributed via user groups and online bulletin boards. Next came shareware, which worked on the honor system. Developers offered a free tryout but expected a small payment if you used it.

At the time, these movements appeared so powerful that I predicted a disk of software should eventually cost no more than a phonograph record—about $5 back then. I even declared, half-jokingly, that software might one day be subsidized by advertising.

Lucky call. Not only has software moved down the price curve toward zero in the ensuing years, but so have hardware and services—in what has to be the greatest giveaway in history. What a wonderful world for cheapskates!

Even Microsoft has followed this trend, since Bill Gates would rather give stuff away than have it sold by competitors. So Windows now comes bundled—excuse me, *integrated*—with all sorts of software that once cost money—everything from a browser and mail client to a disk defragmenter. Microsoft's office products also incorporate free features, like spelling and grammar checking, that cost extra not too long ago. Unfortunately, those toss-ins disguise the fact that the company's software prices haven't budged in recent years.

But today, you can refuse to pay Bill a nickel and purchase a Windows-less PC using a no-charge version of Linux or FreeBSD. Is Office too expensive for you? Sun Microsystems's StarOffice is free. It's nowhere near as advanced as Sun would have you believe, but it'll get the job done. Need a Web server that's been tested in the trenches? Apache Server is there for the taking.

That, of course, is just the beginning. Storage, services, content, and even Internet access are all available for free. Phone and cable companies may soon offer no-cost Web terminals if you sign up for their services—much as cellular providers often give away the phones when you sign long-term service contracts. Advertising may soon be the only thing on the Web that actually costs any money.

Once people are **used to** getting **something** for nothing, it's **hard to convince** them to pony up.

Can this possibly last? Perhaps. Ad-subsidized media can persist as long as advertisers are convinced that consumers respond to their messages and buy their products. That model worked for radio and television, and the Web offers the potential for even more targeted marketing—like the ability to find out you're a left-handed golfer who buys coffee mugs. But if online advertising is so effective, why do so many dot coms use print ads to hawk their sites?

Several free schemes have fallen by the wayside. Remember FreePC? It offered a system in exchange for surrendering personal information and watching ads, but that deal ended when EMachines bought the company. And the free online *Wall Street Journal* disappeared long ago, in favor of a subscription model.

Those may be exceptions, however. "Free" is a powerful concept. Once people are used to getting something for nothing, it's hard to convince them to pony up. Just as pay TV took years to get off the ground in a world of ad-supported free TV, Microsoft's Slate had to stop charging fees after failing to attract paying customers on the Web. Some question whether people will give up personal information in exchange for discounts. But the success of grocery bonus cards and casino affiliation cards suggests that people value parsimony over privacy.

If the trend continues, there may be nothing left to pay for. I might once have made an April Fool's joke about vendors offering free printers in hopes of making up the difference with sales of ink and paper. But given the tremendous drop in personal printer prices recently, that scenario could be commonplace by the time this issue hits the stands. (Tektronix, for one, has experimented with this free model.) Computers still cost money. But will we soon see computer cases and monitor bezels festooned with ads like stock cars, or software infested with as many commercials as Turner Broadcasting's movies?

Bet on it. But only if somebody gives you a free turn at the table.

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.* ■

PHOTOGRAPH: ERIN BUTLER

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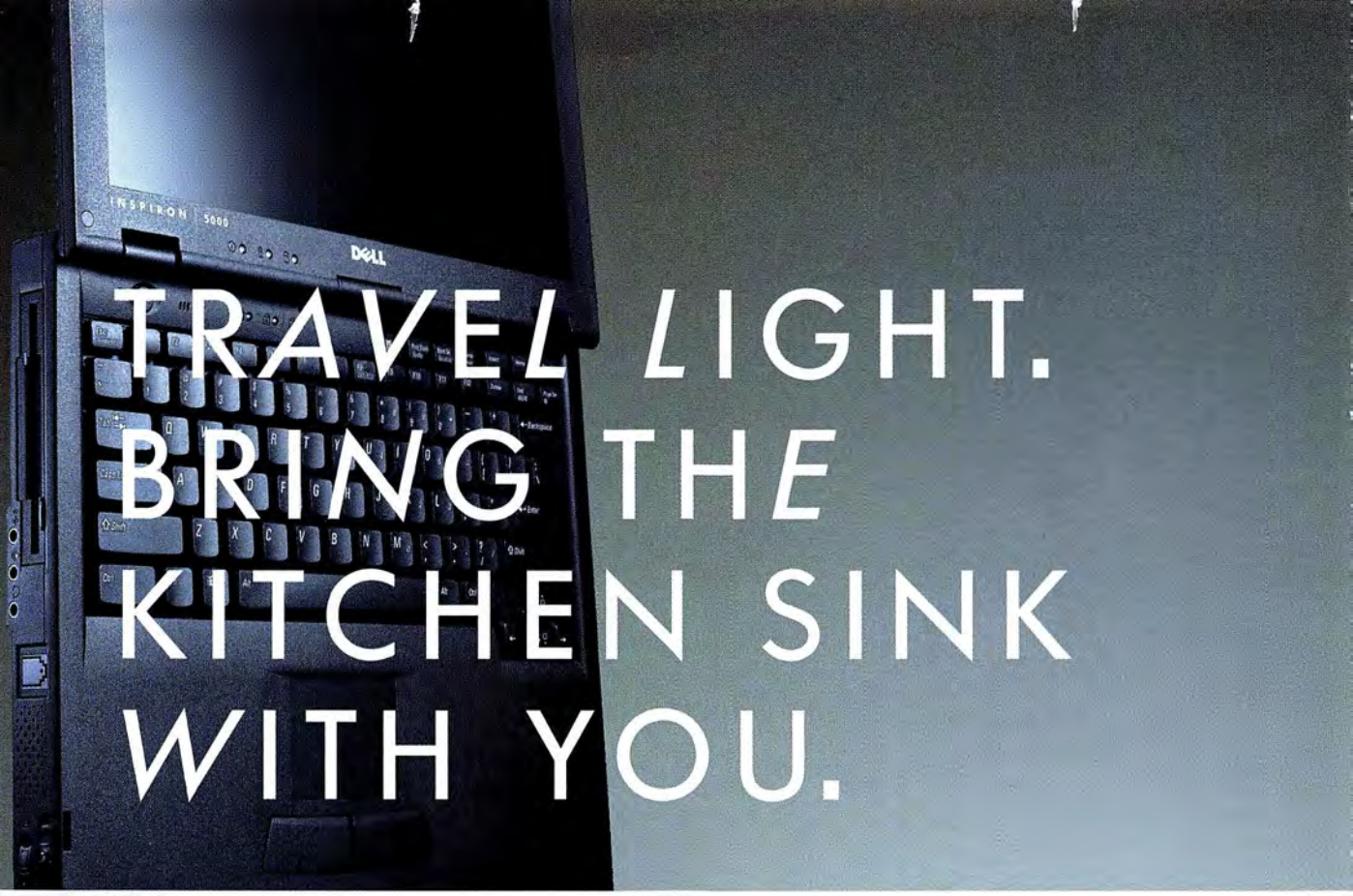

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Oh, the challenges of packing. Do you bring last month's multimedia presentations, the latest auto racing game, or your financial management software? Now you don't have to make those tough choices at all. Unlike your suitcase, the *NEW* Inspiron™ 5000 holds just about everything. Powered by an Intel® Pentium® III processor at up to 650MHz with Intel SpeedStep™ technology, your notebook will run at the right speed for the Apps you're using — helping to maximize battery life. And, with a versatile media bay and up to a 15 inch SXGA+ high-res screen, your office still fits into a 1.5 inch carrying case. Unfortunately, you can't bring your favorite chair, too.

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- PC Speakers
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- SoundBlaster 64V PCI Sound Card with MusicMatch® Jukebox Standard[22]
- harman/kardon Speakers
- V.90 56K Capable[6] PCI Telephony Modem for Windows®
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$1299 As low as $35/Mo., for 48 Mos.[17]
E•VALUE CODE: **03731-500312**

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- Microsoft® Natural Keyboard Pro, Dell™ Edition, add $59

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$2799 As low as $76/Mo., for 48 Mos.[17]
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Design and Affordability

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- 12.1" SVGA Active Matrix Display
- 32MB 100MHz SDRAM
- 4.8GB[5] Ultra ATA Hard Drive
- Modular 24X Max CD-ROM
- 2X AGP 8MB ATI RAGE Mobility™-M1 3D Video
- 32WHr Nickel Metal Hydride Battery (NiMH)
- 1-Year Limited Warranty[2]
- *NEW* Standard 1-Year On-site Service[4]

$1599 As low as $44/Mo., for 48 Mos.[17]
E•VALUE CODE: **03731-800315**

Dell Recommended Upgrades:

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- Upgrade to 53WHr Lithium Ion Battery with ExpressCharge™ Technology, add $59

NEW DELL™ *INSPIRON*™ 5000 Notebook

Performance and Mobility

- *NEW* Intel® Celeron™ Processor at 450MHz
- 15" XGA Active Matrix Display
- 64MB 100MHz SDRAM
- 6.0GB[5] Ultra ATA Hard Drive
- Modular 24X Max CD-ROM
- 2X AGP 8MB ATI RAGE Mobility™-P 3D Video
- Internal 56K Capable[6] V.90 Fax Modem
- 52WHr Lithium Ion Battery
- 3-Year Limited Warranty[2]
- *NEW* Standard 3-Year On-site Service[4]

$2199 As low as $60/Mo., for 48 Mos.[17]
E•VALUE CODE: **03731-800321h**

Dell Recommended Upgrade:

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Performance and Mobility

- *NEW* Intel® Pentium® III Processor at 600MHz Featuring Intel® SpeedStep™ Technology[32]
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- 64MB 100MHz SDRAM ■ 52WHr Lithium Ion Battery
- 6.0GB[5] Ultra ATA Hard Drive
- Modular 24X Max CD-ROM
- 2X AGP 8MB ATI RAGE Mobility™-P 3D Video
- Internal 56K Capable[6] V.90 Fax Modem
- 3-Year Limited Warranty[2]
- *NEW* Standard 3-Year On-site Service[4]

$2899 As low as $79/Mo., for 48 Mos.[17]
E•VALUE CODE: **03731-800328h**

Dell Recommended Upgrade:

- *NEW* Inspiron™ 5000 Advanced Home Base Bundle (Advanced Port Replicator, Midnight Grey Keyboard, and Mouse), add $289

Inspiron™ Notebooks include:

- **Microsoft® Windows® 98, Second Edition**
- ***NEW* Microsoft® Works Suite 2000 with Money 2000 Standard**
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E•VALUE CODE: **03731-390312**

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Affordable Desktop

- Intel® Celeron™ Processor at 466MHz (up to Intel® Pentium® III 550MHz)
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- SoundBlaster 64V PCI Sound Card, 48X Max CD-ROM
- Micro-Tower Chassis
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- 3-Year Limited Warranty[2], 1-Year NBD On-site Service[4]

$799 Business Lease[11]: $27/Mo., 36 Mos.
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- harman/kardon Speakers, add $30

DELL™ *PRECISION*™ Workstation 410

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- Dual Processor/RAID Capable
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- MS® Windows NT® Workstation 4.0, 1-Year NT® Support
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$2499 Business Lease[11]: $84/Mo., 36 Mos.
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- 32MB SDRAM, 4.8GB[5] Ultra ATA HD
- Modular 24X Max CD-ROM
- 2X AGP 8MB ATI RAGE Mobility™-M1 3D Video
- 32WHr Nickel Metal Hydride Battery (NiMH)
- *NEW* Microsoft® Works Suite 2000 with Money 2000 Standard
- Microsoft® Windows® 98, Second Edition
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$1499 Business Lease[11]: $50/Mo., 36 Mos.
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Performance and Mobility

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- Modular 24X Max CD-ROM/Floppy Drive
- 2X AGP 4MB ATI RAGE Mobility™-P 3D Video
- 52WHr Lithium Ion Battery
- Microsoft® Office 2000 Small Business
- Microsoft® Windows® 98, Second Edition
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$1999 Business Lease[11]: $67/Mo., 36 Mos.
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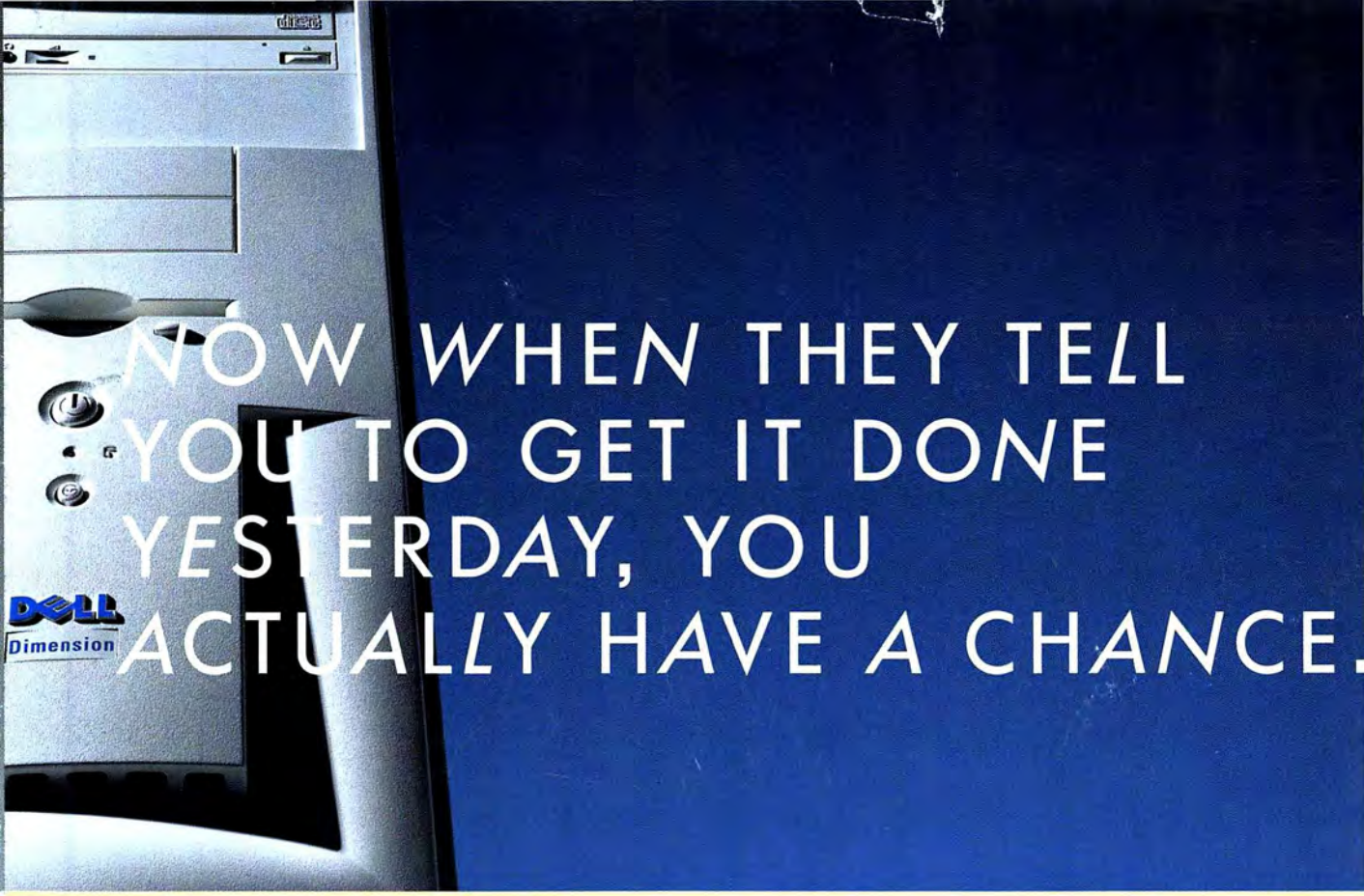

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