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- 128MB NVIDIA™ GeForce4 4600G with TV Out and DVI
- DVD-RAM/DVD-R & 24x CD-RW Drives
- Boston Acoustics™ BA7800™ 5-Piece Speakers
- IEEE1394
- Microsoft® Windows®XP Small Business Edition
- Microsoft® Windows®XP Home Edition
- 1-Year America Online Internet Access (new members only)
- $2999[1] or as low as $84/mo. (14.9% APR for 48mos.)[3]
- Upgrade to 1024MB RDRAM for $360

$1999[1] **Or get the Gateway 700X**

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- 80GB 7200RPM Hard Drive
- 24x CD-RW Drive & 16x DVD-ROM Drive
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$1299[1] **Or get the Gateway 700SE**

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- 15" LCD Flat Panel Display
- 256MB PC800 RDRAM
- 40GB 7200RPM Hard Drive
- 24x CD-RW Drive
- GCS300 Speakers
- IEEE1394
- Microsoft® Works Suite 2002[2]
- Microsoft® Windows®XP Home Edition
- 1-Year America Online® Internet Access (new members only)[2]
- $1299[1] or as low as $37/mo. (14.9% APR for 48mos.)[3]

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- 16x CD-RW Drive
- GCS300 Speakers
- IEEE1394
- Microsoft Works Suite 2002[2]
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- Intel Pentium 4 Processor 1.80GHz
- 15" LCD Flat Panel Display
- 256MB DDR SDRAM
- 40GB 7200RPM Hard Drive
- 64MB NVIDIA GeForce2 MX400 AGP Graphics
- 16x CD-RW Drive & 16x DVD-ROM Drive
- Boston Acoustics BA745 Speakers & Subwoofer
- $1399[1] or as low as $39/mo. (14.9% APR for 48mos.)[3]

Gateway 300S

$999[1] Everything you need. *Gateway's 300S is perfect for e-mail, surfing the Web, word processing and organizing your personal finances – all at an attractive price.*

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- 256MB SDRAM
- 15" LCD Flat Panel Display
- 40GB 7200RPM Hard Drive
- 16x CD-RW Drive
- GCS300 Speakers
- Microsoft Works Suite 2002[2]
- Microsoft® Windows®XP Home Edition
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- $999[1] or as low as $28/mo. (14.9% APR for 48mos.)[3]

Visit www.gateway.com and learn how you can build your own C-series desktop

Gateway PCs use genuine Microsoft® Windows®
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Need high speed Internet? Ask us how to save up to $240 on broadband Internet access.[7]

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This all-in-one package lets you take photos and print them out using your Gateway PC. Prices starting at $99 (with system purchase).[1]

Gateway Money:)Ware™ Package
Get ready for the tax season and organize your finances with ease using Gateway's Money:)Ware package. Priced at $129 (with system purchase).[1]
Or get
Microsoft® Money Suite 2002 $89(with system purchase).[1]

Epson® Stylus® C80 Printer - $149[1]
(after Gateway instant rebate)
Features ultra-fast print speeds, individual ink cartridges and water-resistant/fade-resistant Epson Dura Brite ink.

Lexmark™ E210 Laser Printer - $169[1]
With high-quality printing at a budget-conscious price, this printer delivers professional results for the home or office.

800-216-3305 En Español 800-555-2052	Come into your local Gateway store.	gateway.com	Gateway

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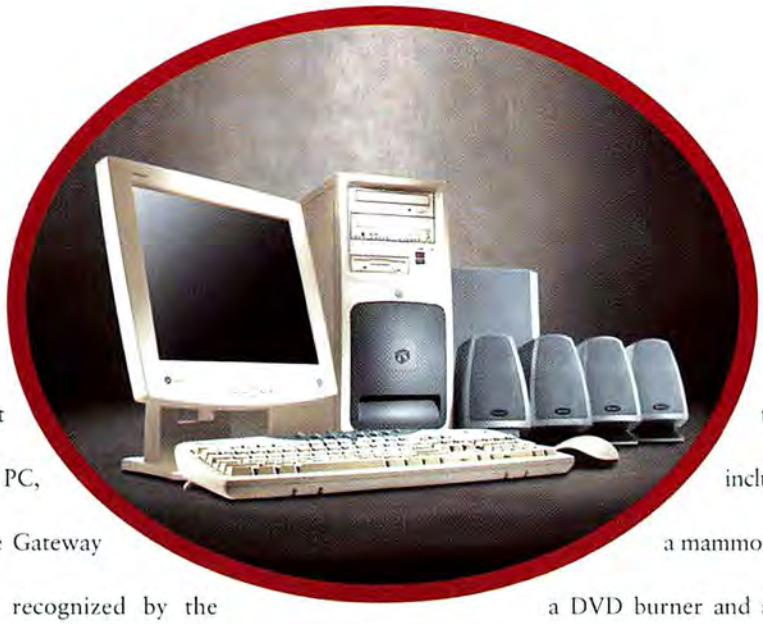
The Gateway 700XL.

Winner of PC Magazine's Editors' Choice Award.



As the nation's most advanced desktop PC, it's no surprise the Gateway 700XL has been recognized by the industry. But the Gateway 700XL is definitely a serious performer. At the heart of the Gateway 700XL is the mind-blowing Intel® Pentium® 4 processor 2.20 GHz–the fastest processor around. And with power like that on hand it makes sense that the Gateway 700XL includes a gig of memory, a mammoth 120GB hard drive, a DVD burner and a stunning 18" LCD flat panel monitor for easy viewing. Play games, edit digital video, download multimedia–the Gateway 700XL handles even the most intense applications like a star. The award-winning Gateway 700XL. Now showing at a Gateway store near you.

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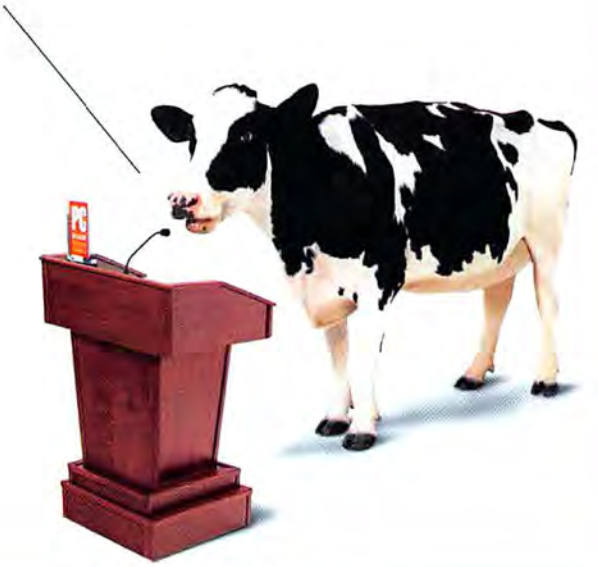
"Wow, Editors' Choice. I can't believe it. I'd like to thank PC Magazine for giving the Gateway 700XL their highest award – this means a lot to me. Of course, I've got to thank the Big Bovine upstairs, and give a big Dakota style shout out to my main man Teddy and the rest of the crew over at Gateway – you guys know who you are – you're solid. Mom & Dad – I love you. Gotta give props to all my brothers in the Herd and the rest of my posse down in the pasture – we'll be kickin' it later on down at Bade's Feed & Grain! Oh, and I want to give a big hug to my astrologer, Angus – you're charts have never let me down. Much love to my life coach, Guernsey, and to my therapist, Dr. Holstein, there's been a lot of ups and downs on the journey up to this moment, and you guys have always stood by me. And, if you'll just bear with me for a moment, I've got a little list here of people I'd be in big trouble if I forgot to thank. My agent, Jersey, who's worked so tirelessly for all these many years to help me get to this place. My trainer, Hereford. My Feng Shui coach, Brahma. Thanks to Rob – Rob you've always got my back. My manager, Pam. My stylist, Joe, who never lets me leave the barn without looking my best. Adam, Todd, Ashley, and everyone else who helps keep my stuff in order. My photographer, Kurt. My retoucher, Cary. Nancy, Rex, Isabelle, Teresa, Terry, Liz, and all those other folks who help when I've got public appearances. Nelson, Berns and the rest of the cattle in my band. My DJ, Moomaster Mike. My



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- 512MB SDRAM
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- 12.1" XGA TFT Active Matrix Display
- Mobile Intel Pentium III Processor 750MHz
- 320MB SDRAM
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- Integrated v.90 Modem
- Modular CD-ROM Drive and Floppy Drive
- Microsoft Works Suite 2002[1]
- Microsoft® Windows®XP Home Edition
- $1899[1] or as low as $53/mo. (14.9% APR for 48 mos.)[2]

Solo 5350

$1399[1] A lightweight heavyweight. *The Solo 5350 delivers desktop-caliber performance and maximum versatility on the road. Ounce for ounce, it's an unbelievable notebook for the money.*

- 14.1" XGA TFT Active Matrix Display
- Mobile Intel Pentium III Processor-M 1.06GHz
- 256MB SDRAM
- 20GB Ultra ATA Hard Drive
- Integrated v.90 Modem
- Modular 24x CD-ROM Drive
- Microsoft Works Suite 2002[1]
- Microsoft® Windows®XP Home Edition
- $1399[1] or as low as $39/mo. (14.9% APR for 48 mos.)[2]

Solo 1400

$999[1] A great notebook doesn't have to be expensive. *Affordable yet more than capable, Gateway's Solo 1400 is the smart choice for the busy student or the value-minded professional.*

- 14.1" XGA TFT Active Matrix Display
- Mobile Intel Celeron® Processor 850MHz
- 256MB SDRAM
- 10GB Ultra ATA Hard Drive
- Integrated v.90 Modem
- Integrated 8x DVD-ROM Drive and Floppy Drive
- Microsoft® Works Suite 2002[1]
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- $999[1] or as low as $31/mo. (14.9% APR for 48 mos.)[2]

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Gateway PCs use genuine Microsoft® Windows®
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AOL Keyword: Gateway

[1]Monthly payment estimated, based on standard system price (excluding shipping/handling/taxes), 48 month term, and 14.9% APR. The APR is not guaranteed and may change. Actual payment amount and repayment term may vary. [2]For rebate details visit www.gateway.com/rebate. *Weight varies with options.

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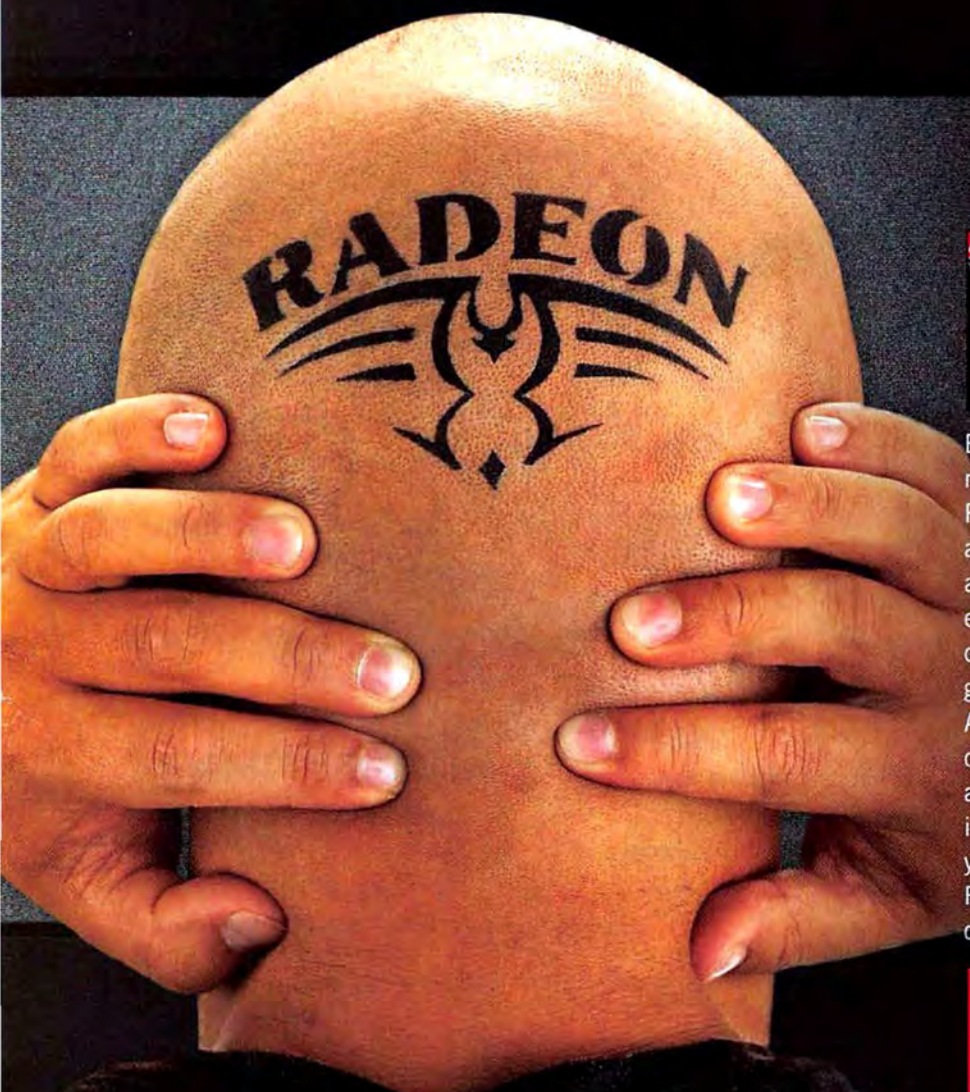

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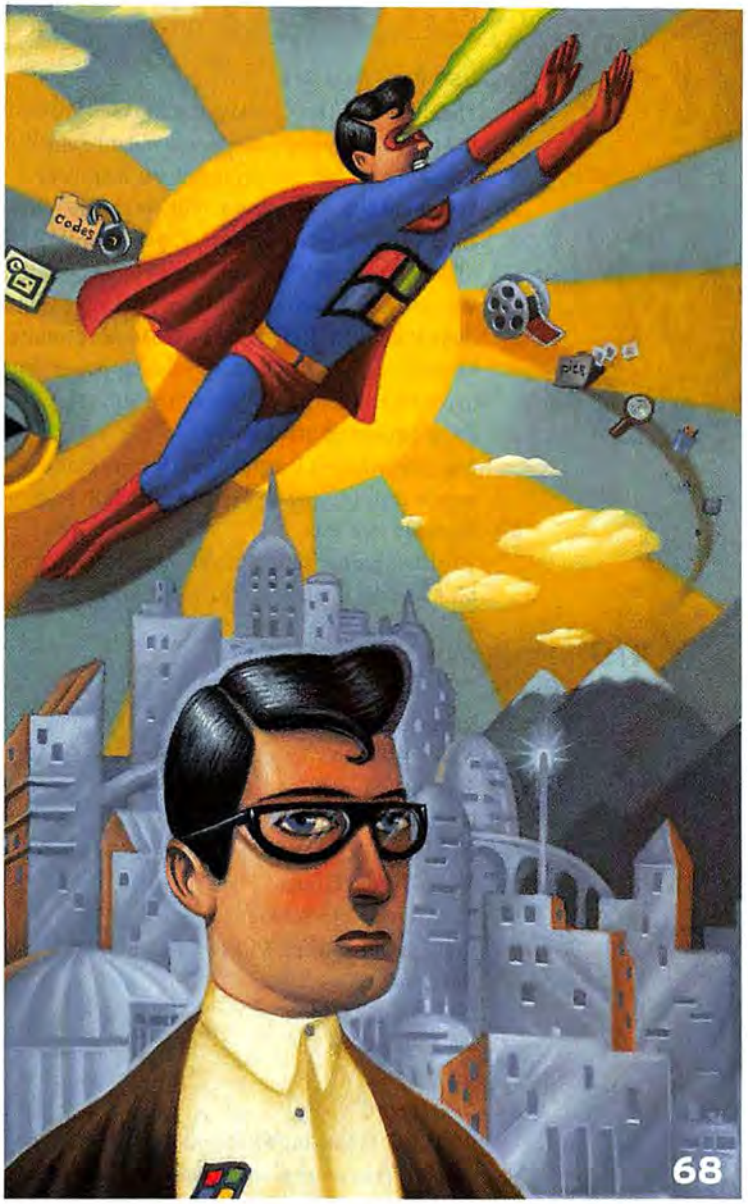

PC WORLD

APRIL 2002

VOLUME 20 ◆ NUMBER 4

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FEATURES

PDAs

84 Next-Generation PDAs

As personal digital assistants—including PDA/cell-phone combos—continue to evolve rapidly, their legion of fans grows. We look at 16 capable handhelds to find the best and the brightest.

UPGRADES

97 Great Upgrades for Under $100

Expand your computer capabilities without investing in a new PC. Here are 23 smart upgrades—for digital photography, Web conferencing, enhanced audio, and networking—priced at less than $100 each.

CUSTOMER SERVICE

109 Do Online Complaints Pay Off?

Once, if you got poor service from a merchant, you warned all your friends. Now, you can tell the world—at various gripe sites. They may let you rant, but can they resolve your problems with a company? To find out, we tried a dozen sites for soreheads.

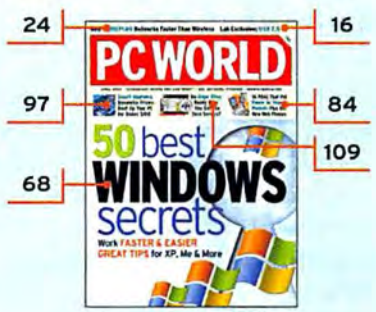
COVER STORY

68 Windows Secrets

Is Windows—that ubiquitous but seemingly milquetoast operating system—in reality a mighty fighter for truth, justice, and the American way of getting things done? Yes. Scott Dunn, mild-mannered reporter for the *Monthly PC Planet*, uncovers superpowers that lie just beneath the OS's surface. Learn how to customize Windows XP, Me, 2000, 9*x*, or NT to increase system and online performance, manage files better, and more.

Cover Graphics by Greg Silva and Diego Aguirre

ON THE COVER



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HOW-TO

E-Mail Etiquette
Follow our tips to avoid committing an electronic faux pas.
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COMING UP IN MAY

Troubleshooting Tools: Whether your PC is brand new or starting to show its age, the right utilities can keep it in tip-top shape.

Easy Networks: Here are four technologies that make linking computers a snap, plus tips on setup, security, and more.

Web Ads: Feeling overwhelmed by the flood of increasingly aggressive ads on the Net? We show you how to survive the deluge.

Ultrathin Notebooks: Thin-and-light laptops are sleeker and more capable than ever. We test five new models and find a Best Buy.

NEWS & TRENDS

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The PC World Test Center put some USB 2.0 cards to work. Our findings: The new standard easily outruns USB 1.1 but doesn't match its own specs.
20 **Take Pentium 4 Power on Your Next Trip**
Intel's latest mobile processor, paired with DDR SDRAM, promises to make laptops more powerful. We matched it against PIII-M and Athlon 4 units.
24 **Just Plug It In: Networking Via Power Circuits**
HomePlug uses a building's existing power lines to connect PCs, and it's faster than 802.11b.
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56 **Electronic Note Taking**
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62 **Desktop PC**
PC Power & Cooling SleekLine 1400

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Multiboot your computer to run your current OS and Windows XP; keep track of harmful clicks.
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Reprint documents quickly; determine the best connection type for your cable modem.

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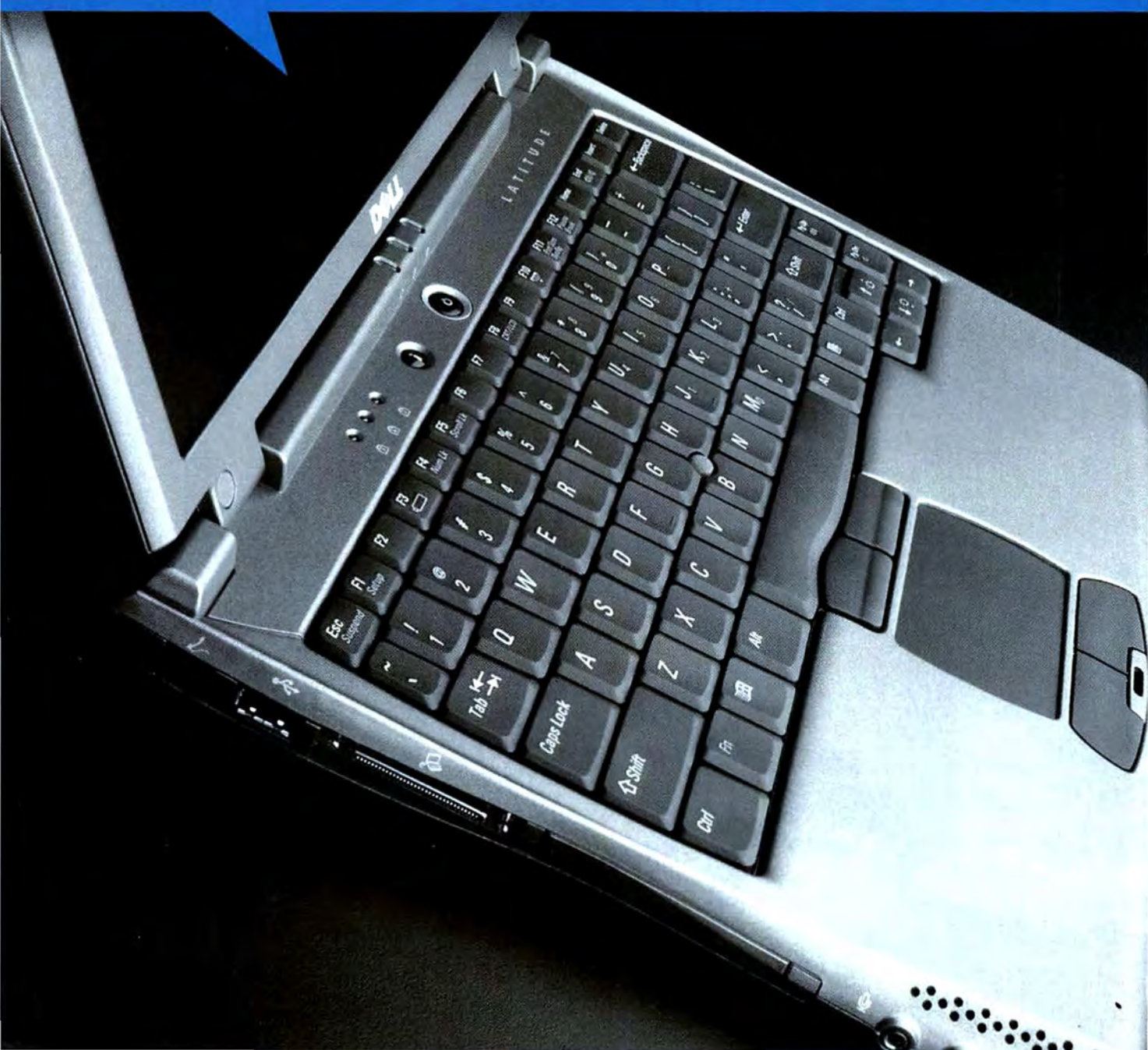

The NEW ultra-thin, ultra-light Dell Latitude C400 business notebook. Starting at a mere 3.6 lbs,[2] I'm also ultra-mobile. Sleek and stylish – I'm only an inch thin – I'm as easy on the eyes as I am on the shoulders. I'm wireless ready, thanks to my standard dual wireless antennas and an optional wireless LAN connection. Factor in the extraordinary power of my Mobile Intel® Pentium® III-M Processor at up to 1.20GHz and my SpeedStep technology that helps conserve battery power, and I'm one souped-up little machine. And since you get a direct relationship with Dell, you can customize all of this technology according to your needs. I'm living proof that big things do come in small packages.

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***PC Magazine* Editors' Choice**
Latitude C400 Notebook
– November 2001

Dell | Small Business

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NEW Wireless-Ready Value Notebook
- Intel® Celeron® Processor at 1.06GHz
- 14.1" SVGA Active Matrix Display
- 128MB PC100 SDRAM
- 20GB[3] Ultra ATA Hard Drive
- 16MB DDR AGP 4x ATI® Radeon™ Video
- Windows® XP Home
- Modular 24x Max CD-ROM/Floppy Drive
- Internal 56K Capable[5] Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- 1-Yr Next Business Day On-Site Service[7]

$1199 QuickLoan: **$32**/mo., 48 mos.[11]
E-VALUE Code: 10810-790311

Recommended upgrades:
- TrueMobile™ 1150 Integrated Wireless Solution,[11] add $99
- 3-Yr Next Business Day On-Site Service,[7] add $298

Latitude™ C610 Notebook

NEW Mainstream Thin & Light Notebook
- NEW Mobile Intel® Pentium® III Processor at 1.0GHz-M
- 14.1" XGA Active Matrix Display
- 128MB PC133 SDRAM
- 20GB[3] Ultra ATA/100 Hard Drive
- 16MB DDR AGP 4x ATI® Radeon™ Video
- Windows® XP Professional
- Modular 24x Max CD-ROM/Floppy Drive
- Internal 56K Capable[5] Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- 3-Yr Next Business Day On-Site Service[7]

$1699 QuickLoan: **$45**/mo., 48 mos.[11]
E-VALUE Code: 10810-790316

Recommended upgrades:
- 8-8-8-24x SWDVD/CDRW Combo Drive, add $200
- 3-Yr CompleteCare™ Service,[20] add $169

Latitude™ C400 Notebook

NEW Ultra-Light Notebook, Only 1" Thin and 3.6 lbs!
- Mobile Intel® Pentium® III Processor at 866MHz-M
- 12.1" XGA Active Matrix Display
- 128MB PC133 SDRAM; 10GB[3] Ultra ATA/100 Hard Drive
- Intel® 830M Integrated Graphics up to 32MB SDRAM (shared[18])
- Windows® XP Professional
- External Floppy Disk Drive
- Internal 56K Capable[5] Modem and 10/100 NIC
- Internal Wireless-Ready Antenna
- 3-Yr Next Business Day On-Site Service[7]

$1799 QuickLoan: **$48**/mo., 48 mos.[11]
E-VALUE Code: 10810-790317

Recommended upgrades:
- TrueMobile™ 1150 Integrated Wireless Solution,[11] add $99
- 3-Yr CompleteCare™ Service,[20] add $169

Latitude™ C810 Notebook

Powerful Desktop Alternative Notebook
- Mobile Intel® Pentium® III Processor at 1.13GHz-M
- 15" UXGA Active Matrix Display
- 128MB PC133 SDRAM
- 10GB[3] Ultra ATA/100 Hard Drive
- 16MB DDR NVIDIA® GeForce2™ Go® Video, AGP 4x
- Windows® XP Professional
- Modular 24x Max CD-ROM/Floppy Drive
- Integrated Mini-PCI V.90/56K Capable[5] Modem
- Internal Wireless-Ready Antenna
- 3-Yr Next Business Day On-Site Service[7]

$1849 QuickLoan: **$49**/mo., 48 mos.[11]
E-VALUE Code: 10810-790318

Recommended upgrades:
- 8x CD-RW/DVD Combo Drive, add $299
- 3-Yr CompleteCare™ Service,[20] add $169

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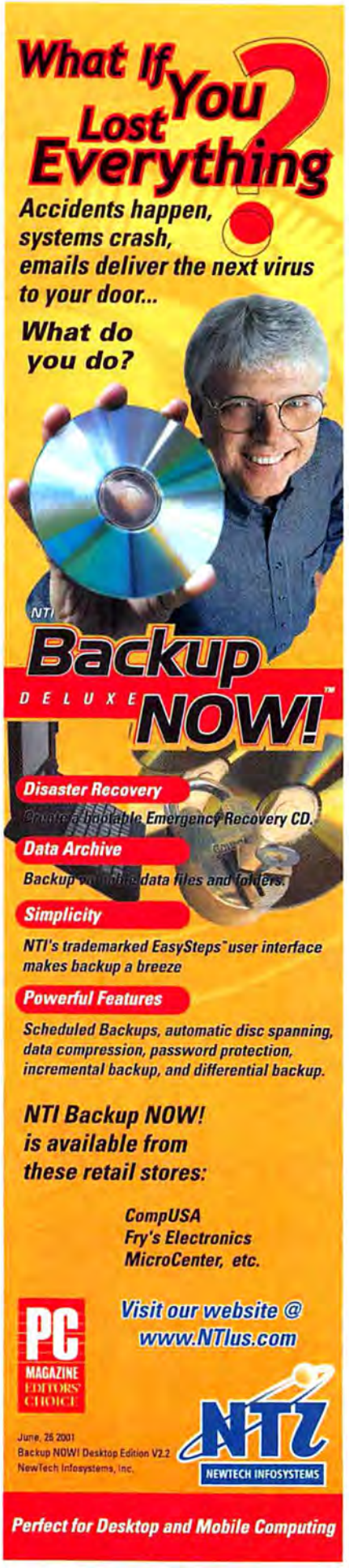

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UP FRONT

KEVIN McKEAN

Is PC Service Getting Better or Worse?

EVER SINCE 1994, PC WORLD HAS polled readers to find out which computer makers offer the most reliable equipment and the best technical support. Thanks to the weak economy and some disturbing trends noted in last year's poll, this year's survey may be the most important one yet.

First, the disturbing part. After years of relatively steady improvement, the 2001 study showed a dip in customer service. Compared to participants the year before, our 27,000 respondents said that they waited on hold longer for help, that the tech reps were less knowledgeable, and that resolving problems took longer. One in ten people said their problems were never fixed, compared to one in thirteen a year ago.

The explanation seems simple. Like other tech companies, PC makers were slammed by the economic slowdown. Some cut back on service to trim costs (see find.pcworld.com/22401). And that generally means laying off phone support staffers and emphasizing e-mail, online chat, and Web-based self-help instead.

Given the dreadful economy, it's hard to criticize these moves. But last year's survey showed *PC World* readers were particularly unhappy with e-mail and Web support. In fact, of the thousands of readers who said that they had e-mailed questions to manufacturers about their malfunctioning computers, only 25 percent reported that the answer they got back actually solved their problem.

So what's happened since then? You might expect that with flat-to-falling sales, customer service would sink even further. But it's also possible that PC makers have learned their lesson: Dell Computer, for example, last year discontinued its online interactive support tool, blaming poor "customer experience" as the reason.

Help us find out by taking PC World's subscriber survey.

We'd like to know what you think, so we're inviting all subscribers to participate in this year's Reliability and Service survey at www.pcworld.com/pcsurvey. "We're hoping to collect as much data as possible so we have a better chance of giving readers a thorough evaluation," says Senior Editor Ed Albro, who—along with Executive Editor Harry McCracken and Senior Research Analyst Lisa Huck—is overseeing the survey this year.

As an inducement, everyone who answers the questionnaire will automatically be entered in *PC World*'s drawing for a new Dell Pentium 4 desktop loaded with great features like a 17-inch flat-panel display and a DVD-RW drive. Only subscribers can take the survey, but the Web page—which spells out the complete rules—explains how nonsubscribers can participate in the drawing. And even if you don't subscribe, you can still evaluate products at PCWorld.com (visit find.pcworld.com/22161 for details).

Speaking of tech support, if you've had service problems lately, you may want to check out Daniel Tynan's "Do Online Complaints Pay Off?" on page 109. Also in this issue, Scott Dunn helps you unleash Windows' hidden powers (page 68); Carla Thornton and Grace Aquino rate 16 handhelds and PDA/cell phones (page 84); and Aquino, Ed Albro, Alan Stafford, and Michael Gowan uncover 23 valuable add-ons and upgrades priced at $100 or less each (page 97). Comments? Send them to kevin_mckean@pcworld.com. ■

Kevin McKean is editorial director.

Tell Us What You Think: Visit www.pcworld.com/pcwinput and rate this issue—you could win $500. You'll need your subscriber number from the mailing label to take this survey online. The Web site explains the official rules and also how to participate in the drawing if you're not a subscriber. You can enter from March 1 through March 29, 2002.

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USB 2.0'S REAL DEAL

IT'S FAST, BUT NOT 40 TIMES FASTER THAN USB 1.1. OUR LAB TESTS SHOW THE ACTUAL PERFORMANCE GAINS. BY TOM MAINELLI

TEST Center PC USERS love their machines' dependable Universal Serial Bus ports, but speedy peripherals such as external hard drives can turn USB's 1.5-megabytes-per-second (12-megabits-per-second) transfer rate into a performance bottleneck. Enter USB 2.0, or Hi-Speed USB, which promises the versatility of its predecessor, compatibility with today's USB products, and a transfer rate of up to 60 MBps (480 mbps) with USB 2.0 peripherals—that's 40 times faster than USB 1.1.

Can USB 2.0 live up to the hype? The first products that we tested (see October 2001's "USB: The Sequel," at find.pcworld.com/22141) were CD-RW drives that couldn't take advantage of USB 2.0's full speed. But with USB 2.0 add-in cards and peripherals finally arriving en masse, we decided to take a closer look.

The good news: Although some vendors of peripherals recommend specific USB 2.0 cards, tests conducted by the PC World Test Center showed solid compatibility among Hi-Speed USB products. However, performance didn't match the widely advertised claims. The best performance by a USB 2.0 peripheral, achieved while moving data between a PC and an external hard drive, accelerated the transfer rate by 12.6 times. We saw substantially lower jumps with other USB 2.0 devices—an external

CD-RW drive and a scanner—because of their lower top-end performance capabilities.

Still, Hi-Speed USB is far from being a failure. You'd be hard-pressed to obtain the enhancements that it delivers through any other PC upgrade, aside from adding an IEEE 1394 interface—an older, competing standard that promises 50 MBps (400 mbps) transfers. The Hi-Speed USB boost is even more impressive given that a USB 2.0 PCI card and cable should cost less than $100 together.

AT A GLANCE

USB 2.0 CARDS

CARD	External/ internal ports	List price
Adaptec USB2connect 3100LP find.pcworld.com/22281	3/1	$49
Belkin USB 2.0 F5U220 find.pcworld.com/22282	4/1	$69
Keyspan USB 2.0 U2PCI-5 find.pcworld.com/22283	4/1	$59
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SIIG USB 2.0 5-Port PCI find.pcworld.com/22285	4/1	$40

REALITY TESTS

WE LOOKED AT five Hi-Speed USB PCI cards: Adaptec's USB2connect 3100LP ($49), Belkin's USB 2.0 F5U220 ($69), Keyspan's USB 2.0 U2PCI-5 ($59), Orange Micro's OrangeUSB 2.0 Hi-Speed PCI ($69), and SIIG's USB 2.0 5-Port PCI ($40); all of the prices identified here are list. We used the vendor's drivers for each card.

We tested all five USB 2.0 PCI cards using Maxtor's $200 Personal Storage 3000LE, a 40GB, 5400-rpm external hard drive; Epson's $400 Perfection 2450, a flatbed photo scanner; and TDK's $200 241040UE VeloCD, a 24X/10X/40X external CD-RW drive.

We ran our tests on an IBM NetVista PC configured with a 1.4-GHz Intel Pentium 4 processor, 256MB of memory, a 60GB internal hard drive, and Windows XP Professional. We installed and tested each card in the computer separately, running each of the three peripherals before moving on to the next card. To establish comparable scores for USB 1.1, we ran tests via the same PC's integrated USB 1.1 ports (see chart, page 18).

First things first: Every card and peripheral combination worked. Of course, that's what should happen with products using any standard, but some vendors of early Hi-Speed USB–compliant peripherals recommended specific PCI cards for use with their products, which raised questions about interoperability.

For example, when Sony shipped its slender CD-RW/DVD-ROM combination drive (model CRX85U/A2) last fall, it recommended Adaptec's card after "extensive compatibility testing." Today Sony still recommends the Adaptec card, but a company spokesperson observed that the drive should work with any card that carries the Hi-Speed USB logo.

The packaging for all the PCI cards we tested carried that logo, meaning that the product had passed a compliance test established by the USB Implementers Forum, the organization behind the standard.

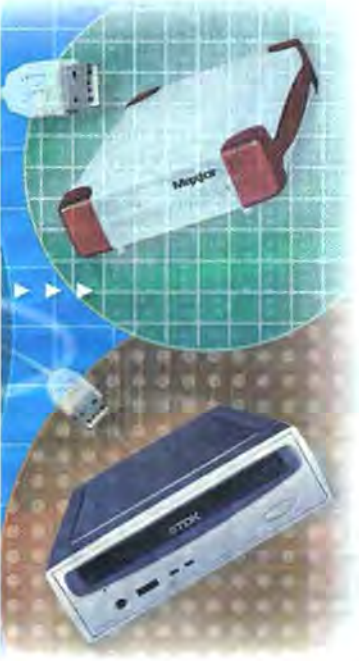
Not only did all five cards work with all peripherals, but their performance was strikingly similar: In most tests, the variance was a percentage point or less. We attribute this result largely to each card's using the same NEC host controller chip.

Shortly after we completed testing for this story, Microsoft released final USB 2.0 Windows XP drivers for download. The company says it will also soon release drivers for Windows 2000, but it has no such plans for its Windows Me and Windows 98 OSs.

PRETTY DARN QUICK

THE MAXTOR external hard drive realized the largest increase in transfer rate of the three peripherals we tested with USB 2.0 cards. The average time all five cards took to complete our file-copying task using the drive was 58 seconds, versus 12 minutes, 13 seconds with USB 1.1— ▶

ILLUSTRATION: JEFF BERLIN



IN BRIEF

Product Pipeline

FOURTH GEFORCE: NVidia's new (and pricey) GeForce4 Titanium is designed to make PC gamers drool, while the budget GeForce4 MX chip set offers improved graphics for business users and casual gamers. Graphics cards featuring the high-end GeForce4 Titanium chip set are likely to sell for between $349 and $399. Two planned versions of the Titanium chip with slower clock speeds will appear on boards priced at $299 and $199. GeForce4 MX-based cards are expected to cost from $99 to $179. find.pcworld.com/22741

COLOR IT PALM: Palm is replacing its M505 with the $399 M515, a similar unit with a better color screen and 16MB of RAM in place of 8MB.

Also new to Palm's lineup is the $279 M130 (shown), similar to the midrange M125, but with a color screen. find.pcworld.com/22742

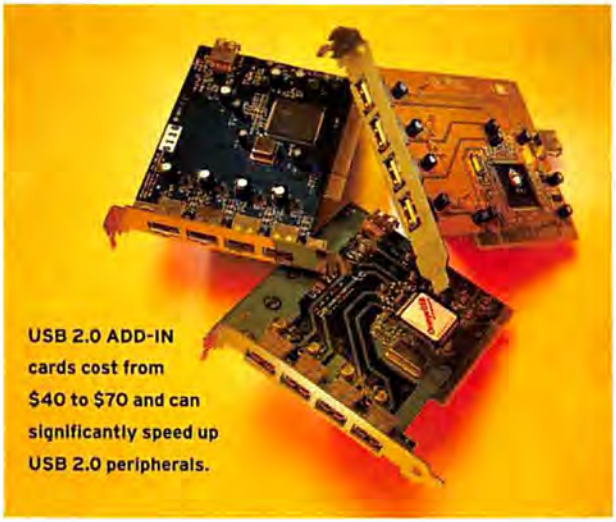
Did You Know?

New census data shows that 54 percent of the U.S. population (143 million people)

143 MILLION

used the Net as of September 2001. And over 2 million new users go online monthly.

SOURCE: U.S. DEPARTMENT OF COMMERCE



USB 2.0 ADD-IN cards cost from $40 to $70 and can significantly speed up USB 2.0 peripherals.

12.6 times faster. The five-card average on our Photoshop test was 4 minutes, 24 seconds—8.5 times faster than the 37 minutes, 19 seconds that USB 1.1 took. Even so, our anecdotal analysis indicates that a 5400-rpm internal hard drive with a standard UDMA/100 bus still performs noticeably faster than our USB 2.0 drive.

Don't blame Maxtor's external drive for the slower performance—it's capable of sustained transfer rates of up to 46.7 MBps (about 374 mbps). That's slower than Hi-Speed USB's theoretical maximum, but much faster than the effective transfer rate of 11.2 MBps (90 mbps) we achieved in our file-copying task.

For answers, we turned to an executive at the USB Implementers Forum. First, according to Jason Ziller, chairman of the USB-IF and an Intel technology initiatives manager, at least 10 to 15 percent of the stated 60 MBps (480 mbps) of Hi-Speed USB goes to *overhead*—the communication protocol between the card and the peripheral. Overhead is a component of all connectivity standards.

In addition, Ziller said, our lower-than-expected scores may be the result of an operating system and/or a host controller chip that is not yet fully optimized for maximum performance. Transfer speeds should improve as chip vendors and driver writers fine-tune their products.

SCANNERS AND CD-RW DRIVES

OUR TESTS using TDK's CD-RW drive also revealed noticeable performance improvements with Hi-Speed USB—though the limitations of even a very fast CD-RW drive keep it from speeding up as much as a hard drive. In the digital audio extraction test, our five Hi-Speed USB boards completed the task in an average of 98 seconds, versus 6 minutes, 32 seconds for USB 1.1—a fourfold improvement. In our write-on-the-fly test, Hi-Speed USB offered a fivefold performance boost, which amounts to about 2.7 MBps (21 mbps). The drive's 24X write speed is theoretically capable of achieving a maximum transfer rate of 3.6 MBps (28.8 mbps); its 40X read speed equals a maximum of 6 MBps (48 mbps). Our test drive's scores are on a par with comparable internal CD-RW drives we've tested in the past. In short, with USB 2.0 you no longer sacrifice performance for the convenience of an external drive.

The transfer-rate limitations of a scanner are even more noticeable. The Epson scanner ran 1.7 times faster with USB 2.0 than with USB 1.1 on our 300-dpi image test, and it showed a twofold improvement on the 1600-dpi image. That's in line with what Epson engineers say they expected, since the memory buffer of most scanners is simply too small to take full advantage of Hi-Speed USB. Even so, the higher-resolution image scan required only 6 minutes, 44 seconds to complete using USB 2.0—about 7 minutes faster than using USB 1.1. That difference can really add up if you do a lot of scanning.

Chances are your next PC will come equipped with Hi-Speed USB. In January, Gateway became the first major PC vendor to offer systems with Hi-Speed USB included on the motherboard. The USB-IF's Ziller says that he expects other system vendors to follow suit in the coming months.

TOWARD UBIQUITY

BUT THE BIG push will come later this year, when chip set manufacturers begin adding USB 2.0 hardware to their products. Ziller says that Intel will launch a new chip set with built-in Hi-Speed USB by this summer. Chip set vendors Silicon Integrated Systems and Via Technologies say they plan to add Hi-Speed USB to their product lines in the next few months.

In the meantime, if you're in the market for a new scanner, an external CD-RW drive, an external hard drive, or any other peripheral that can at least partly use USB 2.0's faster transfer rates, we'd recommend upgrading. After all, any upgrade that painlessly improves your PC's performance by anywhere from two to five times or even more—and costs less than $100—is well worth considering. ▶

TEST REPORT USB PERIPHERALS

USB 2.0 VS. USB 1.1: REAL-WORLD TRANSFERS

	Hard drive tests		CD-RW drive tests		Scanner tests	
	Copy files and folders	Photoshop 6.0.1	Digital audio	Write to CD-R	1600-dpi image	300-dpi image
Average of five USB 2.0 cards	0:58	4:24	1:38	4:03	6:44	0:15
USB 1.1	12:13	37:19	6:32	20:10	13:42	0:26
Performance gain	12.6X	8.5X	4X	5X	2X	1.7X

TEST Center

HOW WE TEST: We ran our tests on a desktop PC running Windows XP Professional. We performed the USB 1.1 tests using the PC's integrated ports, then installed and tested each card individually. We performed six different tests: two hard drive tests; two CD-RW drive tests; and two scanner tests. Timed results are in minutes:seconds. For all tests, shorter times are better. Data based on tests designed and conducted by the PC World Test Center. Visit find.pcworld.com/22781 for more details.

PHOTOGRAPH: MARC SIMON

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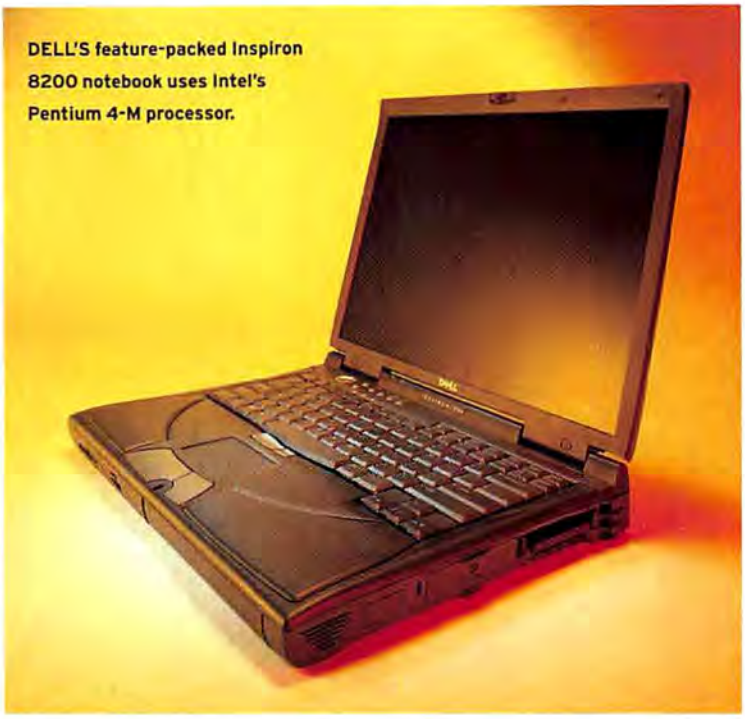
NOTEBOOKS

TAKE PENTIUM 4 POWER ON YOUR NEXT TRIP

INTEL'S NEXT-GENERATION CHIP OFFERS MORE MEGAHERTZ THAN THE PENTIUM III-M, BUT SYSTEM PERFORMANCE IS NEARLY A WASH.



DELL'S feature-packed Inspiron 8200 notebook uses Intel's Pentium 4-M processor.

INTEL'S PENTIUM 4 processor has finally made its way into notebooks, debuting at 1.6 GHz and 1.7 GHz, and promising ever-faster speeds down the road. The chip certainly has the headroom to grow, and new systems carrying the processor have a faster frontside bus and speedier memory. If your work mostly involves standard productivity apps, though, you may be better off saving money and opting for a 1.2-GHz Pentium III-M–based laptop.

Like the Pentium III-M CPUs, the new Pentium 4-M is manufactured under the .13-micron process, which yields relatively power-efficient chips and lets Intel pack in 512KB of performance-enhancing Level 2 cache. The process also allows Intel to decrease the mobile P4's voltage to 1.3 volts (versus its desktop counterpart's typical 1.5 volts). This arrangement helps it run cooler; its heat dissipation is the same as the PIII-M chip's.

The new 845 chip set supports the Pentium 4-M's 400-MHz frontside bus—the same as the desktop P4—a marked improvement on the PIII-M's 133-MHz bus. With this new chip set, the Intel mobile platform gets new memory as well: 266-MHz DDR SDRAM instead of the more familiar PC133 SDRAM. Besides being faster, the new memory should also be slightly more power-efficient than the previous standard.

We looked at one of the first P4-M–based notebooks, a preproduction version of Dell's new Inspiron 8200, equipped with a 1.7-GHz P4-M chip. For comparison, we also tested Dell's previous model, an Inspiron 8100 unit carrying a 1.2-GHz PIII-M processor, and one of the first shipping notebooks to use AMD's 1.2-GHz mobile Athlon 4 CPU, the MicroFlex NP7120 from Micro Express. All three systems ran Windows XP Professional and had 256MB of main system memory.

BY THE NUMBERS

THE TWO DELL units performed almost identically on our PC WorldBench 4 tests, earning scores within 3 points of each other, though the Pentium III-M–based Inspiron 8100 had the edge with a score of 101 versus the 8200's 98. While this difference is small, we saw the same pattern repeated on our tests with Photoshop 6.0.1 and AutoCAD: The PIII-M–based 8100 consistently (albeit narrowly) beat its P4-M–based sibling. It's a bit disappointing that the P4-M–based system, running 500 MHz faster, merely kept pace with the PIII-M–based unit, but the same thing happened when Intel introduced its P4 desktop processors.

In fact, the only area where the P4-M–based 8200 finished ahead was on our three multimedia tests: the MusicMatch MP3 encoding test, and the video and audio Windows Media encoding tests—tasks that are strengths of the desktop P4 as well. The 8200 shaved about 5 seconds off the 8100's times on the two audio tests, and delivered its best performance on the video test, completing it about 12 seconds faster than its sibling.

The 1.2-GHz Athlon 4–based Micro Express unit earned respectable scores on our tests—including an 85 on PC WorldBench 4—but typically trailed the other two units. In part, that's due to the notebook's shared memory architecture, which causes both main memory and its graphics to draw from the same SDRAM pool, hampering performance.

The three systems earned comparably strong scores on our battery life test, ranging from 2 hours, 33 minutes (the MicroFlex) to 2 hours, 47 minutes (the Inspiron 8100). ▶

Inspiron 8200
Dell
(Preproduction unit, not rated)
Street: $2599
find.pcworld.com/22563

PHOTOGRAPH: MARC SIMON

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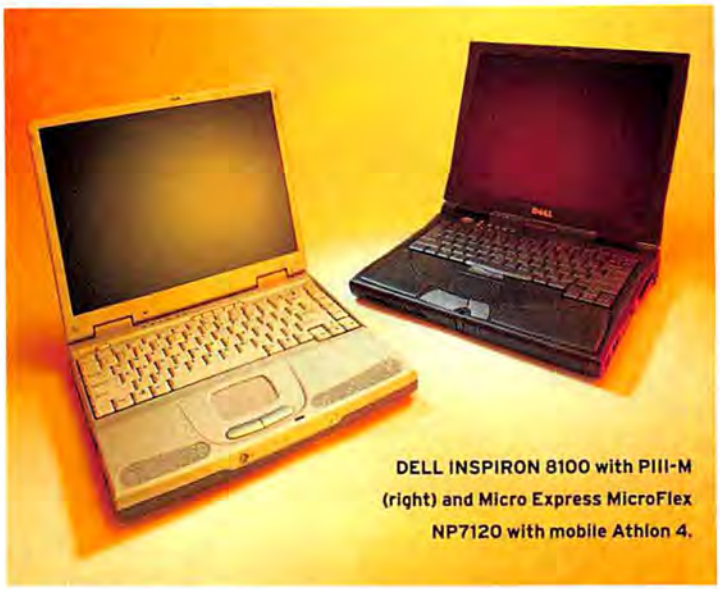


DELL INSPIRON 8100 with PIII-M (right) and Micro Express MicroFlex NP7120 with mobile Athlon 4.

Note that all three systems' processors run at lower clock speeds under battery power: The P4-M drops to 1.2 GHz, the PIII-M goes to 800 MHz, and though we set the Athlon 4 to match the PIII-M, its lower speed can vary.

TAKE ME AWAY

DELL'S INSPIRON 8200 packs features that should satisfy any user looking for a desktop replacement. Along with the P4-M CPU, you get a 15-inch LCD capable of 1400 by 1050 resolution, a 30GB hard drive, NVidia GeForce2 Go graphics with 32MB of memory, a CD-RW and DVD-ROM combination drive, USB 1.1 and IEEE 1394 ports, a modem, built-in ethernet, a pointing stick, and a touchpad. Of course, you pay a cool $2599 for all those high-end features.

The Inspiron 8100 is a comparative bargain. As we tested it (equipped with the same 15-inch screen but a 20GB hard drive, 16MB of graphics RAM, and a CD-ROM drive), the unit costs just $1799. If you upgrade everything but the CPU and RAM type to match the 8200's specifications, the price jumps to about $2400—but you still save nearly $200. If you don't plan to work with video, this system may be your best bet. But you might want to act soon, since Intel will aggressively encourage vendors to move quickly away from PIII-M–based notebooks and over to the hyped P4-M.

Though it's less powerful than the Intel-based competition, the Micro Express unit offers very good value. Our test system had a 14.1-inch screen, a 20GB hard drive, an 8X DVD-ROM drive, a modem, ethernet, and a touchpad for $1199 (look for a review of this system with 384MB of RAM in *Top 15 Notebook PCs* on page 122).

The P4-M cuts the speed gap between notebooks and desktops, though desktops maintain a firm lead with Intel CPUs running at up to 2.2 GHz. But today's mobile platform offers you plenty of power to tackle the toughest jobs around the office, at home, or wherever you travel.

—*Anush Yegyazarian*

IN BRIEF

Product Pipeline

MTV PCs? Not satisfied with ruling the musical TV airwaves, MTV now plans to brand its own PC and related peripherals. The company hopes to persuade gadget-happy high school and college-age students to watch TV, play DVDs, listen to music, and browse the Internet, all on a single device. MTV will also launch a line of peripherals centered around video gaming. The systems, built for MTV by Lan Plus, should start at around $1800. They will be available in the first half of this year.

Did You Know?

2.3 MILLION Forrester Research estimates that during the next five years, 2.3 million subscribers will give up their primary, standard wired phone line altogether, and correspondingly expects the average number of wireless phones per U.S. household to grow to 2.2.

SOURCE: FORRESTER RESEARCH

TEST REPORT MOBILE PROCESSORS

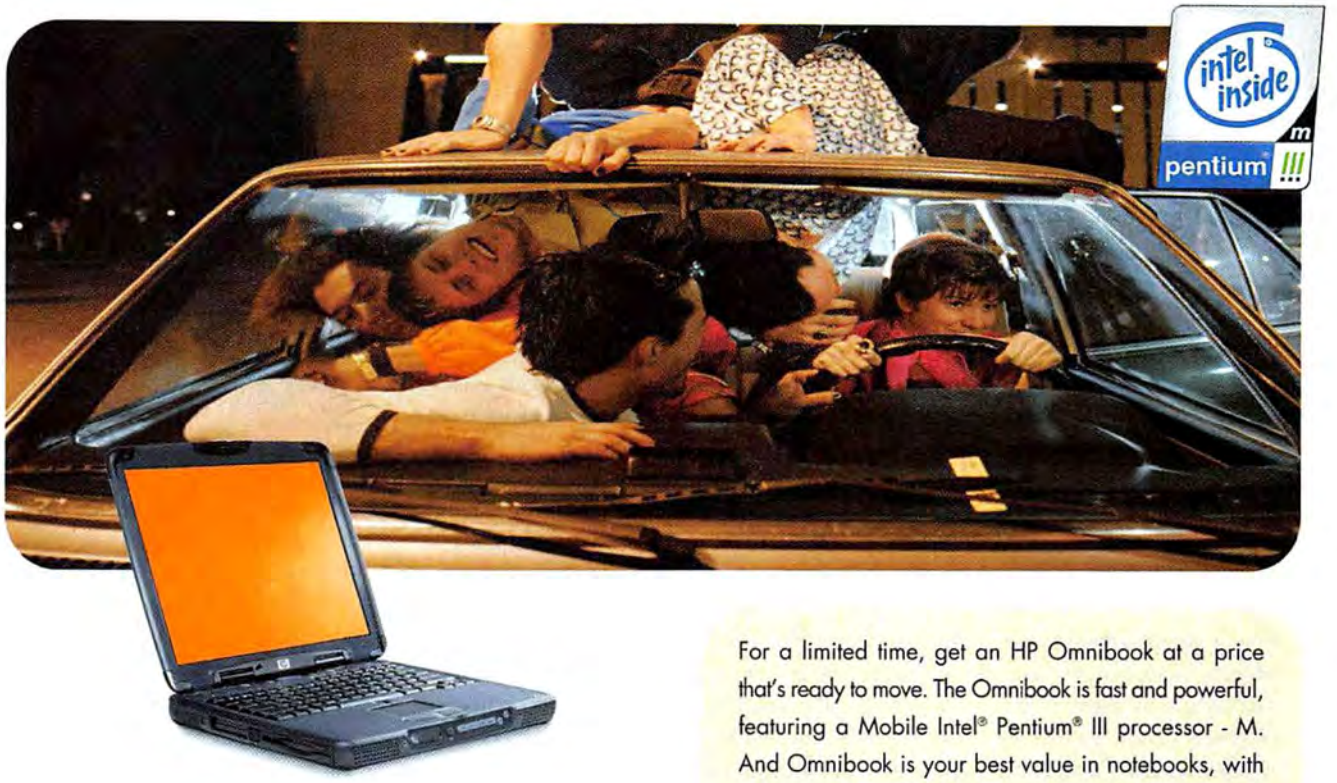
P4-M, PIII-M SYSTEMS RUN NECK AND NECK

SYSTEM	CPU	RAM	L2 cache	PC WorldBench 4 (Faster)	MusicMatch Jukebox 7 (seconds)	Adobe Photoshop 6.0.1: Lighting effects (seconds)	Adobe Photoshop 6.0.1: Multiple filters (seconds)	AutoCAD (seconds)	Windows Media Encoder: Audio file conversion (seconds)	Windows Media Encoder: Video file conversion (seconds)	Battery life (hours:minutes)
Dell Inspiron 8200	1.7-GHz Pentium 4-M	256MB of DDR SDRAM	512KB	98	26	78	102	457	77	85	2:39
Dell Inspiron 8100	1.2-GHz Pentium III-M	256MB of SDRAM	512KB	101	32	73	96	451	82	97	2:47
Micro Express MicroFlex NP7120	1.2-GHz Athlon 4	224MB of SDRAM[1]	256KB	85	32	82	97	607	81	102	2:33

TEST Center

HOW WE TEST: All systems were tested with PC WorldBench 4, *PC World*'s applications-based benchmark. For more PC WorldBench 4 details, go to www.pcworld.com/benchmark. In the MusicMatch encoding test, we time the conversion of a raw 14.3MB .wav file into an .mp3 file using MusicMatch Jukebox 7. In the Photoshop 6.0.1 lighting effects test, we time the running of a macro that applies a series of lighting effects to a 1.6MB image file; in the multiple filters test, we time the running of a macro which applies a series of other filters to the same image file. In the AutoCAD test, we time AutoDesk Group International's AUGI Gauge benchmark, which runs CAD tests. Working with Windows Media Encoder 7.1 (which uses Windows Media 8 format), we time the conversion of an 8.9MB .mp3 audio file to .wma format; in a separate test, we time the conversion of an 11.2MB .avi video file to .wmv format. For the battery life test, we drain and fully recharge the battery twice and set power-saving options to match consistent high-performance and default profiles where possible. Office workers use Windows 9*x* applications, periodically saving and allowing regular idle time. Notebooks are rotated among workers. We report the time elapsed when the notebook shuts itself off. For PC WorldBench 4 and the battery life test, higher scores are better; elsewhere, lower is better. All rights reserved. [1]An additional 32MB is used for graphics.

PHOTOGRAPH: MARC SIMON



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FIRST LOOK

JUST PLUG IT IN: NETWORKING VIA POWER CIRCUITS

HOMEPLUG MAKES IT EASY TO USE EXISTING IN-WALL WIRING FOR FAST HOME NETWORKS.

HOMEPLUG adapters: USB (top) and ethernet.

NO NEW WIRES. That's the mantra of almost everyone contemplating a home or small-office network, which is why wireless networks have become so popular. But a new standard that uses existing electrical wiring, HomePlug, could offer users a real alternative to wireless.

We tried out the first HomePlug networking products and found them easy to install, robust, and fast. They're especially suitable for hooking up desktop systems in larger homes and in small offices where wireless options may not be practical because of signal attenuation (related to distance from an access point).

HomePlug isn't the first technology to use existing wiring: The HomePNA standard for networks using telephone circuits was first published more than three years ago, and other power-line products have launched in the past. But previous power-line efforts were hampered by a combination of poor performance and a lack of standards, and HomePNA networks using telephone wires are hampered by the relative scarcity of telephone jacks in most homes. HomePlug, which lets you network devices by plugging an external adapter into a standard wall outlet, delivers performance superior to that of 802.11b wireless networks at only a small price premium—no more than $25 to $50 per computer.

For our tests, we tried out three paperback book–size, preproduction Linksys Instant Powerline products: two EtherFast 10/100 Bridges and one USB adapter (each at a street price of $149).

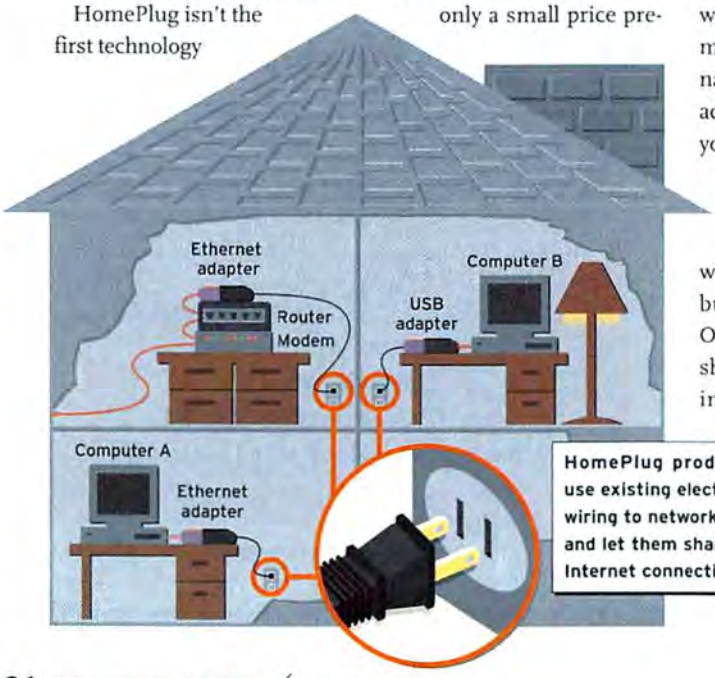
MAKING CONNECTIONS

TO NETWORK TWO PCs, we hooked one of the EtherFast 10/100 Bridges to the first system's standard ethernet port, and the USB adapter to the second PC's USB port. To add Internet access, we plugged the second EtherFast 10/100 Bridge into a conventional network router, which in turn was connected to a broadband modem (see diagram). Alternatively, if you have static IP addresses for your computers, you can substitute a hub for a router. By the time you read this, Linksys expects to release a $179 router with HomePlug technology built in, eliminating a box. Other vendors that expect to ship HomePlug components in the next few months include GigaFast, Netgear, Phonex Broadband, and SMC Networks.

We tested the adapters in a single-family home and in a condominium in a 29-unit building, using them to transfer files and surf the Web. The network ran flawlessly everywhere we plugged in, except for one outlet in the single-family home (HomePlug engineers say wiring quirks will occasionally cause this, but typically a nearby outlet will work just fine).

In these informal tests, the network appeared largely unaffected by our use of power strips and household electrical appliances, a problem that had plagued previous power-line networking systems. However, audiophiles who use special power conditioners to "clean up" electrical signals could run into problems if they plug a HomePlug unit into the conditioner, as the filtering system might perceive the network traffic as noise and filter it out.

The HomePlug specification protects your data from the prying eyes of others on your power grid by using DES encryption—as opposed to the RC4 algorithm, whose implementation in 802.11b has known security flaws—that works at the MAC address level (the unique identifier for each piece of hardware). Officials at Intellon, the chip maker that developed the HomePlug spec, say that ▶



HomePlug products use existing electrical wiring to network PCs and let them share an Internet connection.

PHOTOGRAPH: MARC SIMON

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Built-in fast Ethernet port for company LAN or home broadband connection.

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The ViewPad 1000 Tablet PC features a 10GB hard drive for local data storage and an integrated 802.11b transceiver for wireless connectivity.

Also available is the ViewPad 100 SuperPDA with color 10.4" touchscreen and Windows CE®. Awarded 4 out of 5 Stars by PC Magazine, January 2002. ★★★★★

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hacking into a HomePlug network would require cracking the government's DES encryption standard.

FASTER THAN 802.11B

HOMEPLUG'S theoretical maximum speed of 14 megabits per second is slightly faster than 802.11b's 11-mbps top speed, as well as the 10-mbps speed of older ethernet networks. Because typical broadband Internet access tops out at 1.5 mbps, neither network type gives you an advantage for Web surfing. But we were surprised at how much faster HomePlug was than 802.11b for file transfers. Transferring an 11MB file between our two HomePlug-equipped notebooks took only about 30 seconds, compared with 1 minute, 15 seconds when we substituted 802.11b PC Cards. Intellon engineers say this probably happened because HomePlug allowed data to flow directly between the two side-by-side notebooks (even with the router installed), while the 802.11b traffic had to move via the more distant router and back.

Additionally, HomePlug is not subject to other wireless traffic or to interference from walls and doors, all of which can significantly slow down 802.11b signals, especially if larger distances are involved.

Drawbacks? HomePlug is not supercheap—you can purchase 802.11b USB adapters for slightly less. It's also not ideal for notebooks, especially if you're often on the move: No HomePlug PC Cards have been announced, and having the paperback-size adapter as well as a standard AC adapter hanging off the back of your notebook is definitely cumbersome. In fact, people who wish to network both notebooks and desktop systems should consider creating their own hybrid 802.11b/HomePlug network, built around an 802.11b router with at least one extra ethernet port. Plug a HomePlug ethernet bridge into the router, slip an 802.11b PC Card into the notebook, plug your desktops into the wall outlet, and you have the best of both worlds.

—Yardena Arar

IN BRIEF

Site to See

NEED A QUICK news fix? At www.FeedRoom.com, you'll find loads of streaming video broadcasts from local and national sources. To view the

news and feature stories, you'll need a current browser, Flash, and a Microsoft or Real Networks player. You can toggle between narrow and broadband streams for best performance, but site navigation is a bit clunky.

WIRELESS PDA

PALM SQUEEZES BLACKBERRY

HANDHELD ENABLES WIRELESS E-MAIL WITH OR WITHOUT I.T. DEPARTMENT BLESSING.

IF FAST, EASY access to e-mail is your idea of a killer wireless app, Palm has a new PDA for you. The sleek $449 Palm i705 lets you manage both personal and corporate e-mail—in some cases, even without your IT department's help.

The i705 is aimed squarely at people attracted to RIM's BlackBerry devices. And at 4.7 by 3.1 by 0.6 inches and 5.9 ounces, the unit is more compact than its predecessors in the Palm VII series.

PALM'S i705 sports a sleek new design and a fixed antenna.

The i705 comes with 8MB of memory and has a 160-by-160-resolution monochrome screen. An optional $49 BlackBerry-esque minikeyboard can slide onto the bottom. The i705 has a slot for Secure Digital (SD) cards or MultiMediaCards (MMCs). The two buttons on the device's bottom right (which bring up a memo pad and a to-do list on other Palm handhelds) offer access to the MyPalm Portal for wireless apps and to the device's e-mail app, MultiMail Deluxe.

You can use MultiMail Deluxe with up to eight e-mail accounts (including an account you get with the required Palm.net wireless service). The program supports POP3, IMAP, and even corporate Microsoft Exchange/Outlook accounts. You can also access AOL and AOL Instant Messenger with the device.

Individual subscriptions to the Palm.net service, which uses Cingular's network, cost $10 to activate and $20 per month for up to 100KB of traffic. Unlimited usage is available for $40 per month ($35 a month for a 12-month contract). Later this year businesses will be able to buy Palm's $2499 wireless messenger server, which allows up to 25 users to access Lotus Notes as well as Microsoft Exchange e-mail via the i705.

The i705 performed well, delivering instant messages and e-mail more snappily than the Palm VII. Enterprise features will certainly make it appealing to IT departments. For individuals, the service isn't cheap. But it's competitive with RIM's service, and it may appeal to business travelers who want a PDA with robust e-mail and messaging—and who don't need one that doubles as a phone (like Handspring's Treo).

—Yardena Arar

Palm i705
Palm
★★★★☆
Street: $449
find.pcworld.com/22181

PHOTOGRAPH: MARC SIMON

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*ANSI lumen is a measuring method of the American National Standards Institute IT7.228. ** Estimated U.S. retail selling price. Actual retail selling price may vary.

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SECURITY

FORTRESS IN A BOX

NEW INTERNET SECURITY APPLIANCES SIMPLIFY NETWORK PROTECTION CHORES.

AS THE NUMBER of employees in your business grows, a stand-alone antivirus suite or a simple firewall may not be enough to protect you. You could always upgrade to an enterprise version of your software, or you might consider a newer alternative: Internet security appliances. Such appliances have existed for a while, but it's only been recently that major security software vendors Network Associates and Symantec have released appliances suitable even for small and medium-size businesses (from a couple dozen seats to hundreds).

READY TO PROTECT YOU: Symantec Firewall/ VPN Appliance (left), McAfee WebShield E250.

These appliances ease deployment and maintenance of protective countermeasures like firewalls, virtual private networks, and gateway virus scanners. Everything comes ready to run on the dedicated hardware, so you skip complicated software installs and troubleshooting. Moreover, the limited functionality of the devices removes many potential security vulnerabilities.

WALLED IN

TO SAFEGUARD your network from outside attack, Symantec offers its $1200 Firewall/VPN Appliance Model 200R. The product features dual wide-area network ports for Internet connection sharing and management (so you can use two DSL or cable modem lines in place of a more expensive T1 connection), and firmware for a firewall and for virtual private networking. With this appliance, you also get a site license for Symantec's Enterprise VPN Client software for unlimited remote users (although the 200R's rated capacity is 30).

The 200R resides between your DSL or cable modem and your network. You'll be fine with the configuration defaults if you want to deploy the device quickly—the 200R worked well between our DSL modem and our small network without any setup at all. Still, although they complicate setup, the options that Symantec offers for enhancing and customizing your defenses are considerably better than those we've seen with other server appliances, so checking them may be worth your time. The product's VPN setup can be complex, especially for casual administrators, but the setup guide helps, walking you through the most common configuration scenarios.

MAIL GUARD

INTERNET-BORNE viruses and worms can be as costly as malicious intrusion. Network Associates' McAfee WebShield E250 confronts them on a larger scale than antivirus software does, and before the danger reaches users.

The $2816 E250 (for up to 50 nodes) is a PC dedicated to running a scanning proxy program; you use a Java-capable browser to administer it. It has two ethernet ports, one for network traffic and the other for administration. You must alter network addressing on every client PC (a bit of a hassle), so that inbound and outbound e-mail, Web, and FTP traffic flows through the E250. Once everything is set, the unit handles up to 500 e-mail messages and 250KB of HTTP traffic per minute.

You can establish e-mail size limits, set blacklists of unacceptable Web sites and more, and ban attachment or download types. In its virus scans, the unit refers to a database that is typically updated daily, but it can also perform heuristic detection, recognizing suspicious characteristics in a document that may signal a new attack variation not on file. The E250 can filter out spam by consulting real-time lists of active spammers, too.

Security appliances are here to stay—Symantec has just released a do-it-all, five-function appliance, and other vendors' units are in the wings. Still, these devices are not for everyone; most small or home offices would be well served with software solutions. But if your office is growing beyond a few dozen people, or if you have lots of Net traffic, check out these products.

—Jamie Fenton

Firewall/VPN Appliance Model 200R
Symantec
★★★★☆
List: $1200 (unlimited VPN clients)
find.pcworld.com/22562

WebShield E250
McAfee
★★★½☆
List: $2816 (up to 50 nodes)
find.pcworld.com/22561

IN BRIEF

Downloads

Head to find.pcworld.com/22681 to find these files.

TOP 5

1 **ReadPlease 2002 v.10** 9100KB
Give your PC a voice with this text-reading utility.

2 **Ultimate Boot Disk 4.3i** 630KB
Create a boot disk with more system information than in the Windows version.

3 **MPower v.1.1** 769KB
Free up memory left behind by closed applications.

4 **GPhotoShow v.1.4.1** 486KB
Create your own screen savers, complete with sound.

5 **LawnMower v.1.4** 2060KB
Win this game by cutting the grass as neatly as possible and evading gas-stealing enemies.

PHOTOGRAPH: MARC SIMON

We've had a relationship for almost a decade. Isn't it time for an introduction?

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BenQ

Inspired by Acer

acer

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ENJOYMENT

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BenQ

Bringing Quality To Life
At Benq, Technology + Enjoyment = Fun^2

A new company has been formed to embrace and support the new technology era with digital excellence. Benq has been created with the sole intention of producing digital life devices that will give consumers true freedom of information anytime, anyplace, and in any form they want it. In fact, Benq's name is derived from the slogan Bring Enjoyment 'N' Quality To Life.

Benq is actually the recreation or, more accurately, metamorphosis of the former Acer Communications & Multimedia, Inc., a company rich in technology expertise. By harvesting this expertise, Benq will create new lines of products and services targeting the sweet spots of technology consumers.

What do these consumers want? Ask them and they will say they want a digital future that blends the best of multimedia, communications, and computing into intelligent devices that truly bring quality and enjoyment to life. They'll say they want simplicity without sacrificing functionality. They want quality but at a fair price. They want rock-solid technology they can use for work, entertainment, education, or leisure time. In other words, they will demand products digitally tuned to their needs, which is the positioning of Benq.

"Cutting our tie with Acer, a $10 billion corporation with 25 years of history, required more than just courage and ambition," says Ralph Tang, president of Benq. "We at Acer CM had a dream to manufacture a full line of digital life devices, equipped with the highest quality and backed with a lifetime commitment. With this in mind, we have grown into an independent company with 20 different product lines throughout five continents. In 2001, our revenue reached $3.2 billion supported by 12,000 dedicated employees."

Building atop a solid history

In fact, it is the rich technology heritage Benq has inherited that makes it confident that it can answer the wishes of consumers longing for a more enjoyable digital lifestyle. Those technologies include CD-ROM, CD-RW, DVD, plasma and CRT display, wireless expertise, optics, routing and switching, and microprocessors. In 2001, Benq gained prominence as the world's number-three maker of liquid crystal display (LCD) panels. Benq last year produced a stunning 14 million optical storage drives and more than seven million mobile phones.

Benq's goal is to leverage these proven core technology strengths to create devices as well as services that cross media and applications to improve consumers' lives by offering a superior way to interact with the world through digital technology. For the first time, consumers will reap the benefits of integrated technologies combining video, audio, imaging, storage, networking, and communications functions.

For example, consider how digital slide presentations are typically delivered today. Presenters need a PC, a locally stored presentation, and a separate projection device. Benq today is leveraging the latest communications standards in its development of all-in-one devices that will download presentations, even video, from remote servers and deliver them sharply, anytime and anyplace.

"We will strive to deliver excellence in manufacturing, efficient supply chains, and the highest standards of production-line quality," says Tang, reflecting upon the exciting launch of Benq. "We also will continue to enhance our service offering to support long-term growth opportunities for our partners."

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LETTERS

LETTERS@PCWORLD.COM

UNCOMMON WEB TOOLS
A CAUTION ON CHEAP SOFTWARE
INTERNET HOAXES AND SCAMS

PHOTOGRAPH: RICK RIZNER

AN OPTION FOR FAST WEB ACCESS...

YOUR ARTICLE "Ditch Your Dial-Up" [February] dismisses satellite broadband delivery as a bad choice.

I live in a rural area of Texas where there is no possibility of ever having cable or DSL service and where, on a good day over ancient Ma Bell cables, my dial-up connection averages about 14.4 kbps.

Two years ago I subscribed to the one-way or dial-return version of Hughes Network Systems' DirecWay. I have consistently enjoyed download speeds averaging 800 kbps and have never experienced download speeds below 200 kbps.

Many complaints about DirecWay are from users angry over Hughes' fair access policy, which reduces the amount of bandwidth available to those who take too much of the satellite's resources. Without such a policy, the system could theoretically be brought to its knees by those who want to continually download movies, music, and other huge digital files.

Jim Robinson, Madisonville, Texas

...AND IF IT ISN'T FAST...

YOUR WEB ACCESS article was timely, as I had just fired my Internet service provider. The problems included an extended, bumbling setup; billing headaches; long hold times; and an implication that the customer was the problem.

I came up with a novel idea: Pull the plug on the Internet. My time analysis indicated that I was spending more time with the Internet service than enjoying it.

The fury consumers have over technology is that between the promise and the delivery is user friendliness, ease of learning, and customer service. And something that's supposed to be faster should save the user's time.

Jim Fegan, via the Internet

BEST WEB TOOLS?

IN YOUR REVIEW of Web tools ["Browsing and Beyond," February], you rate Internet Explorer 6 as the best browser and Outlook Express 6 the best e-mail client.

However, I find these two utilities so interwoven with my Windows 98 operating system that when these programs crash they often bring down my computer. Using IE and OE also seems to create a much greater potential for security and privacy problems than alternative browsers and e-mail clients.

I believe the Opera 6 browser and Poco-Mail (www.pocomail.com) are about equal to IE and OE when stability, security, and privacy concerns are taken into account.

Robert Kirchner, via the Internet

BEYOND WORD

GEORGE CAMPBELL is mistaken when he says, in discussing Word 2002, "[w]ord processing software has never before been able to select multiple, noncontiguous blocks of text to copy and paste into documents" ["The Write Stuff," February].

Ever since 1993 (at least), XyWrite 4 has had the ability to append defined text to what was already in the clipboard, thus enabling one to collect any number of items and paste them together. One reason, no doubt, why editors still swear by this oldie but goodie.

Patricia M. Godfrey

P & Q Editorial Services, via the Internet ▶

HOT BUTTON

Windows XP Beefs: Just Whining?

REGARDING FEBRUARY'S *Full Disclosure* ["Windows XP: New From the Bug Factory"]: Please retitle Stephen Manes's commentaries "Whiner's Corner." This way, all the whiners who read your magazine can find what interests them most. By whiners, I mean people who complain about every single thing they find wrong with a product or service, no matter how many others are satisfied.

Microsoft has done a fine job with Windows XP. I can't imagine a more useful, stable, and user-friendly operating system. It's a clear bargain. The garbage commentaries provided by Mr. Manes, I feel, take away from the credibility of your publication and may actually keep your readers from advancing technologically.

R. Purczynski, via the Internet

I COULDN'T AGREE MORE with Stephen Manes. I won't be upgrading to Windows XP for the following reasons: (1) I finally have Windows 98 SE working just fine, and I see no advantage in spending more money for more bugs; and (2) Microsoft can take its registration and stuff it where the sun doesn't shine. It is my hope that Linux takes over the world.

Alan V. Wackowski, via the Internet

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CHEAP SOFTWARE, REVISITED

IN A FEBRUARY letter, a reader recommends a utility called Download Accelerator Plus from SpeedBit. Upon reading the utility's license agreement, I felt the terms were too invasive. You should caution readers about the invasion of privacy that many of these programs pack. Specifically, the DAP software's license agreement says: *"SpeedBit may gather contact information and other personally identifiable information (such as username, email address, password, country and zip-code), and demographic information (like their age, occupation or gender). SpeedBit, its partners, affiliates or other third parties may use any information submitted or collected from you."*

Carefully read such agreements and make up your own mind.

Greg Saiter, Delaware, Ohio

INTERNET HOAXES

I READ WITH great interest Scott Spanbauer's online article "The Worst Internet Hoaxes" [find.pcworld.com/22021]. I believe I have received six of the ten.

He left out the worst one: e-mail that comes from "youraccount@aol.com" (or the like) saying your credit card number has come back invalid. "Your AOL Service is about to be discontinued. Can you immediately send a new credit card number so your service will continue?"

The kicker: "Have a good day."

David Turner, Fort Pierce, Florida

PC World *welcomes your letters to the editor. Send e-mail to letters@pcworld.com.* ■

CORRECTIONS

IN FEBRUARY'S "Ditch Your Dial-Up," the features comparison chart on page 72 ("Broadband Packages Vary Widely") should have listed the price for StarBand service as $499; with Dish Network TV service added, the equipment price is $549. And the maximum downstream speed for StarBand Internet service is 500 kbps.

Also, Road Runner residential cable Internet service has a maximum upstream speed of 384 kbps.

PC World regrets the errors.

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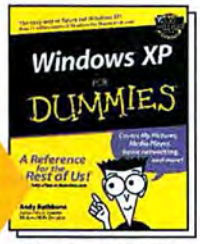

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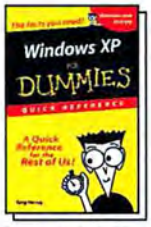

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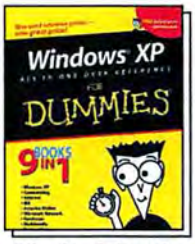

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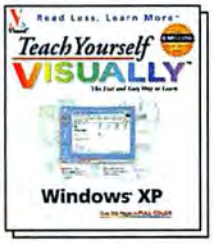

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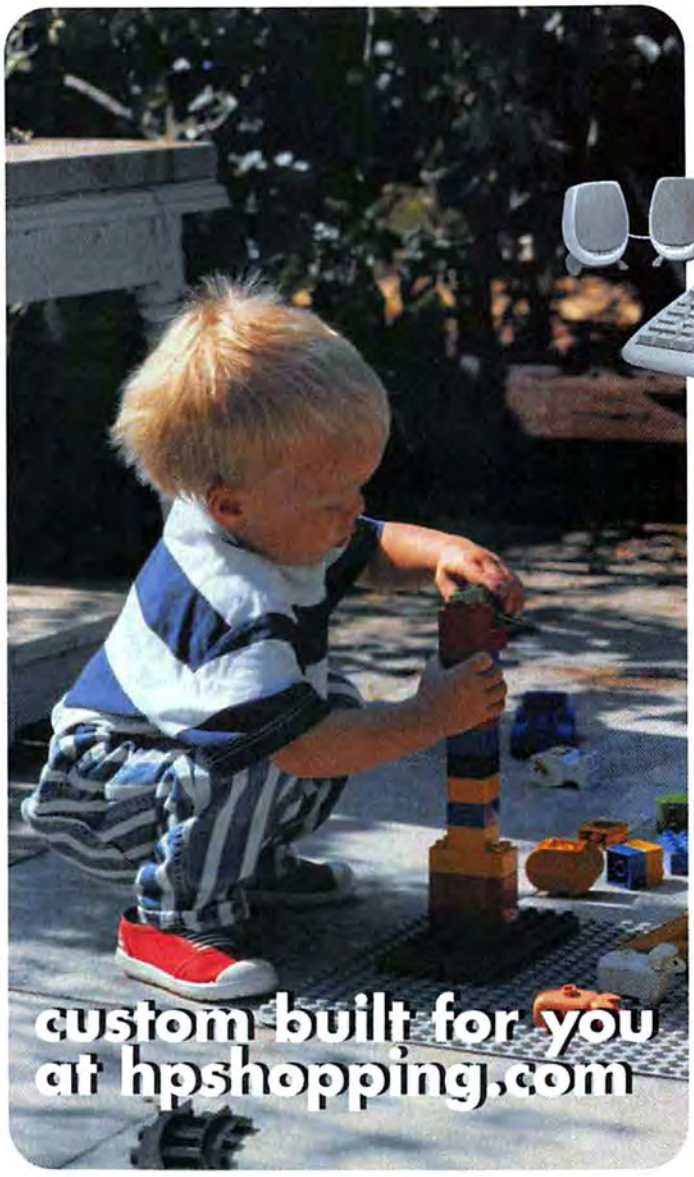

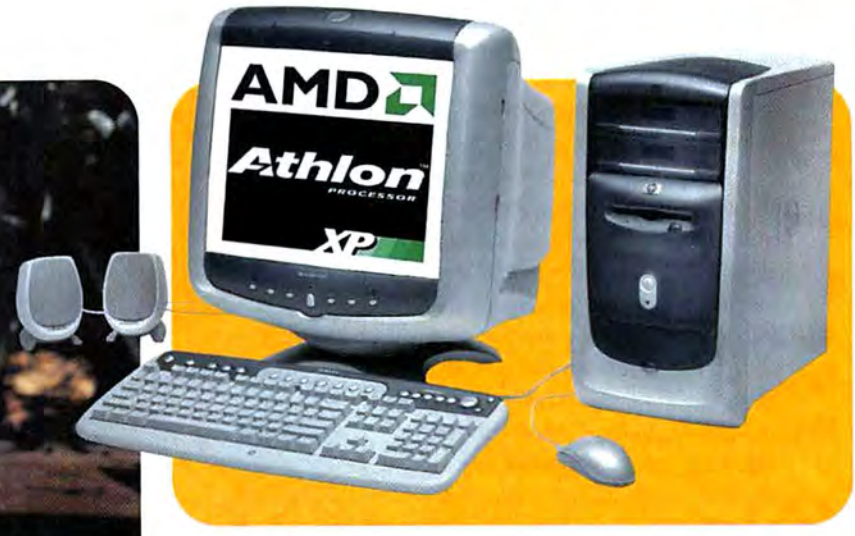

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CONSUMER WATCH

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PRIVACY WATCH: LEAKY BUG REPORTS

ON YOUR SIDE: TARDY REBATES

Refurbished PCs: Sweet Deals or Lemons?

Prices on used computers are extremely tempting. Should you bite?

ILLUSTRATION: AARON GOODMAN

MAYBE I'M SPOILED, but when I buy a new PC—or almost anything else, for that matter—I like it to be clean, shiny, and fresh from the factory. That's why I've never seriously considered purchasing anything but a custom-configured system from a reputable vendor, and I've generally recommended that others do the same. But lately the wobbly economy has prompted many of us to spend a little more time bargain hunting. And since some of the lowest PC prices around are for refurbished and used systems, I decided to swallow my snobbery and take another look at these discount deals.

Refurbished—also known as reconditioned or remanufactured—computers are easy to find. Major PC manufacturers, catalog merchants, and auction sites sell them online. Some of these systems are the offspring of canceled orders and have never even been taken out of the box, but most were returned for some reason by a customer. (Go ahead and ask, but you probably won't be able to sleuth out the history of a particular machine.) The returned PCs are typically cleaned, fixed, and updated if necessary (Dell completely rebuilds every returned PC); tested for problems; and reloaded with their included operating system. They're usually stickered at 10 to 30 percent below the price of a comparable new system.

One drawback to buying a refurbished PC is that you can't customize it. Your choice is generally limited to whatever systems happen to be available, and they usually don't feature the most current technology. So if you need a leading-edge processor or a system with specialized components, a refurb probably won't work for you. On the other hand, if you're a small-business or home user on a tight budget and you aren't fussy about features and power, purchasing a reconditioned PC might make sense.

DO YOU NEED SPEED?

ONE REASON MANY people have shied away from buying refurbished systems is the speed gap. For a few hundred dollars more than a used system costs, the reasoning goes, you can buy a brand-new PC with a top-of-the-line processor. That's still true, and it's a compelling argument in favor of buying the latest and greatest. But with chip speeds exceeding an almost unfathomable 2 GHz, budget-conscious buyers might well consider saving a few Benjamins by sacrificing some speed.

Before you pull the trigger, however, you need to determine how fast is fast enough. That depends primarily on what you use your computer for. According to IDC analyst Shane Rau, most users wouldn't notice much of a performance difference between, say, a 1.2- and a 1.7-GHz processor. "The average PC user surfs the Internet, sends and receives ▶

e-mail, tracks finances, and maybe creates modest graphics. None of those tasks require any significant processor power; and by today's speeds, any Athlon or Pentium 4 would be plenty," Rau says.

On the other hand, if you spend your evenings editing video or careening around a racetrack in a virtual Porsche—or even if you run a hungry operating system like Windows XP—you should probably invest in all the processing power you can afford. Rau points out that users who frequently run multiple apps would likely benefit from a 1.7-GHz or faster chip.

In many cases, the amount of RAM your system sports is as important as your CPU speed. Let's say the processor in the refurb you're considering is a few hundred megahertz slower than the latest models. Adding an extra 128MB of memory is cheap (about $40 at press time) and could produce just as big a performance increase as upgrading to the latest CPU.

Even if you admit that you don't need a 2+-GHz CPU, the idea of buying something that was—let's face it—rejected by another user might conjure up disturbing images of blue monitor screens and late nights on the phone with tech support.

BETTER THAN NEW?

THE REALITY, according to sellers of refurbished systems, is quite the opposite. They insist that the extra maintenance and testing refurbished machines undergo make them at least as reliable as their factory-fresh counterparts. And in the case of CPUs, the claims are probably true. "Processors are manufactured to last far beyond a person's ability to wear them out with normal use," Rau explains.

But what about everything else? Since you probably won't know what brought the system back to the seller in the first place, you'll have to rely primarily on trust and—more important—a solid warranty. Some PC manufacturers offer the same return policy and warranty for refurbished systems as for new ones, which speaks well of their confidence in the computers. A standard return policy for a desktop system should provide, at minimum, 30 days for returns and a one-year limited warranty covering parts, labor, and telephone tech support. If a seller offers a significantly less-generous warranty or return policy for a used machine than for a new one, be wary.

Before you buy a refurbished system, price comparable new PCs. You can't know whether buying used makes sense until you know how much you're saving.

If you decide to take the plunge, don't hand over your credit card until you've recorded all the details of the transaction. Don't assume that a refurbished PC comes with everything that the equivalent new machine would: Ask the seller to identify the precise model and configuration; which components are included (some sellers omit things like monitors); all installed software, including ver- ▶

PRIVACY WATCH

When Killing Bugs Reveals Your Data

A WORLD WITHOUT software crashes. While it may not be a dream of Miss America contestants, many of us would love to see it. But are you willing to risk your privacy to get there?

Here's what I mean: Microsoft introduced a feature in Windows XP and Office XP called Application Error Reporting. It aims to give Microsoft engineers all the information they need to create fixes when bugs make computers crash.

If you use Windows XP and any application crashes, a dialog box will invite you to send Microsoft a bug report. (If you have Office XP only, you are limited to reporting Office application crashes.) The report includes a copy of a chunk of system memory, so engineers can see what was running on your system at the moment the bug struck.

On the surface, filing a bug report seems beneficial, even altruistic—maybe Microsoft will patch your bug, making Windows more stable for all users.

But if the duplicate piece of memory sent with the bug report contains a sensitive document or password, that data goes to Microsoft too. That's not ideal, especially if you happen to be a government attorney working on the Microsoft antitrust case.

While it's possible to see what data gets sent to the software giant, the process involves so much digging that you may need a backhoe. You must go through multiple layers of dialog boxes and root around in temp files. Microsoft's privacy policy (check out find.pcworld.com/20321 for details) doesn't elaborate on what happens to the data once the XP engineers are done with it.

A company spokesperson says the techs toss data that doesn't help them fix a bug, then delete all the data once the bug is fixed.

Microsoft is not the first software company to introduce error reporting, and other companies are certain to follow suit.

Such error logs are "a good way to make software better," says Marc Maiffret, an analyst with Internet security firm EEye Digital Security. "But people need to be able to look at [what they're sending]."

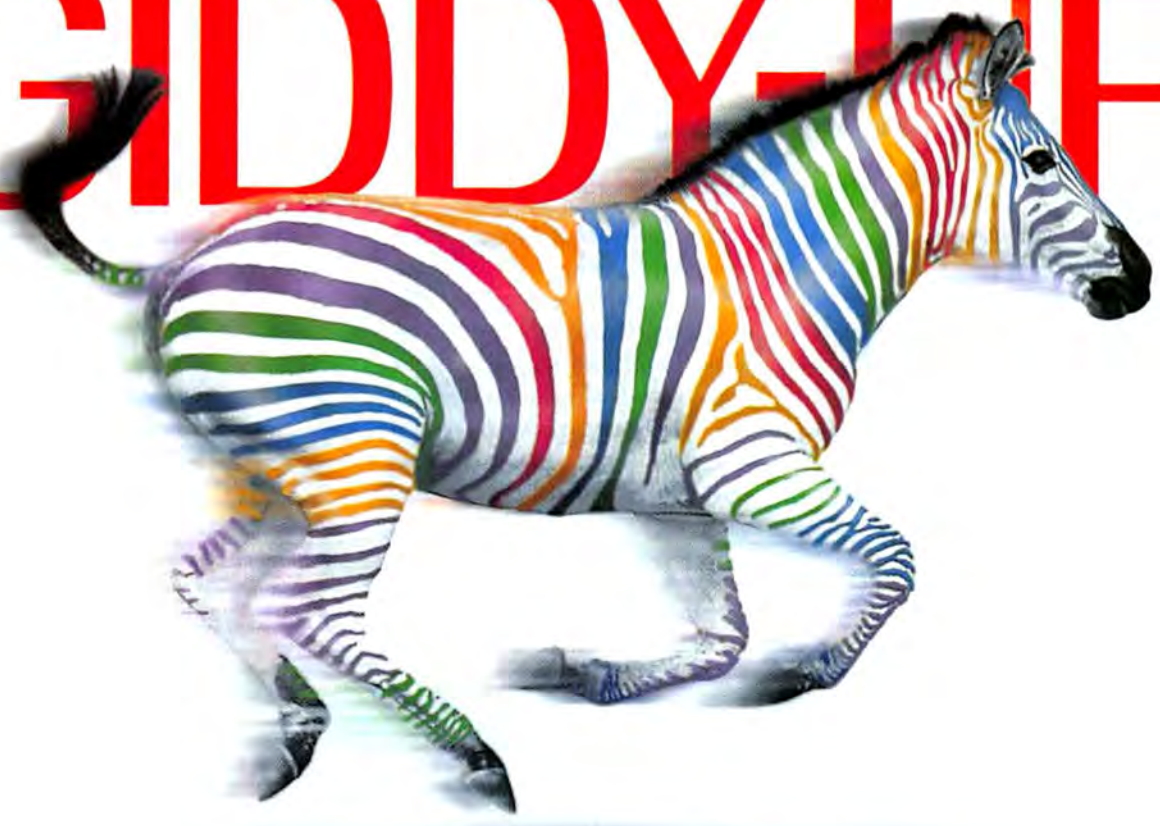
Do I believe that Bill Gates (or anyone else at Microsoft) is poring over the thousands of data files the company receives with bug reports? No. But the company could do a better job of informing us about the reporting process. We need to know what information the company will receive and what its minions will do with it.

When you're considering whether to click the Send button on a bug report to Microsoft, ultimately you have to decide if you trust Microsoft. But without all the facts, it's hard to feel very trusting.

–Andrew Brandt

ILLUSTRATION: MELINDA BECK

GIDDY-UP



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sion numbers; and the details of the warranty and return policy, including who pays for shipping. You'll need the documentation in case you don't get exactly what you paid for. I've received letters from readers who ordered a particular refurbished system, only to receive another one equipped with a slightly different CPU or video card.

The best place to buy a refurbished system is directly from an established PC manufacturer or mail-order vendor that provides complete product and warranty information and responsive customer service. If you're tempted by a too-good-to-pass-up deal at an auction site, be careful. It's almost always risky to buy a used PC from an individual, since in many cases you'll have no warranty or customer support to turn to when something goes wrong (and don't assume it won't).

Sites like UBid auction used PCs directly to consumers for manufacturers and companies. While they offer some great-sounding deals, product information can be spotty, and it's not always clear what you're getting. It's especially important to do your homework before you bid.

I admit that I haven't completely overcome my snobbish tendencies toward refurbs. But if it means getting a 1.4-GHz P4 system for less than half the price of the same PC new, I'll work on it. ■

Anne Kandra is a contributing editor, Grace Aquino an associate editor, and Andrew Brandt a senior associate editor for PC World. E-mail us at consumerwatch@pcworld.com.

ON YOUR SIDE

Long Delays in Linksys Rebates

I'VE BEEN WAITING for my $20 rebate from networking hardware manufacturer Linksys for more than three months. I sent in the UPC labels, the receipt, and the completed rebate form. I even e-mailed Linksys about the status of my rebate. I received an automated response stating that someone would reply within five business days. No such luck. I like Linksys's products, but I'm very disappointed in the way this matter is being handled.

John Falk, Redding, California

***On Your Side* responds:** I've received several complaints from readers about overdue rebates from Linksys, so I contacted the company. Karen Sohl, corporate communications manager, admits that the rebate center Linksys used was late on payments. "Based on the experience we've had with the [independent] rebate center, Linksys decided to use a different company," Sohl says. Falk and the others have now received their checks.

–Grace Aquino

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* Growth figures represent a ten-year period ending 2008. Source: *National Industry-Occupation Employment Matrix*, a publication of the U.S. Bureau of Labor Statistics.

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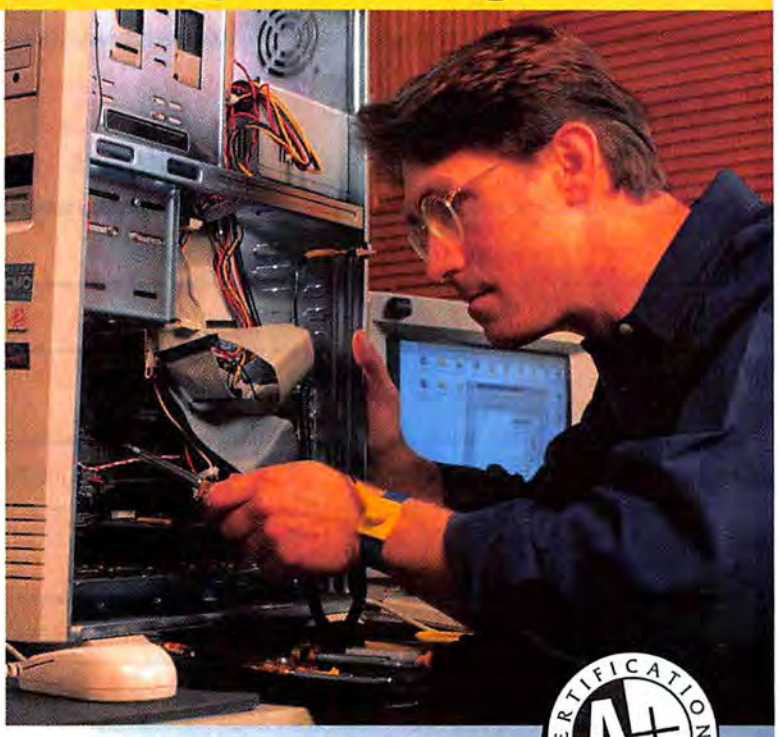

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BRAD GRIMES

Living (Happily!) With Dial-Up

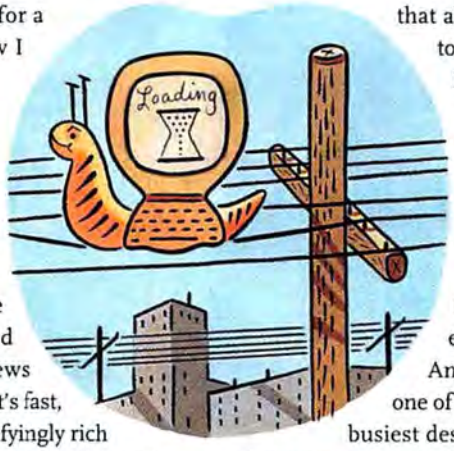
Sluggish Web pages got you down? Don't get mad—get to the right sites.

I LOVE BROADBAND. And as all broadband users know, once you've experienced the Web via DSL, cable, or satellite, you'll never want to go back to dial-up. So why did I just ditch my zippy DSL connection for a plain old 56-kbps modem?

Simple: I had no choice. I moved from Boston to a newly built community in suburban Washington, D.C. Where I live now, DSL and cable don't yet reach. So I went back to dial-up. And I discovered that many site proprietors apparently think that everybody is cruising along like DSL Brad. They've larded their sites with Java applets, graphics and audio, flashy ads, and other bandwidth-hogging doodads that can choke a dial-up connection.

In reality, most Web users still surf like Dial-Up Brad. At the end of last year, Nielsen/NetRatings reported that just 20 percent of home users have broadband. As for the rest of us? Sure, we can tweak our connections (see find.pcworld.com/22041 for tips). But my best advice to dial-up surfers is this: Find faster Web sites.

As soon as I moved back into the slow lane, I changed my habits. First, I made Yahoo my home page. I hadn't visited the site's spare pages for a long time, but now I swear by them.



The first thing I do every morning is check the news. Whereas DSL Brad zoomed straight to CNN.com (still the best news site on the Web), Dial-Up Brad heads to Yahoo News (news.yahoo.com). It's fast, up-to-date, and gratifyingly rich in content from leading news agencies.

I've returned to tracking my finances through Yahoo Finance rather than with my online broker's sluggish site. I've also discovered that Yahoo Bill Pay is faster—and easier to use—than the bill-payment service I took for granted as a DSL user.

THE QUICK AND THE READ

OTHER SITES SUPPLEMENT Yahoo in my dial-up world of spartan but speedy surfing. For computer news, I like Newsbytes (www.newsbytes.com) and 10.am (www.10.am). The latter is a terrific site that also provides links to software updates. Its uncomplicated design won't bog you down, either.

Several of my old reliables are still favorites, and I tend to lean on them more than ever. For example, Amazon.com may be one of the Web's biggest, busiest destinations, but it's also among the quickest-loading shopping sites I've found. Now that I'm on a slower connection, I shop Amazon for more than just books and music. I've become a regular in its hardware, electronics, and housewares sections. And these days I use Google, my favorite search engine, for more than finding sites; I use it to check definitions and spellings (I just type in the word the way I think it's spelled and see what comes up).

Maybe I'm preaching to the choir. I'll bet that many dial-up users already know that the TV-like Web they see hyped everywhere isn't really *their* Web. And your results may vary, since the Net's architecture can make a site fast for one person and slow for another.

But if you're bereft of broadband, finding sites that stress efficiency over glitz is more crucial than ever. Start at a directory like Yahoo and browse around until you find sites that work for you. Despite all the frills on today's Web, one thing hasn't changed: It's still bursting with choices—even for us dial-up surfers. ■

Contact PC World *Contributing Editor Brad Grimes at websavvy@pcworld.com.*

GIMME FIVE

Info on Windows (XP and Otherwise)

1. **IDG.net:** *PC World*'s parent company pulls together a boatload of expert Windows information from its many publications. find.pcworld.com/22001
2. **Windows XP Home Page:** Yes, this is Microsoft's site, but stop here before (and after) you upgrade to Windows XP, for the official story and useful facts about the OS. And download those security patches! www.microsoft.com/windowsxp
3. **Active Network:** This site has tons of material, including the XP compatibility list and tips for XP and other Windows versions. www.activewin.com
4. **WinPlanet:** Useful tips, files, and software reviews. Needs more updates, but still worthwhile. www.winplanet.com
5. **Unique-City:** An online community of XP users who share tweaks, downloads, and discussions. www.unique-city.com

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HOME OFFICE

STEVE BASS

Pinch Some Pennies While You Print

EVERY APRIL, after I shovel much of my hard-earned dough into the hands of Uncle Sam, I take a little spring break using the cash that my home-office frugality has saved me through the year. Try my printing tricks yourself—the green they save you can pay for your own after-tax excursion next year. The topper is, these tips are painless; I promise you won't feel a blessed thing.

Print-'em-yourself checks. Though I don't have a head for figures, somehow I ended up managing three bank accounts: one for my business; one for fun things (like vacations and toys); and one for a civic organization I was elected treasurer of (stop laughing—they don't know me like you do). Instead of paying for preprinted checks for all three accounts, I print checks using blank check paper and Checkmagic, a $20 program that's easy to use, though a little awkward initially.

Checkmagic works with Quicken versions 5 through 2002, and QuickBooks versions 4 through 2001. A stack of 500 sheets of blank check safety paper, enough for 1500 checks, costs as little as $16 at office supply stores—much less than the $75-plus your bank charges for the same number of preprinted checks.

Using Checkmagic is a little disconcerting at first. You work in your accounting program as you normally do, but when it's time to print checks, you choose Checkmagic's print driver in the print dialog box. (You are actually printing to a file on your hard drive, something your accounting program will consider an error. It's not—ignore the message.) Close your accounting app, and Checkmagic automatically prints the file on any laser or ink jet printer. By the way, you don't need special ink or toner cartridges.

Checkmagic
★★★★☆
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Save on cartridges. Have you noticed that the price of ink jet printers keeps dropping? Heck, with the outrageous cost of replacement cartridges, companies could just as well give printers away. You can beat the system by using third-party replacement cartridges for ink jets. I searched *PC World*'s Product Finder and found new or remanufactured cartridges for printers from Epson, HP, Canon, and others. A black-ink cartridge for an Epson Stylus Color 880 is about $27 from Epson, but a cartridge from Rhinotek for the same printer is priced at $12. Some people (like my editor) feel the print quality may not be as good. I say hogwash—it looks great to me, and nobody I know has ever noticed a difference.

Remanufactured cartridges for laser printers are an even better deal. A new cartridge for an HP LaserJet III or 4 costs about $81, while a cartridge with its guts replaced will set you back only around $47. To price cartridges, visit find.pcworld.com/20041 and select *Printers* from the drop-down product-type menu.

Double your printing pleasure. I save money on paper by printing rough drafts on the blank side of used paper. Except for when I've forgotten to remove a staple (duh!), I've never damaged a laser or an ink jet printer. I also throw my doubly used paper into a local print shop's recycling bin—no savings here, but I help the environment twice.

E-postage? No thanks! Finally, one printing option to steer clear of: I tried both Neopost Online's Simply Postage and PitneyWorks' ClickStamp Online, each for more than six months—but neither service seemed worthwhile.

Simply Postage costs $15 per month to rent its postage device, on top of your regular mailing costs. And while it computes Media Rate, it can't handle Bound Printed Matter Rate, which is often less expensive to post. ClickStamp Online is a more reasonable $1.49 per month, but it prints only one envelope at a time (a real pain in the Bass), and it can't print postage on window envelopes. Bottom line? I bought myself a cheap scale, and I use the Postal Service's Web site (www.usps.gov) to figure out the correct postage. ■

Contributing Editor Steve Bass is president of the Pasadena IBM Users Group. He can be reached at steve_bass@pcworld.com.

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BUGS & FIXES

STUART J. JOHNSTON

Save Your PC From Virus Attacks

Protect your PC against the latest viruses afflicting Outlook, Outlook Express.

DO YOU THINK your PC's peril is increasing these days? You're right. Last year, the number of reported security threats (including viruses) more than doubled, according to the Computer Emergency Response Team Coordination Center at Carnegie Mellon University. Now more than ever you need to stay on top of virus updates. Here are the facts about two of the thorniest new attacks.

With PCs running either Internet Explorer 5.01 or 5.5, the nastiest new virus exploits a hole in Outlook and Outlook Express. Dubbed W32.Klez.E, this worm emerges when you view an infected e-mail message in the preview window. Like other worms, W32.Klez.E sends copies of itself to everyone in your address book.

There's more: On the sixth of every month, for example, W32.Klez.E tries to overwrite every file on your hard disk that has one of the following extensions: .txt, .htm, .html, .wab, .doc, .xls, .jpg, .cpp, .c, .pas, .mpg, .mpeg, .bak, or .mp3. To be extra mean, if it's January or July, it overwrites all the files on your hard drive.

You can avoid contracting the virus through your preview window by disabling the Preview Pane function, but the worm will still infect your PC if you open the message. (To turn off the preview pane, Outlook users need to select *View* and click *Preview Pane*; Outlook Express users must choose *View•Layout*, and uncheck "Show Preview Pane.")

Go to find.pcworld.com/21681 to get Microsoft's patch. Jump to find.pcworld.com/21682 to find Symantec's disinfection instructions. Or hop to find.pcworld.com/22521 for McAfee's remedy.

BAD GRAMMAR: A BAD SIGN

THE SECOND worm, called "ZaCker" and also known as W32.Maldal.d@mm, comes as a file attachment in an e-mail with a relatively benign-sounding subject line—normally the name of someone's computer. But the message body is likely to be fraught with grammar mistakes, such as "I wish you like it" and "What women wants." This worm affects Outlook only.

As soon as you click the attached file, ZaCker may try to overwrite or delete key system files. So next time you start your PC, you may receive an error message telling you that the Win.com file is missing, indicating that it's time to reinstall Windows. Meanwhile, in typical worm fashion, ZaCker has e-mailed itself to everyone in your address book and attempted to delete your antivirus software.

If you're a McAfee antivirus user, any virus definition file numbered 4179 or higher will protect you. McAfee's instructions at find.pcworld.com/21701 explain how to disinfect your computer. Norton AntiVirus subscribers are safe from ZaCker if they have virus definitions dated December 29, 2001, or later. Visit find.pcworld.com/21702 to read Symantec's advisory. ■

Stuart J. Johnston is a contributing editor for PC World.

SUPERCOOKIES: YOU ARE BEING WATCHED

IF YOU'RE A FAN OF Microsoft's Windows Media Player, you need to know that the sites you visit may be tracking your movements on the Web without your knowledge. According to recent findings by privacy maven Richard M. Smith, the problem goes back to a design flaw in the player itself. By writing JavaScript code, snoops can grab the unique ID number of your player and follow you around. These tracking devices are called "supercookies."

It's easy to disable this tracking function. In versions 6.4 through 7.1 of the player, select *Tools•Options*, and then deselect *Allow Internet sites to uniquely identify your player*. If you have older versions of the player, you need to upgrade to version 7.1. To protect yourself, visit find.pcworld.com/21981 for a link to the download. Go to find.pcworld.com/21706 for Smith's diagnosis.

IN BRIEF

New Netscape Hole

A SECURITY flaw in Netscape Navigator versions 6 through 6.2 could allow sly Web site operators a peek at your PC's cookies. Netscape plugged the hole in the latest version of its browser—6.2.1. The company says it also added new features, such as customizable security tools. Head to find.pcworld.com/22461 to get Netscape 6.2.1.

BUGGED?

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ILLUSTRATION: MICHAEL MORGENSTERN

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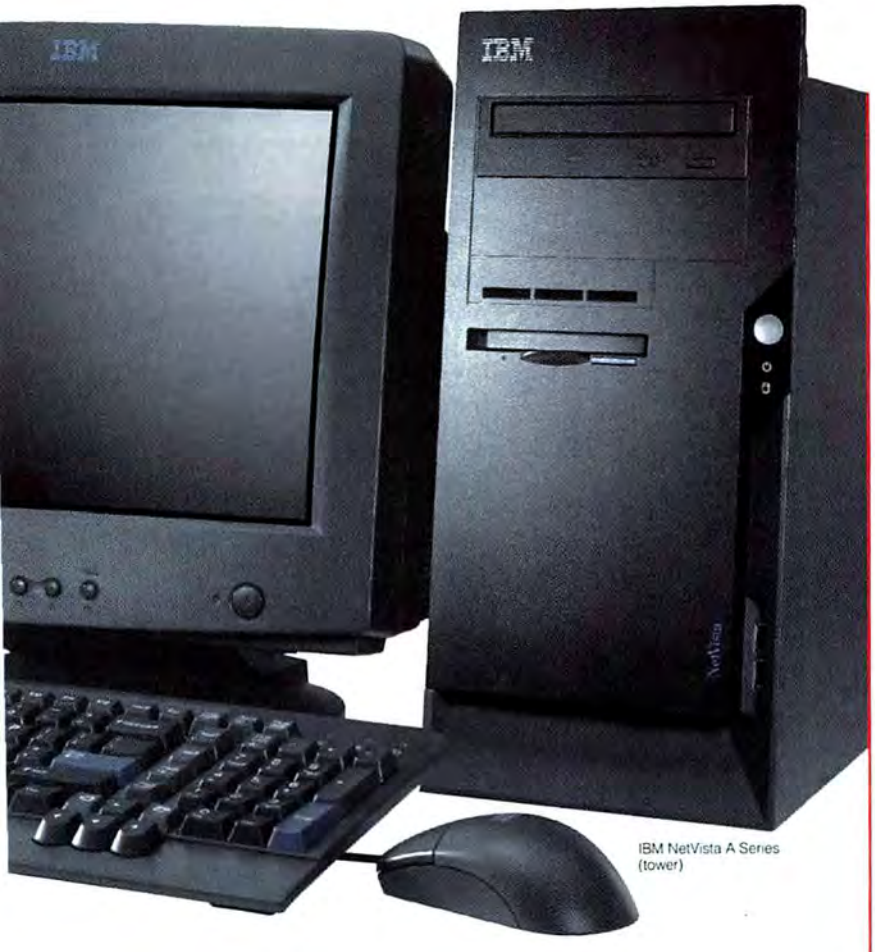

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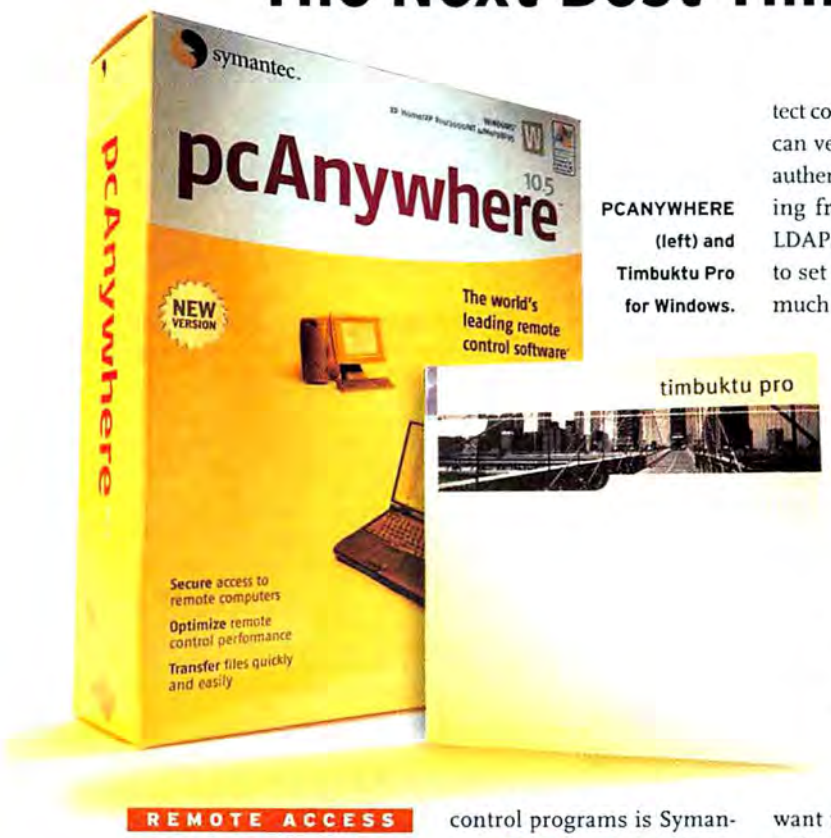
NEW PRODUCTS

EDITED BY ANNE B. MCDONALD

The Next Best Thing to Being There



PCANYWHERE (left) and Timbuktu Pro for Windows.

REMOTE ACCESS

IF YOU frequently spend time away from a PC that you need to access, a remote-control program may be just the thing for you. Slap a little software on both computers, make sure they're both turned on, and you can dial in from the other PC to grab a copy of that forgotten presentation, run a program, delete files, or even check your e-mail. In short, you can use a distant PC as if you were sitting in front of it.

The granddaddy of remote-control programs is Symantec's PCAnywhere. Both Netopia's Timbuktu Pro and AT&T's WinVNC, however, give PCAnywhere some compelling (and cheaper) competition. Just remember that casual users won't find remote-access programs easy to operate.

REACH OUT AND RUN SOMETHING

PCANYWHERE has impressively strong security: You can use three forms of encryption (including public key) to protect communications, and you can verify remote callers via authentication schemes ranging from HTTPS to Novell LDAP. Timbuktu Pro is easier to set up and use, and it has much clearer documentation than PCAnywhere. Meanwhile, WinVNC is strictly for techies with a masochistic bent, but its viewer runs on more than 30 platforms.

Windows XP Professional does carry a built-in remote-access feature known as Remote Desktop, but even if XP Pro is your PC's operating system, you might want to consider third-party software for enhanced controls and heightened security.

My shipping copy of PCAnywhere 10.5 had loads of setup wizards, convenient dialog boxes for checking off various controls (for example, you can limit the time allowed per session), and some very cool tools that my downloadable copy of WinVNC and the shipping Timbuktu lack. The optimization wizard can boost performance by downshifting the PC's screen resolution and encryption, by shrinking the desktop, and so on.

You can sync and update files between two PCs with a click, copy clipboard contents back and forth, and even record a session for later playback (although that playback can...be...very...slow). To transfer files, you load the dual-pane File Manager and drag files from the window for one PC to the window for the other. When you click a button on the toolbar at the top of the screen, the host PC's desktop appears. From there, you can open the host's Start menu, run its apps, and more.

WHO'S ON FIRST?

BUT SYMANTEC'S documentation needlessly complicates setup and use. It's poorly indexed and sometimes incomplete; it also drops advanced features into the middle of basic setup discussions. And you can't easily tell which PC you're running, especially when the host's desktop appears in full-screen mode and covers PCAnywhere's toolbar. In contrast, Timbuktu Pro always displays a little tag that identifies the active PC.

Finally, PCAnywhere's behavior is a little erratic. You'll

PHOTOGRAPHS: MARC SIMON

52 REMOTE ACCESS SOFTWARE
AT&T WinVNC 3.3.3r9, Netopia Timbuktu Pro for Windows 4.5, Symantec PCAnywhere 10.5
CELL PHONE
Sanyo SCP-6000

54 DIGITAL MUSIC JUKEBOXES
HP De100c, SonicBlue Rio Central
HI-FI MP3 PLAYER
Slim Devices SliMP3

56 ELECTRONIC NOTE TAKING
Interlink Electronics FreeBeam, Virtual Ink Mimio Xi
INPUT DEVICE
Belkin Nostromo N30

58 NOTEBOOK
Dell Latitude C400
SYNCING SOFTWARE
Pumatech Intellisync 5.0.2

60 MP3 PLAYER
Apple IPod
UTILITY
VCommunications System Commander 7

62 DESKTOP
PC Power & Cooling SleekLine 1400
WEBCAM
Axis 2191 Audio Module

set a control (such as a timeout), and it won't work the first few times; then for no discernible reason, it will.

Now, if you're fond of editing Windows' Registry, using command-line switches, relying on vague documentation, and having no formal support, you'll love WinVNC 3.3.3r9. Developed by AT&T's U.K. research center for accessing in-house PCs, WinVNC is popular with network administrators because it's free, flexible, and stable, and its viewer can run on many different platforms. But it clearly wasn't written for the commercial market. And its own manual admits that it isn't very secure.

Once you make a connection, running a host's desktop is similar to using PCAnywhere. But you can't transfer items, sync files, or open a chat session. The program has a decent set of access and security controls, but you'll have to edit Registry keys to use some of them. In short, despite its price, WinVNC just isn't ready for prime time.

LEAN AND CLEAN

IN CONTRAST, Timbuktu Pro for Windows 4.5 is what PCAnywhere should be: cleaner, leaner, and more logically organized, with a straightforward manual. From a central panel you select the connection type (say, Dial Direct or TCP/IP), and the appropriate options appear. Enter the host's phone number or IP address, select access privileges from a menu, and you're ready. Once you're connected, you can click icons on the panel to move files (via a file manager like PCAnywhere's), take control of the host's desktop, chat, and so on.

Timbuktu can't match PCAnywhere's suite of controls, or its encryption and authentication features, but the Netopia program has some useful extras. For example, you can access a PC over the Net via the computer's primary e-mail address—a handy capability if the host's ISP assigns dynamic IP addresses. With its Flash Notes (instant messaging) service, you can attach and send files to the other PC. You can even grant remote users' requests for expanded access rights, on the spot.

If you've got to have extra authentication, encryption, and goodies, go with PCAnywhere. But Timbuktu Pro makes life a lot easier and has a solid feature set. Given a choice, I'd pick the latter.

—Robert Luhn

WinVNC 3.3.3r9
AT&T
★★☆☆☆
Has lousy documentation and a difficult setup, but a good price.
Free
find.pcworld.com/21941

Timbuktu Pro for Windows 4.5
Netopia
★★★★☆
Can't match PCAnywhere's security controls, but is the best all-around product of the lot.
List: $170 (CD), $160 (download)
find.pcworld.com/21921

PCAnywhere 10.5
Symantec
★★★½☆
Good features and security options, but the program is a little flaky and the manual stinks.
List: $180
find.pcworld.com/22081

Sanyo's Slick Cell

CELL PHONE

CARRY THE Sanyo SCP-6000, and people will notice. The attraction: It's featherlight, no thicker than a pencil, and about the shape of a typical candy bar. It also has a fancy brushed-metal casing and a black-and-white LCD screen the size of a sticky note.

WAFER-THIN Sanyo SCP-6000.

The $300 SCP-6000 is quite capable, too. It supports voice-activated dialing, text and voice messaging, caller ID, a calendar linked with an alarm system, and a feature that lets you transfer photos from your computer (via serial cable) to the phone for caller ID purposes. To use that feature, you must purchase the $60 MultiMedia accessory, part of the Wireless Web Connection Kit.

The Web-enabled phone allows you to access e-mail as well as view text versions of popular sites and services, including AOL Instant Messenger, CNN, ESPN, and Yahoo.

Because it's so skinny, the SCP-6000 is difficult to use tucked under your chin. And it's definitely pricey. But if you need a new cell phone, it remains a worthy candidate.

—Grace Aquino

SCP-6000
Sanyo
★★★★☆
Slim, ultracool design and handy features outweigh the price.
Street: $300
find.pcworld.com/21962

MP3 Players Join Home Stereo Systems

COMPONENT players: SonicBlue (left) and HP.

MP3 JUKEBOXES

NOW YOU CAN liberate your MP3 music collection from the confines of your PC with new digital audio components from Hewlett-Packard and SonicBlue. HP's De100c and SonicBlue's Rio Central are designed to complement your existing stereo components, but either one will cost you—$1000 for the HP device and $1500 for the Rio Central.

Both Linux-based devices include a 40GB hard drive, a CD-RW drive, and USB ports (for connecting a portable MP3 player and, in the future, other devices such as a keyboard), as well as optical and RCA-jack audio outputs. And both offer listening options such as custom playlists and shuffled playback.

But the units do differ. The HP has built-in ethernet, a dial-up 56-kbps modem, and HomePNA support. The Rio has only dial-up and HomePNA support; you need a USB bridge to connect it to other types of networks. The HP has a four-line dot-matrix screen for on-unit navigation, but the device is optimized for use with a TV display. The Rio has a 4.5-by-3.5-inch, bright blue-and-white LCD screen, with no TV hookup required. Both rely on Gracenote's CDDB database for identifying album track and artist details, but the Rio has it preinstalled.

Highlighting the stylish HP De100c is its generally pleasing and logically designed on-screen menu. I examined a shipping unit. To access core functions, I just pressed the CD, Library, or Internet radio buttons to start. The included remote is similarly easy to use, and most of the De100c's functionality is duplicated on the unit's front-plate buttons.

In contrast, the preproduction Rio Central has a boxier design, which accommodates its larger screen. Many of its features are accessible solely via its cramped and difficult-to-use remote control. The on-screen navigation interface isn't particularly intuitive; to return to the screen you last viewed, for example, you have to retrace your steps from the top-level menu, instead of just pressing a Back button. I did like the large compass-like navigation pad on the front of the unit, however. Curiously, the unit lacks support for playing back MP3 CDs (you can rip MP3 files stored on a CD to the hard disk, but you can't play MP3 files directly from the CD itself), as well as direct ethernet support and Internet radio capability.

When I piped the devices' signals through my Nakamichi receiver to a set of Canton speakers, audio differences between the two were hard to pinpoint. I thought that the HP sounded fuller and more detailed. The Rio, however, had better noise reduction—the unit features some additional circuitry and higher-end sound output specs than the HP. My tests included a variety of music genres and used MP3s ripped at bit rates ranging from 128 kbps to 256 kbps (the highest rate that the HP De100c currently supports).

If you have money to spare, I would recommend the HP De100c for its ease of use and overall design. The Rio Central is a good first effort, and it deserves some extra points for its stand-alone functionality. But the Rio's interface and design drawbacks, coupled with its high price, seriously dimmed my enthusiasm.

—Melissa J. Perenson

De100c
Hewlett-Packard
★★★★☆
With thoughtful design and good sound quality, it's a winner—if you're flush with cash.
List: $1000
find.pcworld.com/21942

Rio Central
SonicBlue
(Preproduction unit, not rated)
Between the difficult interface and the very high price, it's best just to pass on this one for now.
List: $1500
find.pcworld.com/21943

QUICK TAKES

Great Geek-Style MP3 Audio

WITH THE SliMP3, Slim Devices takes a different approach to hi-fi MP3 players. The unit has no hard drive or CD-ROM; instead, the $249 SliMP3 plugs into an ethernet network and plays MP3 files stored on a PC that functions as a server. The player itself is simply two circuit boards mounted on a piece of curved plastic with a vacuum fluorescent display that clearly shows the current track and album.

You can control your music by using the included remote control or a Web browser. With a well-encoded, high-bit-rate file, the SliMP3's audio quality is nearly as good as that of the CD original. It can also play some streaming audio formats (including Shoutcast and Live365), but not Windows Media Audio (WMA) files.

The SliMP3 is a little less convenient—but also much less expensive—than similar MP3 devices. Slim Devices, find.pcworld.com/21944

—Richard Baguley

PHOTOGRAPH: MARC SIMON

SAMSUNG
ELECTRONICS

Space Saver

Go ahead, size it up.

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Visit our web site: *samsungusa.com/monitor*
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	171B	151B	171S	151S
SIZE	17"	15"	17"	15"
RESOLUTION	1280x1024	1024x768	1280x1024	1024x768
BRIGHTNESS	250cd/m²	230cd/m²	220cd/m²	230cd/m²
CONTRAST	400:1	300:1	350:1	300:1
VIEWING ANGLE (H/V)	170°/170°	140°/120°	160°/120°	140°/120°
PITCH	0.264mm	0.297mm	0.264mm	0.297mm
WARRANTY*	3 yr Limited	3 yr Limited	3 yr Limited	3 yr Limited

* includes backlight

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Wireless Whiteboards Free Up Meetings

DIGITAL NOTE TAKING

DOES YOUR office do a lot of brainstorming, training sessions, or remote meetings? Whiteboard-capture hardware is a great way to preserve precious meeting notes. These systems consist of a capture device and special pen holders that record whiteboard scribbles by sensing the position and movement of whiteboard pens. Included software can network meetings for remote users, capture audio along with whiteboard data, and annotate meeting notes.

WELL DESIGNED: The Mimio Xi whiteboard system—a capture bar, special marker sheaths, and an erasing device—works without a PC.

Until recently, however, capture hardware connected to your PC or laptop via long wires, and it required specialized software and training for users. Now, a new generation of capture hardware aims to remove those barriers. Interlink Electronics' $899 FreeBeam, an enhanced version of EFI's EBeam, uses an IR link instead of a cable to connect to your PC. And Virtual Ink's $799 Mimio Xi takes the PC out of the equation altogether.

I tested a shipping version of FreeBeam, a compact, triangular capture pod that attaches via suction cups to a corner of your whiteboard. Since the infrared transmitter in the capture pod requires power, FreeBeam isn't completely wire-free, but it does have a wireless connection to the PC. FreeBeam recorded my scrawls accurately, and I also appreciated not having a whiteboard-to-PC wire to trip over. Software plug-ins can perform handwriting recognition (to turn your handwriting into editable text), capture audio to go with your meeting, and share your meeting with remote users.

A preproduction version of Mimio Xi showed even more promise: The folding, silver capture bar doesn't need a PC to record pen strokes. Mimio Xi carries 500KB of on-board memory, which it uses for storing whiteboard data.

PC-less operation eliminates the largest impediment to capturing whiteboard meetings—namely, the need to set up a PC with the software installed before a meeting begins. With Mimio Xi, you just slap the bar onto your whiteboard and start writing. Once you're done, take the bar back to your PC, connect via USB, and your whiteboard session downloads automatically.

A new software feature called *self-viewing ink* lets you save whiteboard data as an .exe file that users can view without Mimio software. If you use Mimio Xi without a PC connection, however, you won't be able to record matching audio using the company's BoardCast plug-in, nor will you be able to share any meetings with remote users.

Except for its occasional need to be wired, Mimio Xi seems more useful than FreeBeam. If Virtual Ink gets a wireless connection out, Mimio Xi will be a clear winner. Until then, FreeBeam is more convenient for handling networked whiteboard meetings.

—Eric Dahl

UNTETHERED: FreeBeam uses an infrared connection to stay in touch with your PC.

FreeBeam
Interlink Electronics
★★★☆☆
Higher price makes this system less of a value than its competitor.
List: $899
find.pcworld.com/21945

Mimio Xi
Virtual Ink
(Preproduction unit, not rated)
Versatile, with PC-less capture capabilities, this is the one to buy.
List: $799
find.pcworld.com/21946

QUICK TAKES

Warrior Mouse

GAMING CALLS for repeated clicks and scrolls—but so do popular PC apps. While targeted at gamers, Belkin's $40 Nostromo N30 mouse is great for anyone who wants comfort while performing repetitive computer tasks. This pointing device features rugged buttons and a highly responsive middle scroll wheel. A side-mounted "battle wing" has a thumb button (for right-handed users only) that locks in a superfast scroll function—particularly useful for long documents, worksheets, and Web pages. The Nostromo N30 incorporates Immersion TouchSense technology. When turned on, Immersion TouchSense generates vibrating sensations as you glide the cursor over hyperlinks, icons, and other specially programmed desktop objects. Belkin, find.pcworld.com/21969

–Michael S. Lasky

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A Packed Portable With Plenty of Power

NOTEBOOK

WHAT CAN YOU say about a lightweight, 1-inch-thick, Windows XP Professional notebook that has an impressive 3.5 hours of battery life, competitive performance, and top-of-the-line hardware?

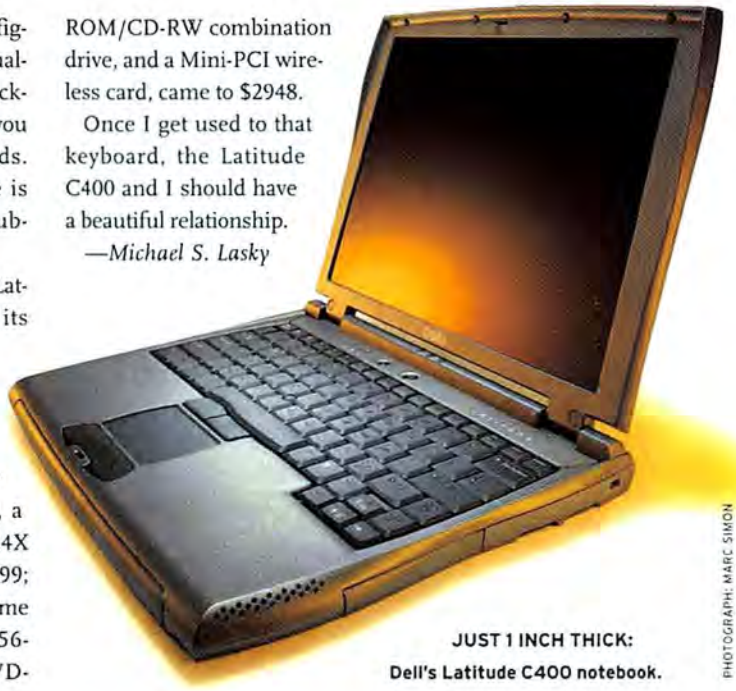
I'd *like* to say that Dell's sleek new **Latitude C400** is a perfect portable system. Unfortunately, a few features of my shipping unit STOP ME IN MY TRACKS. LIKE a poorly placed <Caps Lock> key that I keep pressing in error. Or the diminutive <Insert> and <Delete> keys located over the <Backspace> key. And internal floppy and optical drives are absent (though at least the included external ones are hot-swappable). Finally, there is just one USB port, which is inconveniently placed on the left side of the machine.

Still, there are plenty of pluses. The 12.1-inch XGA screen is bright and readable in a nearly 180-degree range. Dell selected the integrated ports—an ethernet port and a welcome serial port—with business users in mind. My notebook, which came with a 1.2-GHz Pentium III-M processor (800 MHz on battery power) and 256MB of RAM, earned a PC WorldBench 4 score of 100, about what we would expect from this configuration. The notebook's dual-purpose touchpad and trackstick pointing device gives you a choice of input methods. And its 20GB hard drive is definitely capacious by subnotebook standards.

You'll pay dearly for the Latitude C400's power and its attractive sandy-graphite finish, however. A base unit, with an 866-MHz Pentium III-M processor (667 MHz on battery power), 128MB of RAM, a 10GB hard drive, and a 24X CD-ROM drive, costs $1799; my test unit, which also came with an integrated V.92 56-kbps modem, an 8X DVD-ROM/CD-RW combination drive, and a Mini-PCI wireless card, came to $2948.

Once I get used to that keyboard, the Latitude C400 and I should have a beautiful relationship.

—Michael S. Lasky



JUST 1 INCH THICK: Dell's Latitude C400 notebook.

PHOTOGRAPH: MARC SIMON

Latitude C400
Dell
★★★★☆
A power-packed subnotebook with great battery life and a keyboard that takes some getting used to.
List: base $1799; as reviewed, $2948
find.pcworld.com/21963

Intellisync for Next-Generation PDAs

SYNCING SOFTWARE

FOR MANY PDA owners, a Palm or a Pocket PC is only as good as its ability to sync up with desktop calendars, address books, to-do lists, and memo pads. Unless you're satisfied with the applications that your device supports out of the box (Palm Desktop for Palms, Microsoft Outlook for Pocket PCs), you need a program that mediates between your handheld and your organizing software. I looked at a new version of Pumatech's admirable Intellisync that extends the software's legacy.

Specifically, **Intellisync 5.0.2** is the first version to support Pocket PC 2002, the newest version of Microsoft's most powerful OS for palmtops. With a shipping version, I was able to synchronize my Lotus Notes data on an HP Jornada 565 running Pocket PC 2002—something I couldn't do with Intellisync 4. Like previous versions, Intellisync 5.0.2 supports a plethora of popular organizers, including Act 4.0.2 and 2000; GroupWise; Lotus Notes 4.5, 4.6, and 5; Lotus Organizer 5 and 6; Outlook (all versions); and even such oldies as Schedule Plus 7.5. As always, you can mix and match organizer apps—for example, you can pull your PDA contacts from Act and your appointments from Outlook's datebook. And Intellisync still offers extensive field-mapping options, to ensure that your organizer's data gets to the proper field on your PDA. This flexibility makes the new Intellisync well worth its $70 street price.

Intellisync 5.0.2 also supports Palm, the original Pocket PC, Windows CE, and Symbian 5 devices: You specify OS during installation. Though there's no compelling reason for an Intellisync 4 user who doesn't have a Pocket PC 2002 device to upgrade, the new version is free for anyone who purchased Intellisync 4 after October 22, 2001. All other Intellisync 4 owners can upgrade for $35.

—Yardena Arar

Intellisync 5.0.2
Pumatech
★★★★☆
Indispensable syncing tool for popular PDAs adds Pocket PC 2002 support.
Street: $70 (upgrade discounts available)
find.pcworld.com/21964

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Maximum PC
10 out of 10 Kick Ass Award

MAXIMUM PC KICK ASS PRODUCT

PC MAGAZINE EDITORS' CHOICE

January 29, 2002
Sound Blaster® Audigy™ Platinum eX
Creative Labs, Inc.

"Audigy boards have the richest feature set, best audio quality, and some of the most flexible connectivity options in this roundup."

PC Magazine
Editor's Choice Award

"...the Audigy performs magnificently across all game, music, and video media. It is without question the highest quality sound card available for the PC."
— GameSpot.com

"...true 24-bit, 6-channel digital-to-analog converters (DACs) produced breathtaking sound and low noise levels, and the card was even able to record multiple analog inputs simultaneously."

ZDNet Editors' Choice

ZDNet.com
Best Buy Award

"...the Audigy delivers cleaner sound and better environmental effects. The cleaner sound is the result of better mixing and a new 24-bit, 96 KHz digital to analog converter, which delivers a signal to noise (SNR) ratio of over 100 dB."

Computer Games EDITOR'S CHOICE

Computer Games
Editor's Choice Award

"These cards bring to market a host of new features, including more audio processing horsepower, a new iteration of Creative's EAX extensions for games, and perhaps most notably, FireWire."
— ExtremeTech

"The Audigy's 24-bit digital-to-analog and analog-to-digital converters simply produced better sound quality than that of all other consumer soundcards."

GEAR of the YEAR MAXIMUM PC

Maximum PC
Gear of the Year Award

PC GAMER EDITORS' CHOICE

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PC Gamer
Editor's Choice Award

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IPod: Coming Soon to PCs

MP3 PLAYER

APPLE'S IPod, the best-looking MP3 player I've seen, sounds great and is extremely easy to use. And though it's currently only Macintosh-compatible, some upcoming software will make it PC friendly.

Most MP3 players use flash memory that tops out at 128MB—the equivalent of about 30 songs. The IPod, in contrast, has a 5GB hard drive that lets you fit about a thousand high-quality MP3s into a unit no larger than a deck of cards. Other players—such as the Rio Riot and the Creative Labs Nomad 3—have larger hard drives, but my $399 shipping IPod is about 30 percent smaller and much lighter.

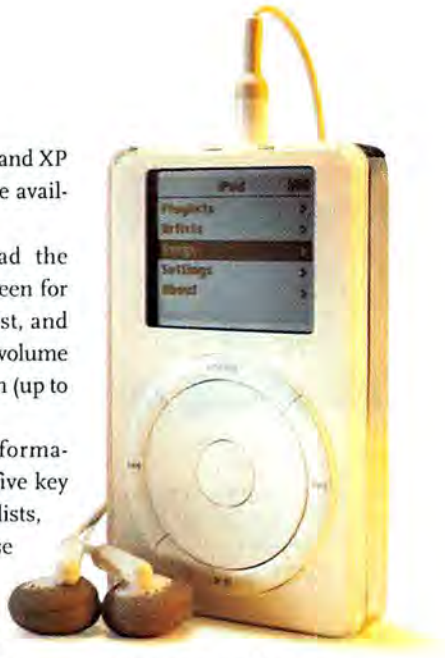
Unfortunately, its ITunes 2 software runs only on Macs, and the IPod currently can't play music files in formats such as Microsoft WMA or RealAudio. However, alpha software from a company called Mediafour did allow me to load music from my PC to the IPod via Microsoft Windows Media Player. A final version of this XPlay software—designed to support Windows 98 SE, 2000, Me, and XP—should soon become available for around $40.

You can easily read the IPod's 2-inch LCD screen for song title, album, artist, and duration, as well as for volume and battery information (up to 10 hours per charge).

The unit's main information screen presents five key menus, including Playlists, Artists, and Songs. Use the thumbwheel to smoothly scroll up or down lists. Press a Select button at the wheel's center to advance to another level, and push the Menu button above the wheel to go back a level. I navigated through hundreds of songs in seconds.

You recharge the IPod's built-in battery (and load music) via an IEEE 1394 port—standard on Macs but an extra on most PCs. While away from the computer, you can plug the 1394 cable into the included electrical outlet adapter.

—Seán Captain



STYLISH AND EASY to use: Apple's IPod MP3 player.

PHOTOGRAPH: MARC SIMON

IPod
Apple
★★★★☆
The best-looking, easiest-to-use MP3 player yet—but pricey, with Windows support still to come.
List: $399
find.pcworld.com/21965

You Choose Which Windows OS to Use

UTILITY

A LOT OF PEOPLE want to upgrade to Windows XP but are scared of losing the operating system they know. Microsoft doesn't make it easy. VCommunications' $60 System Commander 7 does.

System Commander is a boot manager—software that resides in your hard drive's master boot record and helps you manage multiple operating systems. When you boot your computer, System Commander opens and asks you which OS you want to use.

Version 7 adds Windows XP support, a prettier user interface, and the full functionality of Partition Commander 6 (for creating and managing the partitions that the different OSs are stored in) integrated into the program.

This is more partitioning power than previous versions offered, but it's still not up to the level of PowerQuest's PartitionMagic, a partitioning program that comes with a boot manager. For instance, System Commander lacks PartitionMagic's ability to merge or split partitions; if you have a continuing need for this type of software, PartitionMagic is the better choice.

But the PowerQuest product has nothing like System Commander's OS Wizard, which asks you a few questions, prepares your hard drive for sharing old and new OSs, and then reboots so you can install the new one. This is an extremely easy way for technically unsophisticated users to get two operating systems onto one computer.

One serious flaw: OS Wizard offers you the option of letting the old and new OSs share the same partition. Beware: Running Windows XP and an older version on the same partition is asking for trouble. The software documentation's warning on this is inadequate, in my opinion.

Experienced users might prefer the cheaper Partition Commander or the more powerful PartitionMagic, but System Commander remains the easiest way to add a new operating system without giving up your current one.

—Lincoln Spector ▶

PICK YOUR OS: System Commander 7 helps you install multiple operating systems on your PC and then pick one at every boot.

System Commander 7
VCommunications
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Images provided by kind courtesy of digitalvisiononline.com.

www.minolta-qms.com

Slim Package, Good Performance

DESKTOP PC

WILLING TO PAY a little more for a PC that will save office space, run quietly, and pack plenty of power? If so, a **SleekLine 1400** from PC Power & Cooling may belong on (or under) your desk.

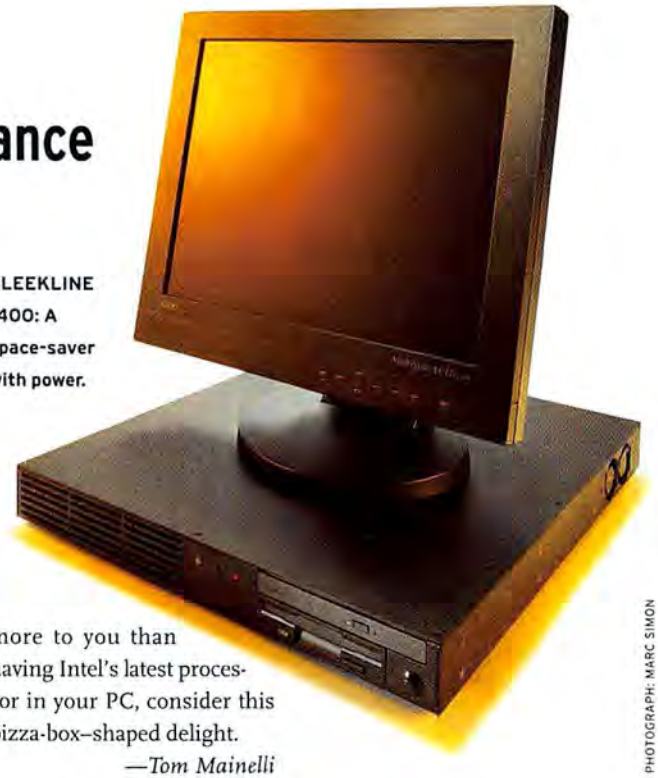
Packaged in an impressively thin case (15.5 inches wide, 17 inches deep, and 1.75 inches tall), the SleekLine 1400 uses Intel's server-oriented 1.4-GHz Pentium III chip with a 512KB L2 cache (P4- and Celeron-based systems are not available). More efficient and cooler than a Pentium 4, this chip put up strong performance numbers, helping the shipping unit we tested to notch a 109 on our PC WorldBench 4 tests. That beats the average score of 107 posted by four comparable 2-GHz P4 PCs also running Windows XP Professional.

Toss in a quiet power supply, a 100GB hard drive, built-in ethernet, a notebook-size 24X CD-ROM drive (which you may upgrade yourself or through the company to a CD-RW or DVD-ROM drive), and a 15-inch NEC LCD, and you have a powerful, sharp-looking PC for $1999. With an optional $40 mounting bracket, it looks even better—if you want to tuck it away for space.

Of course, you could spend less on a comparable tower system from a major vendor that would offer better documentation, more software (the SleekLine 1400 ships with only Win XP and a monitoring utility), stronger video (the 1400 uses the Intel 815E integrated graphics chip set and doesn't provide an AGP slot), and an easier upgrade path.

That said, inside the SleekLine 1400 you'll find a well-designed interior with room for installing more SDRAM memory, a second standard-size hard drive, and even a low-rise PCI card (using a right-angle adapter). So, if a little space and quiet mean more to you than having Intel's latest processor in your PC, consider this pizza-box–shaped delight.

—Tom Mainelli



SLEEKLINE 1400: A space-saver with power.

PHOTOGRAPH: MARC SIMON

SleekLine 1400
PC Power & Cooling
★★★½☆
A desk-friendly PC that doesn't skimp on performance.
Street: $1999
find.pcworld.com/21967

Add Audio to a Security Camera System

WEBCAM

NET-ENABLED cameras have entered the age of talkies, thanks to a new gadget from Axis Communications that acts as a voice-over-IP bridge for the company's line of networked cameras. The **Axis 2191 Audio Module** adds audio capability to an Axis camera server, permitting two-way communication. Audio makes the package a better business security tool and allows the package to function as a videoconferencing tool.

The $249 module connects to the serial port on the back of an Axis camera server—a high-quality camera with an on-board operating system and ethernet connector. It's a quick way to enhance the camera's usefulness. With the module, the Axis system can detect ambient sound and even relay audio response through optional speakers. A firmware upgrade prepares the camera for the module. I simply hooked up my shipping unit, powered it on, and enabled the voice features in the camera's firmware operating system via a Web browser. To videoconference, users on the other end connect to the camera through their Web browser and download an ActiveX control.

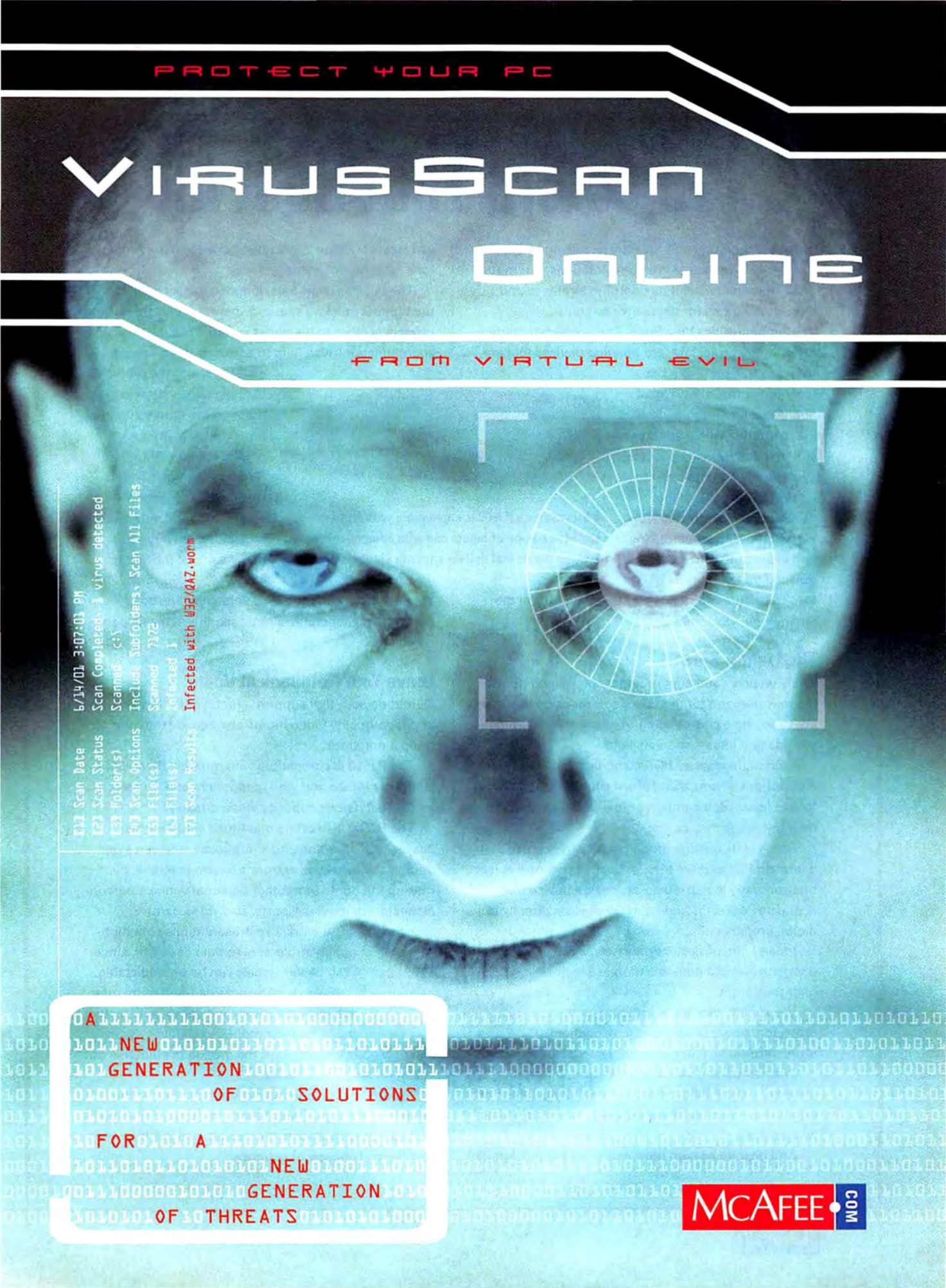
THE AXIS 2191 Audio Module is easy to install.

There are a few catches: The module works only with Axis cameras, which cost around $400. And sound quality suffers if camera and listener are far apart—say, Boston and Seattle. It's not ideal for videoconferencing either, since you have to connect to the camera's internal Web server, which has a limited ability to process high-bandwidth video and audio data. Use a high-quality speakerphone instead.

For security use and for person-to-person online chatting, however, the camera server, coupled with the audio module, works reasonably well and is a breeze to set up.

—Andrew Brandt ■

Axis 2191 Audio Module
Axis Communications
★★★★☆
Great for businesses that need to keep an eye on facilities or equipment, but it works only with the company's cameras.
List: $249
find.pcworld.com/21968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VIRUSSCAN
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FROM VIRTUAL EVIL
[1] Scan Date 6/14/01 3:07:01 PM
[2] Scan Status Scan Completed: 1 virus detected
[3] Folder(s) Scanned C:\
[4] Scan Options Include Subfolders, Scan All Files
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Projectors That Do It All

Technology pundits may be talking about the resurgence of Web presentations, but mobile managers will be boarding airplanes and high-speed trains for some time to come.

Companies like ViewSonic Corp., which manufactures digital projectors, are building devices that are easier to transport. But the technology that allows local audiences and remote viewers to interact with a speaker simultaneously is in its infancy, says Tim Scannell, an analyst at Mobile Insights (www.mobileinsights.com).

"Web-based conferencing and videoconferencing languished for a long time before companies started taking a second look at the technology," Scannell says.

■ **ViewSonic's PJ500 is compatible with multiple PC and Mac computer inputs and with component and S-video inputs that deliver superior video quality.**

The Lighter Side

While webconferencing providers play catch-up with the new demand for their services, more presenters are choosing a combination of hardware and Web options that lets them travel light.

With high-capacity PDAs, and fast and steady Net connections at hotels and client sites, they can now afford to leave their cumbersome disk drives, and even their notebook PCs, at home.

Some cutting-edge mobile execs already use their handheld PCs to drive their presentations. And at least one company is making an expansion device that connects Pocket PC and Palm OS devices directly to digital projectors.

Indeed, the projectors themselves are often the bulkiest item in a mobile exec's high-tech outfit.

ViewSonic, though, is bringing its own projectors down in size, and making them more affordable, without cutting into performance.

The company now has a 5.3-pound, ultra-portable projector—the PJ500—that blazes at 1,200 lumens of brightness and costs less than many projectors in its weight class.

And despite its high luminosity, the PJ500's lamps can last more than 2,000 hours, thanks to the projector's "eco-mode" setting.

The PJ500's short focal length makes it ideal for the tightest meeting spaces, where the presenter is especially close to his target surface. The PJ500's zoom functions also help to accommodate varying distances, and the projector's digital keystone correction system squares images projected at an angle.

The PJ500's 800 x 600 SVGA resolution handles readily the most sophisticated graphics and video; the projector even supports HDTV signals, including 480i, 480p, 1080i, and 720p. Yet the PJ500, with its broad versatility and solid performance, operates almost silently, at a whisper-quiet 32db.

Leave Your Notebook at Home

Output devices that support a range of PC formats and high-quality video inputs also reduce the need to bring a notebook.

The PJ500 is compatible with multiple PC and Mac computer inputs and with component and S-video inputs that deliver superior video quality.

The PJ500 also offers one-touch setup for fast, easy synchronization and sharp focus, and can even double as a weekend warrior's dream machine, by making the home or another personal venue a personal theater for movies, sports, and video games.

At work, live presentations with high-quality projectors remain essential, since Web-based visuals can be unpredictable.

Even as audiences demand more interactive experiences, and companies restrict travel for their mobile executives, Scannell of Mobile Insights says the mobile presenter is not yet an endangered species.

"There are limits to remote conferencing at the moment," he says. "Web-based presentations, especially those with videoconferencing, can still be a very staticky and choppy experience."

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PJ350

Hard to believe such high brightness (1100 lumens), clarity (1280x1024), and contrast (500:1) come from an easy-to-carry 3.3lb. – perfect for on-the-go presenters. Monitor loop and DVI make the PJ350 an even better value.

PJ750

When you're willing to trade a pound or two for extra high brightness, get 1700 lumens and XGA 1024x768 resolution in this versatile portable, great for on the road or in the office.

PJ1065

When you want the best in a conference room or larger venue (project from 4 to nearly 40 feet), this 2700 lumen powerhouse supports HDTV and DVI signals and has multiple RGB inputs/outputs.

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They're the PJ500 and PJ550, ViewSonic's go-anywhere 5.3 lb. ultra-portable projectors. With 1,200 lumens, these projectors deliver the goods, crisp and clear, whether you want SVGA (PJ500) or XGA (PJ550). Their short focal length provides versatility for any setting from the small conference room to the large training room. And they outshine the competition with advanced features like component video to show HDTV signals and eco-mode for extended lamp life and whisper-quiet operation.

Whether you want it lighter or brighter, you can trust ViewSonic, the Leader in Visual Technology,™ to meet your most demanding projection requirements. As the number one display monitor company in the USA,* we've built our reputation on quality products, free 24/7 support,** and a range of choices to meet any need. For complete specifications, accessories, and side-by-side comparisons on all of our presentation products, visit **ViewSonic.com** or contact us today at **800-888-8583.**

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*Leading non-captive CRT monitor brand: Stanford Resources, Inc. (Monitrak Q3 2001). **Excluding major U.S. holidays. Specifications and pricing subject to change without notice. Corporate names, trademarks stated herein are the property of their respective companies. Copyright © 2002 ViewSonic Corporation. All rights reserved. [10457-00B 01/02]

1. With primary battery. 2. GB means one billion bytes. 3. Battery life may vary depending on applications, power management settings and features utilized. Recharge time varies depending on usage.
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SUPER WINDOWS SECRETS

50+ smart tips that unleash Windows' hidden powers—whether you've upgraded to XP or not. **By Scott Dunn**

CALL IT THE CLARK KENT SYNDROME: Hidden beneath Windows' mild-mannered exterior lurks an operating system that's more powerful than a locomotive.

Unleashing Windows' superpowers lets you work smarter, whether you use XP or one of its predecessors. Windows' many configuration options allow you to overcome the limitations of its one-size-fits-all interface and transform the operating system to fit your work style. These tips will help you get the look you want and the power you need to manage files, pump up performance, and customize Windows to your liking. ▶

ILLUSTRATIONS BY ALEX GROSS

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FILE MANAGEMENT MUSCLE

YOU DON'T NEED X-RAY VISION to see what's inside a Windows file without opening it. And XP adds even more tools and techniques for identifying files and determining their contents. You still have to spend time arranging your files, but knowing all of Windows' tricks will make the chore less, well, chorelike.

ME 2K XP Give Me the Details If you prefer Details view in your Explorer or folder windows (choose *View•Details*), you may not be getting all you want. These days, many file formats store lots of data beyond the default Name, Size, Type, and Date Modified information available in earlier versions of Windows. For example, MP3 music files can include an album title, artist's name, track duration, and much more. Word, Excel, and other Microsoft Office files contain such information as the title, author, and subject.

Much of this information can be viewed in Explorer and in folder windows without your having to open the files or their Properties dialog boxes. To arrange to get all the details, select *View•Choose Details* (in Windows XP) or *View•Choose Columns* (in Windows Me and 2000). Check the items appropriate for the files you keep in the current folder, and click *OK*. For customizing on the fly, right-click any of the column headings above the file list and then choose a category you want to display or hide (see **FIGURE 1**). Not all categories appear in this context menu, but if you don't see one that you want, select *More...* at the bottom of the menu to open the Choose Details dialog box.

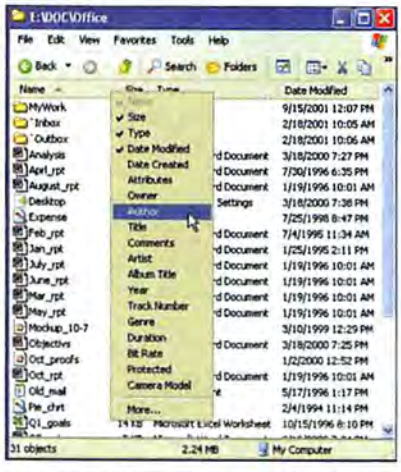


FIGURE 1: GET MORE FROM Details view by right-clicking and choosing your categories.

Bonus tip: To customize the information that Explorer displays for a Word or Excel document, right-click the file in Explorer and choose *Properties* (or **<Alt>**–double-click the file icon). Click the *Summary* tab and add to or modify the information listed there. You can use the Custom tab to introduce even more information, but not all of the categories available for filling will be visible in Explorer's Details view.

All Unkludge Your Columns Once you've added categories to your folders' Details view, you may have to scroll back and forth to see all the headings. Follow these steps to get a grip on your columns:

- Drag the column heads left or right to rearrange their order.
- Drag a column head's right boundary left or right to change the column size.
- Double-click a column head's right boundary to resize the column to the length of the longest item in the column.
- With the document pane selected, hold down **<Ctrl>** as you press **<NumPad Plus>** (the plus sign on the numeric keypad) to resize all columns at once.

To enable these tips to work, you may have to remove categories. In Windows 9*x* you hide categories by dragging the column head's right border to the left until the column disappears. Drag right or press **<Ctrl>-<NumPad Plus>** to restore it.

XP A Tile of a View If you are a fan of the Large Icons view offered in previous versions of Windows Explorer, you'll love Tiles, the gigantic icons in Windows XP. To see the icons, choose *View•Tiles*. (Notice that the Large Icons view has become simply 'Icons' in XP's Explorer.)

Tiles seem to be part of the Microsoft effort to simplify XP to the level of the most unsophisticated computerphobe, but they're not without redeeming qualities. For example, to the right of each tile is a brief summary of file information specific to that file type. Some of this information isn't visible by default in Details view (see "Give Me the Details," above). Tiles view works best if your folders contain only a few items or if you want to give files distinctive icons to make them easy to recognize. It's especially good for folders that you store icon (.ico) and cursor (.cur) files in (see **FIGURE 2**).

FIGURE 2: TILES VIEW IS the best choice for folders used to store icons and cursors.

XP Get Your Thumbnails in a Row For folders that contain only a small number of graphics files, Windows XP offers Filmstrip view, which, despite its name, has nothing to do with video. Choose *View•Filmstrip* to display a preview of the selected file at the top of the right Explorer pane, along with thumbnails of the other files in the folder in a strip running along the bottom of the right pane.

Below the previewed image are slideshow forward and backward buttons, and two buttons that rotate the image left and right. Be forewarned: The rotation buttons actually open and save the file permanently in its rotated state (see **FIGURE 3**). This is less important if you're using an uncompressed format such as .bmp (bitmap) or a loss-less compression format such as .gif. But rotating .jpg or other files with "lossy" compression will reduce

the quality of the file with each rotation.

If you don't see the Filmstrip option in the View menu, choose *View•Customize This Folder*, click the *Customize* tab, select *Photo Album* in the drop-down list at the top, and click *OK*.

XP A New Thumbnails View The Thumbnails view in XP has a new twist. If a folder contains images saved in a common Web format, such as .gif, .png, or .jpg, XP will create an icon for the folder that displays up to four of the images it contains, providing a glimpse of its contents. To show a single image, right-click the folder icon, choose *Properties*, and click the *Customize* tab. Or open the folder, right-click an empty area of the window, and choose *Customize This Folder*. (Alternatively, you can choose *Customize This Folder* on the *View* menu.) Click the *Customize* tab, and under 'Folder pictures' select *Choose Picture*. Select the picture you want to show in the thumbnail (see the following bonus tip), and click *Open*. If the preview image is to your liking, click *OK*. If not, click *Choose Picture* again to find another picture, or select *Restore Default* to remove the picture from the folder thumbnail.

Bonus tip: You needn't scroll through a list of file names to find the image file you want to show in the thumbnail. Instead, set the Browse dialog box (which appears when you select *Choose Picture*) to show thumbnails. Click the *View* icon to the far right of the 'Look in' drop-down menu, and choose *Thumbnails*. If your view is too crowded, drag any edge of the dialog box to make it bigger. Unfortunately, Windows forgets these settings the next time you open the dialog box.

FIGURE 3: ROTATING A PHOTO permanently saves the picture file in the rotated form.

All The Sort You See When you choose *View•Details* in Explorer, you can sort the information you see by clicking a column heading (Name, Type, Size, or the ▶

XP DEFAULT SETTINGS

10 QUICK CHANGES—NO PHONE BOOTH REQUIRED

ONLY THE WIZARDS of Redmond would create two versions of the same operating system, and then hide the best features of both by default and make nuking the ones you don't want difficult. Here's how to turn on the good and turn off the bad. *—Michael Cahlin*

FEATURE	Where or what it is/what it does	Default setting Pro/Home	Activate/deactivate
Quick Launch Toolbar	Next to the Start button/launches applications with a single click.	On/off	Right-click the taskbar, select *Properties*, choose the *Taskbar* tab, and check or uncheck *Show Quick Launch*. Click *OK*.
My Recent Documents	On the Start menu/lists the 15 documents opened most recently.	On/off	Right-click the taskbar, select *Properties*, choose the *Start Menu* tab, click *Customize*, select the *Advanced* tab, and under Recent documents, check or uncheck *List my most recently open documents*. Click *OK* twice.
Volume Icon	In the system tray next to the clock/adjusts your PC's volume.	Off/off	Click *Start•Control Panel*. In Category View, choose *Sounds, Speech, and Audio Devices* and click *Sounds and Audio Devices*. In Classic View, double-click *Sounds and Audio Devices*. Select the *Volume* tab, and in the Device volume area, check *Place volume icon on the taskbar*.
Clock	In the system tray/shows the current time.	On/on	Right-click the taskbar, select *Properties*, choose the *Taskbar* tab, and check or uncheck *Show the clock*.
Show File Name Extensions	In Explorer and folder windows/shows file-type extensions (.exe, .gif, and the like).	Off/off	Launch Windows Explorer, click *Tools*, and select *Folder Options*. Choose the *View* tab, and under 'Advanced settings' uncheck *Hide Extensions for Known File Types*. Click *Apply to All Folders* at the top of the dialog box, choose *Yes*, and then click *OK*.
Search for Hidden Files	In Explorer and folder windows/includes hidden files in search results.	Off/off	Launch Windows Explorer, click *Tools*, and select *Folder Options*. Choose the *View* tab and under 'Advanced settings', check *Show hidden files and folders*. Click *Apply to All Folders* at the top of the dialog box, choose *Yes*, and click *OK*.
Windows XP Style	The new interface/adds brighter colors and bigger buttons.	On/on	Right-click the desktop and choose *Properties*. Click the *Appearance* tab, and in the 'Windows and buttons' drop-down list, select *Windows Classic style*. Click *OK*.
ClearType	'More' option in Desktop Properties/manages font-smoothing for LCD monitors.	Off/off	Right-click the desktop and choose *Properties*. Click the *Appearance* tab, select the *Effects* button, and check *Use the following method to smooth edges of screen fonts*. Click the drop-down arrow and select *ClearType*. Click *OK* twice.
Passport	Pop-up message/provides access to Microsoft service.	On/on	The first five times you connect to the Web, XP pesters you to sign up for a Passport account; then it gives up. If you just can't wait for it to disable itself, click the Passport message; when the .Net Messenger window appears, click the *Cancel* button.
Word-Balloon Tips	Pop-up messages/obscure screen with tool tips for apps supporting XP themes.	On/on	Download and install XP's PowerToys (available at find.pcworld.com/20442). Once it is installed, click *Start•All Programs•Powertoys for Windows XP•TweakUI for Windows XP*. Highlight *Taskbar* in the left pane, and in the Settings area, uncheck *Enable balloon tips*. Click *OK*. (Note: You can't get rid of the Activation balloon until XP is activated.)

like) to list files by that criterion. Click the column heading again to reverse the order. Windows Me and 2000 add a tiny arrow to the column that currently sets the sort order: An up arrow indicates ascending order; a down arrow, descending order. Windows XP goes this one better by highlighting the column head or the entire column that controls the sort, making it even easier to spot the prevailing arrangement at a glance.

All The Folder Sort To sort your file and folder icons in Explorer views other than Details, right-click inside the folder and choose *Arrange Icons by*—or choose *View•Arrange Icons by*—and then select a sort criterion. Unfortunately, the only way to tell how the items are currently sorted is to figure it out for yourself. In Windows XP, the possible sort criteria listed on the 'Arrange Icons by' menu change according to your settings in the Choose Details dialog box, so be sure to read the tip "Give Me the Details," page 70.

All Sort It Yourself To arrange a folder's items manually, choose any view *except* List or Details, and then drag and drop items (or groups of items that you select by **<Ctrl>**-clicking them) to get the arrangement you prefer. To keep your files in nice, neat rows and columns, click the *View* menu or right-click inside the folder and choose *Arrange Icons by•Auto Arrange* (provided that it isn't already checked).

XP Get With the Group There are many new ways to view a folder's contents in XP, the most useful of which may be the 'Show in Groups' option on the 'Arrange Icons by' submenu. Choose *View•Arrange Icons by*, or right-click inside a folder and select *Arrange Icons by•Show in Groups*. Windows will arrange the icons in logical groupings based on your chosen sort order. For example, if the files are sorted by name, the groups will be the letters of the alphabet. If you sort by date, you'll get groups with names such as 'Yesterday', 'Last week', 'Last month', and 'Earlier this year'. Sorting by size will yield groups named 'Tiny', 'Medium', 'Large', and the like. It's no substitute for having a good file-storage system, but distributing large numbers of folders and files into these (somewhat) meaningful bins simplifies

WIN 9X TRICKS

POWERFUL FEATURES WITHOUT THE UPGRADE

WHAT'S SO GOOD ABOUT WINDOWS XP? The stability and reliability it brings to Windows 9*x* and Me machines that crash regularly. If you want the best that XP has to offer, there's no alternative to buying the OS and, if necessary, upgrading your hardware. But that doesn't mean your old 9*x* PC can't learn any new tricks. These tips will give you some of the upgrade effect, without the upgrade price.

FIGURE 4: GET MENUS OF recently used, frequently used, or favorite apps (and more) with RunIt.

Cosmetics The premier desktop theme utility is Desktop Architect, a fabulous piece of freeware that transforms your desktop icons, pointers, colors, and wallpaper with ease, although it can't change title bars or the taskbar. Download it at find.pcworld.com/21161. If you'd like to try for a quasi-XP look, locate a free XP theme from a theme site such as www.themedoctor.com.

Browsing You can get Internet Explorer 6, which comes with Windows XP, as a free download from Microsoft (www.microsoft.com/windows/ie). This browser gives you some control over your private information, and it features automatic image resizing, a floating image toolbar, and a media bar for playing music and video files from within the browser. IE 6 has the colorful new XP icons, too, so you'll be browsing in the latest fashion. More important, it's free.

Multimedia Unlike Internet Explorer 6, the new Windows Media Player 8 works only with Windows XP—but don't despair. The earlier Windows Media Player 7.*x*, available at find.pcworld.com/21221, has many of version 8's best features. It lets you apply different skins, manage your digital audio and video files, rip CDs to your hard disk (though not in MP3 format), listen to Internet radio stations, transfer audio files to portable devices, and burn audio CDs. And yes, it's free. If you don't like Windows Media Player, try a third-party media player, such as RealOne or MusicMatch (you can download these players at find.pcworld.com/12283).

Frequently Used Apps Besides having obvious visual differences, the new XP Start menu can track up to 30 of your most frequently used applications and put them on the left side of the Start menu for easy access (see "Rework Your Frequent Apps List," page 78). Though previous Windows versions lack this feature, you can achieve the same effect—and more—with ANsoft's $20 RunIt shareware utility. RunIt's pop-up menus display up to 50 of your most frequently or recently used applications on each menu. Or have your system display a Favorites menu that shows the programs or documents of your choice. RunIt does not alter the Start menu, but you can launch its menus—and a more sophisticated version of the Windows Run dialog box—from an icon in the taskbar tray (the area near the clock), via a keyboard shortcut, or with a tiny floating toolbar (see **FIGURE 4**). Visit find.pcworld.com/20581 to download a trial version of the program.

Photo Opportunities Windows XP's highly touted photo-editing tools still rely on the venerable Paint program. If you'd prefer something full-featured, try a third-party program such as Ulead's Photo Explorer 6 freeware for managing and editing photos (available at find.pcworld.com/22541), which has several tools that XP doesn't.

file management. Don't like it? Simply choose the command again to turn it off.

ME XP Compress in a Jiffy The ability to compress bitmap images and other large files before e-mailing or archiving them is a welcome new feature of Windows Me and XP. To compress, or *zip*, a file or folder, right-click in a folder or on the desktop and choose *New•Compressed (zipped) Folder*. Drag files to this folder to compress them in the .zip file. If most of the files are in a single folder, just select the files or subfolders, right-click the selection, and choose *Send To•Compressed (zipped) Folder*. Windows will create a new compressed folder named after the first file you selected and will include all the selected files and/or subfolders. To add files to or remove them from the compressed folder, drag and drop them as you would any folder. Naturally, you can rename the compressed folder by highlighting it, clicking it again (slowly, so as not to open it), and entering the new name, or by right-clicking and choosing *Rename*.

In Windows Me, you may need to install the compression option from your Windows Me CD. Pop the CD into the drive, and open Control Panel. Double-click *Add/Remove Programs*, click the *Windows Setup* tab, select *System Tools*, and click *Details*. Check *Compressed Folders*, click *OK* as many times as needed, and follow the on-screen prompts.

ME XP Decompress in a Flash You can decompress files by dragging them out of the compressed folder and dropping them where you like. But if you're decompressing all the files in a compressed folder in Windows XP, simply right-click and drag the folder to the desired location and then choose *Extract Here*.

To put the decompressed files into a new folder, either right-drag the files as explained above (XP only), or right-drag the compressed folder to the new folder and choose *Extract* to launch the Extract Wizard (in Me) or the Extraction Wizard (in XP). Using the wizard is faster than right-dragging. Just press **<Enter>** once (in Me) or twice (in XP), wait for decompression to finish, and press **<Enter>** again.

SPEEDING-BULLET PERFORMANCE

ACCOMMODATING A MULTITUDE OF OPEN (and resource-hungry) applications at the same time is the PC equivalent of leaping tall buildings in a single bound. You can give any version of Windows an infusion of pep by tweaking its default settings. Use these tips to make your system a kryptonite-free zone.

All Tone Down the Effects Your system's performance may be bogged down by excessive visual effects. To get a perkier Windows 98, 2000, or Me, right-click the desktop, choose *Properties*, and click the *Effects* tab. Begin unchecking items in the Visual Effects box at the bottom of the dialog box until you find the right balance of speed and attractiveness for you.

If Windows XP becomes sluggish, turn off some of the visual fireworks that may be taxing your screen updates via the Performance Options dialog box. Open *Control Panel*, and if you're using the default Category view, click the *Performance and Maintenance* link. Under 'Pick a task', choose *Adjust visual effects*. If you're using the Classic view of Control Panel, double-click the *System* icon. (Alternatively, you can right-click *My Computer* in Explorer and choose *Properties*.) Click the *Advanced* tab, and select the first *Settings* button (under Performance).

The Visual Effects tab lists check boxes for turning individual effects on for more razzle-dazzle or off for better performance (see **FIGURE 5**). The preset options at the top of the dialog box simplify matters: If *Let Windows choose what's best for my computer* isn't already selected, choose it and click *OK* twice. Try this setting for a while, and if you're not satisfied, return to the dialog box and click *Adjust for best performance*, which unchecks all the visual options. If you miss some of the excitement, open this dialog box again and experiment by turning individual effects on one by one until you find a good balance between sizzle and steak.

All Lightning Menus Sometimes Windows seems like an endless series of menu options: right-click menus, the Start menu and its submenus, and menus in every application. By default, Windows doesn't show these menus at their maximum speed. One way to change this is by editing the Windows Registry; but it's much easier to install Tweak UI, the free Microsoft Control Panel icon that allows you to customize many arcane aspects of Windows. Depending on the version of Windows you're using, you may be able to download Tweak UI by itself or as part of a larger set of free utilities called Microsoft PowerToys. Go to find.pcworld.com/20441 to download Tweak UI 1.33 for Windows 9*x*, Me, and NT/2000, and visit find.pcworld.com/20442 for your free copy of PowerToys for Windows XP.

FIGURE 5: TURN OFF THE fireworks for snappier on-screen performance.

Downloading and installing Tweak UI on older versions of Windows is tricky. First decompress (unzip) the download file, and then locate a file called tweakui.inf. (If your system is set to hide file extensions, choose *Tools•Folder Options* in Explorer, and under the View tab uncheck *Hide extensions for known file types*.)

Right-click the tweakui.inf file and choose *Install*. If you're installing Windows XP PowerToys, the installation process is much more conventional.

Launch Tweak UI by double-clicking its icon in Control Panel. Click the *Mouse* tab. Under 'Menu speed', drag the slider all the way to the Fast end (see **FIGURE 6**). Click *OK* and, with any luck, your menus will be a wee bit more sprightly.

XP Slow Down User Switches Unlike previous Windows versions, Windows XP lets you switch from one user account to another without logging off or shutting down any programs. This feature is convenient, but it increases the memory demands on your system. For better performance, choose *Start•Log Off* to log off completely before switching to another profile. You can still allow multiple accounts to run simultaneously when you or another user needs to perform a quick task, but you should log off from the additional accounts as soon as the task is complete. Fast user switching is not an option for Windows XP computers that are connected to a network domain.

All Lose Some Color The more colors your system displays, the more memory and processing power it expends to manage those colors. If you use an older computer system and you've already tried disabling some visual effects (as described in "Tone Down the Effects," page 73), you may get the performance boost you're looking for by setting your graphics system to 16-bit 'high color' rather than 32-bit 'true color' (in Windows XP these settings are labeled 'Medium' and 'Highest', respectively). Right-click the desktop, select *Properties*, and click the *Settings* tab. If your system is currently set to display 32-bit color, choose the option for 16-bit color and click *OK*; then follow any on-screen instructions that appear (these vary depending on the graphics system).

FIGURE 6: SLUGGISH MENUS? TWEAK UI will help you speed them up in no time.

All Memory Gain Many people find that the best way to boost Windows' performance is by adding RAM. This is especially true of machines running in the 300- to 500-MHz range. Make sure that your PC has at least 128MB of RAM—and preferably 256MB or more. As of this writing, a 128MB memory upgrade costs about $40, but memory is a commodity, and prices can change rapidly.

XP TWEAKS

FIXES FOR XP'S SUPER-ANNOYANCES

WHAT'S A SUPERHERO without flaws? These tips help undo some of XP's worst.

Annihilate Annoying Animations To dump XP's Search 'toon, open any folder, press **<F3>** to start a search, and at the bottom of the Search Companion pane on the left, click *Change Preferences*. At the top of the pane, click *Without an animated screen character* (see **FIGURE 7**). Either continue with a search or close the window.

Wipe out Windows Messenger A nagging balloon from the tray area of the taskbar urges you to launch Windows Messenger and sign up for Microsoft's .Net Passport program. To pop it once and for all, choose *Start•Run*, type **regedit**, and click *OK*. Navigate to *HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Run*. With the *Run* folder (called a 'key' in Registry-ese) selected on the left, choose the *MSMSGS* icon on the right and press **<Delete>**. Click *Yes* to confirm, and exit the Registry Editor. The icon will disappear from the tray the next time you log on.

Ungroup Your Buttons XP groups similar applications under a single button in the taskbar, forcing you to choose the item from a pop-up menu. If you would prefer separate buttons for each open application, right-click the taskbar, choose *Properties*, uncheck *Group similar taskbar buttons*, and click *OK*.

FIGURE 7: SEND ROVER PACKING to unclutter the view in XP's search tool.

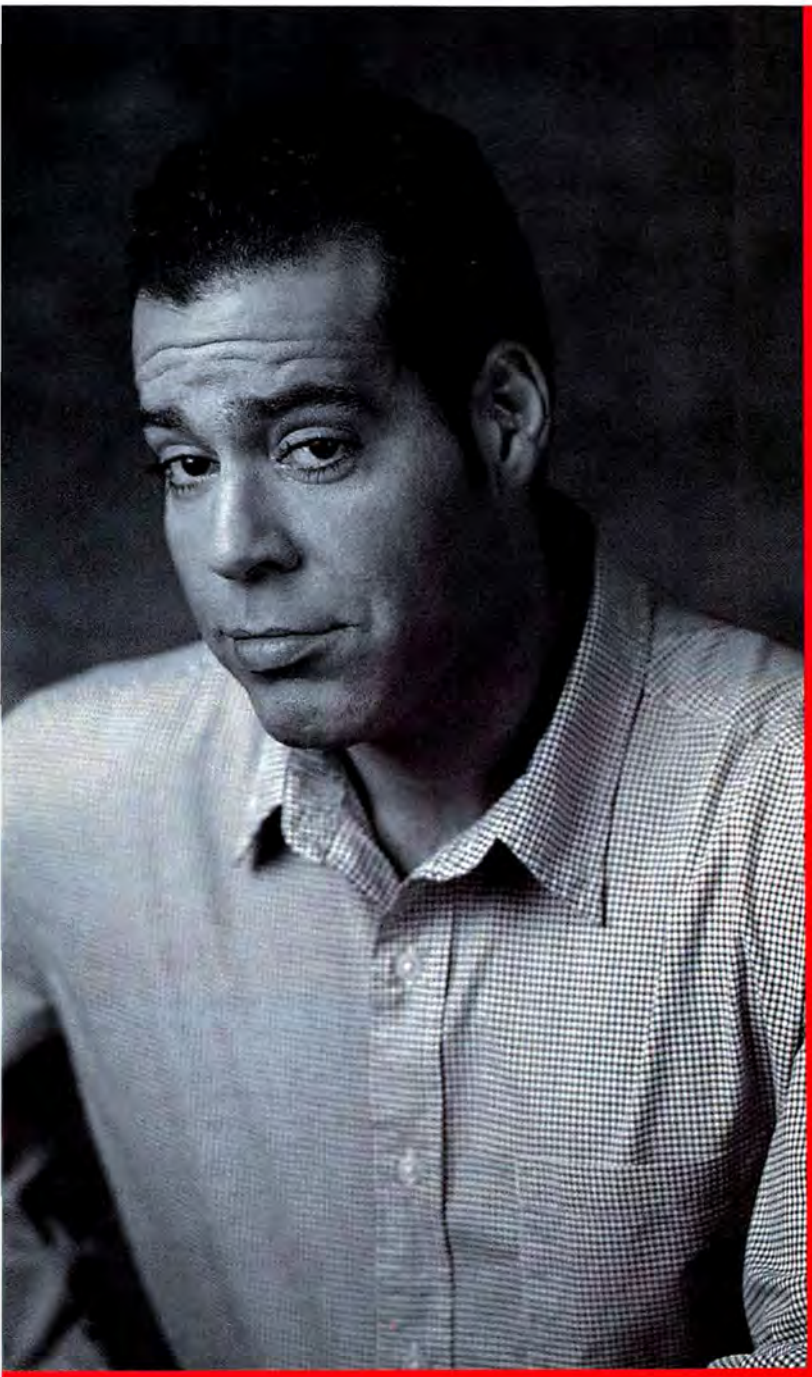
Bypass the Password Prompt You might not need to enter a password each time you deactivate your screen saver. The fix is easy: Right-click the desktop and choose *Properties*. Click the *Screen Saver* tab, uncheck the box labeled *On resume, password protect* or *On resume, display Welcome screen* (depending on your log-on configuration), and click *OK*.

Remember Open Folders In previous versions of Windows, folders and Explorer windows you had open when you logged off would open again the next time you logged on. Not so in Windows XP. If you miss this feature, choose *Tools•Folder Options* in any window, click the *View* tab, scroll to the end of the Advanced settings list, check *Restore previous folder windows at logon*, and click *OK*.

Pulverize Personalized Menus In Windows XP's Classic Start menu (see "A Classic Look," page 78), the 'personalized' menus rearrange menu items and hide many entries until you click the double-arrow symbol to display the entire listing. To get rid of this irksome convention, simply right-click the *Start* button and choose *Properties*. Click the *Customize* button, and scroll to the bottom of the Advanced Start menu options. Uncheck *Use Personalized Menus*, and click *OK* twice.

"I just told management the firewall is secure."

Translation: Do we have a firewall?



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THE MIGHTY MORPHIN' OS

SO IF WINDOWS REALLY IS MORE POWERFUL than a locomotive, why does it look more like Jimmy Olsen than like the Man of Steel? From title bar to taskbar, the default Windows interface conceals more useful quick-change options than an old-fashioned telephone booth. And XP's new Luna look takes this secretiveness to new levels. At least the dumbing down is undoable. These steps give Windows more looks than there are streetlights in Metropolis.

All Begin With the Start Menu You can customize the Start menu to add and remove programs, folders, documents, and other items. In Windows Me, 2000, or XP with the Classic Start menu, right-click the taskbar and choose *Properties*. In XP, click the *Start Menu* tab and then click *Customize*. In Windows 2000 and Me, click the *Advanced* tab. In all versions, look for the scrolling list of check boxes at the bottom of the dialog box. The Administrative Tools menu can appear on the Start•Programs menu (XP and Windows 2000). You can hide the Run command (XP and Me) or make the Favorites menu go away. Check boxes that begin with the word 'Expand' let you create cascading menus out of such otherwise-static Start menu items as Control Panel, Network & Dial-Up Connections, My Documents, and My Printers (depending on your version of Windows). When you're done, click *OK* as many times as needed.

To alter Windows XP's newfangled Start menu, right-click the *Start* button and choose *Properties*. Click *Customize* under the Start Menu tab and select the *Advanced* tab. In the scrolling list labeled 'Start menu items', you can hide or reveal Search, My Music, and other items, or you can make Control Panel, My Computer, Network Connections, My Documents, and related items appear as icons, as a cascading menu, or not at all (see **FIGURE 8**). Just make your choices and click *OK* twice.

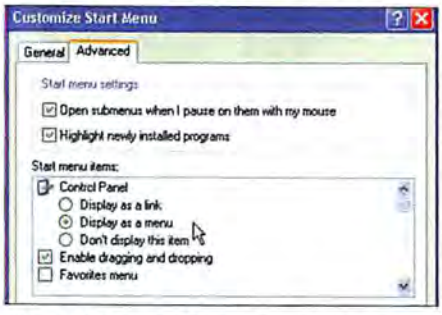


FIGURE 8: MENU? ICON? NOTHING? You choose by configuring the right side of the Start menu.

XP Start Menu Stick-'ems The applications that appear on the left side of Windows XP's new Start menu (above All Programs) are those you launch most often. You may also have an icon for Internet access, another for e-mail, and others above the list of frequently used applications. Microsoft calls that grouping the 'pinned items list'. Icons for these applications don't disappear when you stop using the programs or when you use them less frequently. To make an application or document appear on the pinned items list, open Explorer to the folder where the application is located and right-click the application's .exe file (it's most likely in a directory for that application within Program Files). Or right-click any shortcut to the application in Explorer, on the desktop, or on the Start menu or one of its submenus; and choose *Pin to Start menu* (see **FIGURE 9**). To pin a shortcut to a document or folder to this list, drag the icon for the document or folder to the Start menu button.

FIGURE 9: ICONS STAY STUCK on the Start menu with the Pin feature.

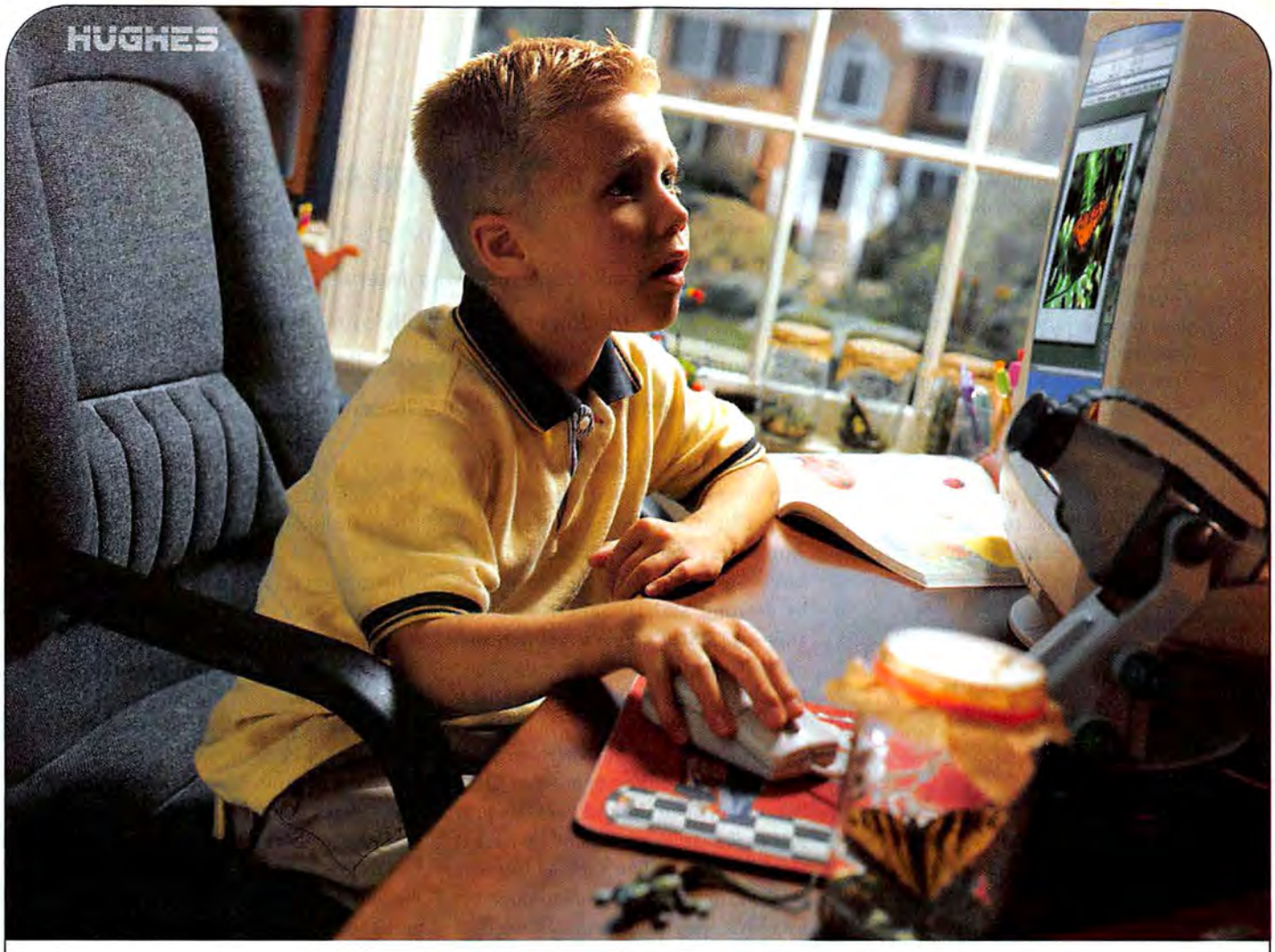
Bonus tip: You can put Internet Explorer, MSN Explorer, Hotmail, or Outlook Express on the pinned items list by right-clicking the *Start* button, choosing *Properties*, clicking the *Customize* button, and making the appropriate selections in the 'Show on Start menu' panel. The Internet and e-mail options available here vary from system to system, however.

XP Rework Your Frequent Apps List To alter the list of applications XP shows on the Start menu, right-click the *Start* button, choose *Properties*, and click *Customize*. Under Programs in the resulting dialog box, type a number between 0 and 30 (or select a number with the arrow keys). This might increase the Start menu's height. To start over, simply click *Clear List*.

XP A Classic Look As the list of frequently used applications on Windows XP's Start menu changes, you may lose the ability to jump to an item by pressing the first letter in its name. To revert to the Classic Start menu, right-click the *Start* button, choose *Properties*, select *Classic Start menu*, and click *OK*.

XP Gimme Back My Icons The Windows XP desktop has but a single icon: Recycle Bin. (If you installed XP over your old version of Windows, your old icons remain on the desktop.) If you miss the default desktop icons of Windows past, you can have them back in a trice. Right-click the desktop and choose *Properties*, click the *Desktop* tab, and click the *Customize Desktop* button. Under Desktop Icons, check the box for each icon that you want on your desktop (My Documents, My Computer, My Network Places, and/or Internet Explorer); then click *OK* twice.

XP Tidy Up Your Desktop Windows XP also helps you keep your desktop spiffy. ▶



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The Desktop Cleanup Wizard locates and offers to clean off desktop shortcuts you haven't used lately.

Right-click the desktop and choose *Properties*. Click first the *Desktop* tab and then the *Customize Desktop* button. Under Desktop Cleanup, select *Clean Desktop Now*. In the Desktop Cleanup Wizard, click *Next*. The Wizard dialog box lists the desktop shortcuts that you haven't used in the last 60 days. Uncheck the ones you want to keep on the desktop, and click *Next*. Click *Finish* to acknowledge the final list of shortcuts to be swept away.

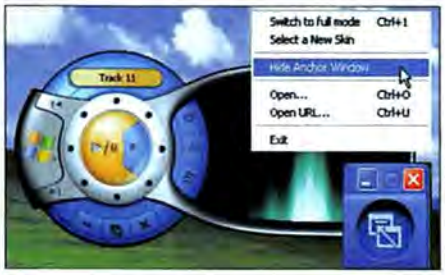

FIGURE 10: BANISH MEDIA Player's Anchor Window by clicking a quick menu command.

Windows puts them in a desktop folder called (appropriately) Unused Desktop Shortcuts. If you ever want to retrieve a shortcut, just drag it out of this folder. If you're the forgetful type, check *Run Desktop Cleanup Wizard every 60 days* to have the software prompt you. Unfortunately, the wizard works only on shortcuts—not on folders, applications, or documents.

All **Drop Anchor on Media Player** When you apply a skin to Windows Media Player 7 or later (choose *View•Taskbar•Skin Chooser*), a small Anchor Window appears in the lower right corner that reverts to full mode when you double-click its center button. But you can switch modes simply by pressing **<Ctrl>-1** (full mode) or **<Ctrl>-2** (compact or skin mode). To drop Anchor, choose *Tools•Options*, click the *Player* tab, uncheck *When in compact mode, always display anchor window* (version 7) or *Display anchor window when in skin mode* (version 8), and click *OK*. Alternatively, with Media Player 8, click inside the Anchor Window and choose *Hide Anchor Window* from the pop-up menu (see **FIGURE 10**).

UP, UPLOAD, AND AWAY

THOUGH IT MAY SOMETIMES SEEM that not even the Flash could safely speed up your Internet link or network connection, Windows might actually come to your rescue. If some evil genius has taken over your computer's link to the outside world, see if these Windows tweaks reopen your lines of communication.

XP **One Explorer Is Plenty** If you're happy with Internet Explorer or another browser, and satisfied with your current e-mail and Internet service provider, you can save more than 13MB of hard drive space by deleting MSN Explorer. Windows Help says MSN Explorer is 'software that makes it easy to get more from the Web.' Maybe, but it's just a browser more tightly integrated with Windows Media Player and Microsoft's own MSN Web services.

To drop this duplicate browser like a hot potato, open Control Panel, launch *Add or Remove Programs*, and on the left side of the dialog box, click *Add/Remove Windows Components*. Scroll through the list of Windows components and uncheck *MSN Explorer*. Read the warning and click *Yes* if you don't rely on MSN for your Internet connection. Click *Next* and follow the remaining on-screen prompts.

XP **Get Behind a Firewall** Whenever your computer is connected to the Internet or a local network, it's vulnerable to unauthorized intrusions and other attacks. Your first line of defense is a personal *firewall*, software or hardware that blocks access from outside and may even thwart hostile applications known as Trojan horses.

Windows XP's firewall has to be turned on manually. Right-click *My Network Places* in Explorer or on the desktop, and choose *Properties*. In the Network Connection window, highlight your connection in the right pane and click *Change settings of this connection* in the left pane under Network Tasks. (Or right-click your connection and choose *Properties*.) In the Properties dialog box, click the *Advanced* tab, check *Protect my computer and network by limiting or preventing access to this computer from the Internet*, and click *OK*.

Windows XP's firewall monitors only incoming traffic, not outgoing traffic, so it won't help you discover a Trojan horse, spyware, or any other uninvited program transmitting information about you or your PC. That's why it still makes sense to get a third-party firewall such as ZoneLabs' free ZoneAlarm (which you can download at find.pcworld.com/21241).

XP **Firewall Conflicts** Software firewalls sometimes block Windows XP from sharing files and printers across a local network. If each PC on the network connects to the Internet through a network hub that itself is connected to a DSL or cable modem, Microsoft recommends that you either provide each system with Internet access via a residential gateway installed between your modem and the network hub, or that you connect your modem directly to the computer running Windows XP and use XP's Internet Connection Sharing to give other computers on the network Internet access. To enable Internet Connection Sharing, open the Network Setup Wizard as described in "A Wizard to the Rescue," below.

ME XP **A Wizard to the Rescue** Setting up a home or small-office network may require that you dig through multiple dialog boxes and decipher arcane network protocols. Why bother? Windows' Network Setup Wizard can do most of the work for you. Perhaps the quickest way to launch the wizard is to choose *Start•Run*, type **netconn** (in Windows Me) or **netsetup** (in XP), and press **<Enter>**. Then simply follow the instructions on your screen. ■

Scott Dunn is a contributing editor for PC World. *He lives in Seattle. Michael Cahlin is a Los Angeles-based freelance writer.*

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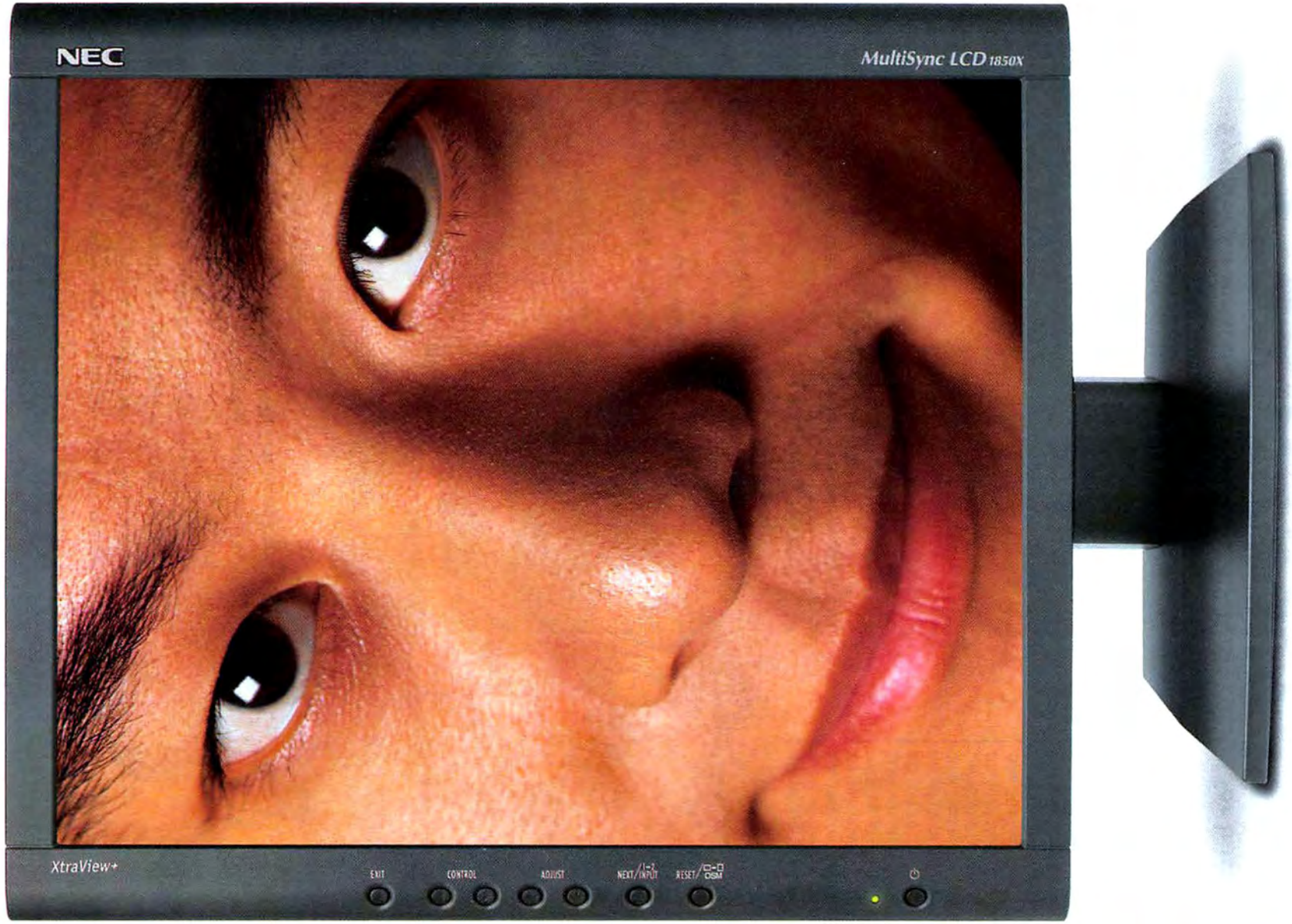
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CLOCKWISE FROM LEFT: The Casio Cassiopeia E-200, HandEra 330, and Nokia 9290.

BY CARLA THORNTON AND GRACE AQUINO

Next-Generation PDAs

Today's handhelds finally offer something for everybody–from bargain-price organizers to the first PDA/phone combos that actually work. Our tests of 16 models spotlight the best.

PHOTOGRAPHS BY JOHN KUCZALA

DEBBIE CHONG CAN'T REMEMBER a time when she didn't use a personal digital assistant to help her stay organized. The San Francisco executive has relied on a succession of PDAs—from the basic Sharp Zaurus she used ten years ago to the Compaq IPaq 3635 Pocket PC she relies on today—to keep her life on track.

Chong is CEO of Virtual Boardwalk, a provider of Web services in the conventions industry. Like many people, she uses her PDA for e-mail, appointments, and storing contacts. But she also uses it to store electronic maps. "I depend on the calendar and contacts the most, and I keep a lot of discrete bits of information about people," she says. "When I travel, I use Pocket Streets to find their offices."

The latest Pocket PCs add even more features than Chong's IPaq has; but at up to $600, the devices can be costly. Fortunately, you don't have to spend a big chunk of change to get a PDA that can help you organize your life: Plenty of simpler, cheaper PDAs will satisfy users ▶

who don't need advanced functions. To provide an overview of the PDAs currently available, we divided handhelds into three categories: basic PDAs, advanced PDAs, and the new breed of combined PDA/cell phone products (also known as communicators). This third group of devices supposedly provides an all-in-one means for staying in touch; but as our evaluations reveal (see page 92), a single device that can handle both tasks well remains some distance away.

Much has changed since our last PDA roundup, in April 2001 (see "Palm vs. Pocket PC" at find.pcworld.com/22641). Of the 12 PDAs we reviewed then, only one is still around in the same form (the Handspring Visor Prism); the others have been discontinued or superseded by updated models.

Vendors have also seen some major changes in market share: In 2001, Palm's share fell to 58 percent of the market, significantly down from the 71 percent it commanded in 2000, according to research firm NPD Techworld.

A PALM IN YOUR POCKET OR A POCKET IN YOUR PALM?

OVERALL, BETWEEN Pocket PC and Palm OS devices, Palm-based units remain the cheaper and simpler choices, so for this review we put most of them into the basic category. Palm recently launched a model that would fit in the upscale category—a wireless e-mail PDA, the I705. See our news story about this device on page 26.

Pocket PCs still rule in sex appeal, with a greater number of built-in functions, including digital audio and video playback. Microsoft's Pocket PC 2002 includes pocket versions of programs such as Microsoft Word. Nevertheless, Palm claims that more third-party applications are available for Palm OS–based PDAs than for Pocket PCs.

Pocket PC devices have more memory (up to 64MB), though the Pocket PC operating system requires more memory than the Palm OS to run. They also offer four input methods, including the Transcriber handwriting recognition application and Block Recognizer, a character recognition application similar to Palm's Graffiti. For more on Pocket PCs, see our November *News & Trends* story "Pocket PC 2002" (find.pcworld.com/20961).

On the other hand, most Palm-based PDAs use their battery power more efficiently. While most Pocket PCs still require daily charging, gray-scale Palm-based PDAs can go days or weeks before needing fresh batteries or a recharge.

HandEra 330

Handspring Visor Neo

Handspring Visor Pro

Palm M125

JUST WHAT YOU NEED
Basic PDAs

ON A BUDGET? That automatically rules out a new $600 Pocket PC. But keep your chin up: If you can be happy with a monochrome screen and don't need a lot of flashy multimedia features, the $299 HandEra 330 makes an excellent choice, followed closely by Handspring's $199 Visor Neo.

HandEra 330

$299, ★★★★☆, find.pcworld.com/21564

Best BUY The HandEra 330 is a handsome black-and-silver unit with the crispest, easiest-to-read gray-scale screen in this roundup. In many ways, it beats Palm's PDAs at their own game, though it costs more than most other gray-scale devices.

You do get a lot for your money: In addition to holding the standard Palm applications, the HandEra comes with both CompactFlash and Secure Digital expansion-card slots, a jog wheel, a larger screen, and more Graffiti real estate than other Palm OS devices. It can't play back MP3s, though, and it has no headphone socket. One downer: The syncing cradle uses a serial connection that's slower than the USB connection most other Palm-based devices employ. The HandEra 330 can work with accessories designed for the Palm III; but because this Palm has been discontinued for some time, these are growing harder to find.

Handspring Visor Neo

$199, ★★★☆☆, find.pcworld.com/21563

A great entry-level PDA, the Visor Neo features 8MB of memory, a funky translucent case that shows the electronics (and is available in a choice of colors), and Handspring's Springboard expansion slot. The slot can accommodate an extra-cost gadget such as an MP3 player, a wireless modem, or a GPS receiver, though these add-ons tend to cost more than their CompactFlash counterparts.

The 16-shade gray-scale screen looked fine both indoors and out, thanks to its high contrast and a strong backlight. The Neo uses two AAA batteries.

Handspring Visor Pro

$240, ★★★☆☆, find.pcworld.com/21562

The Visor Pro is a slightly enhanced version of the Neo, with more memory (16MB) and a battery that recharges via a USB cradle. It wraps a silver-colored exterior and a clip-on cover around the standard Handspring hardware. Aside from the

Springboard expansion slot, standout features include an LED alarm option and a backlit, high-contrast, 16-shade gray-scale screen.

Palm M125

$180, ★★½☆☆, find.pcworld.com/21561

With its curved exterior, the Palm M125 looks cute. The cheapest PDA in our roundup, M125 has a Secure Digital slot and comes with a USB sync cradle. Palm also sells an even cheaper version, the M105, for $149, but it lacks the Secure Digital slot and uses a serial sync cradle. The M125 weighs just 5.2 ounces, including two AAA batteries. The built-in flip-up cover has a viewing port for checking the time without opening the case.

Bonus software includes a handwriting capture (but not recognition) utility for jotting notes, and DataViz's Documents to Go for viewing and editing Word and Excel files. You also get MGI Photosuite for viewing and editing images and videos—but with only 8MB of memory to work with, your videos will have to be short.

The M125's screen is small: At 1.6 by 1.6 inches, it's the smallest here. Though it looks stylish, it doesn't stand up well against the Handspring Neo.

Sony Clié PEG-T415

$249 ★★½☆☆, find.pcworld.com/21565

At less than 0.4 inches thick, the Clié PEG-T415 is the thinnest PDA in this roundup. A Memory Stick slot provides some expansion options, but fewer Memory Stick devices are available than Springboard, CompactFlash, or Secure Digital ones. Sony offers an optional remote control and headphone-socket device for $130 that turns the Clié PEG-T415 into an MP3 player; you'll also need a Memory Stick (at about $85 for 128MB) to hold the files. If you're willing to spend that much money, buy the Clié PEG-N760C instead: It has the remote, 16MB of memory, an 8MB Memory Stick, and a color screen. The Clié PEG-T415's best features are its back button and a jog dial.

Its worst feature: The monochrome screen is small and dim. Despite offering a decent backlight and double the resolution of the Palm or Handspring models, it's harder to read than the others.

Sony Clié PEG-T415

Casio Cassiopeia E-200

Compaq IPaq H3850

MORE COLOR & POWER
Advanced PDAs

IF YOU WANT a handheld with color, digital audio playback capabilities, better software, and more expansion options, check the PDAs in our advanced category. Our Best Buy is the Cassiopeia E-200, which sells for about $545. We liked the E-200's dual built-in expansion slots and removable battery. The Compaq IPaq H3850 finishes close behind, with a bigger screen and lots of software.

Casio Cassiopeia E-200

$545, ★★★★☆, find.pcworld.com/21585

Best BUY The tri-toned metallic Cassiopeia E-200 Pocket PC is the third most expensive PDA in this group; however, it boasts striking looks and both CompactFlash and Secure Digital slots ▶

FEATURES COMPARISON

BASIC PDAs

DEVICE	Operating system	Street price (1/23/02)	Internal memory (MB)	Active screen size (inches)[1]/resolution (pixels)	Expansion slots[2]	Comments
Best BUY HandEra 330 find.pcworld.com/21564	Palm OS 3.5.2	$299	8	2.9 by 2.2/ 240 by 320	Secure Digital card, CompactFlash	Plenty of expansion options and an easy-to-read screen. ★★★★☆
Handspring Visor Neo find.pcworld.com/21563	Palm OS 3.5.2	$199	8	2.3 by 2.3/ 160 by 160	Springboard	Very reasonably priced, but expansion options are expensive. ★★★☆☆
Handspring Visor Pro find.pcworld.com/21562	Palm OS 3.5.2	$240	16	2.3 by 2.3/ 160 by 160	Springboard	An enhanced version of the Neo with rechargeable battery and more memory. ★★★☆☆
Palm M125 find.pcworld.com/21561	Palm OS 4.0	$180	8	1.6 by 1.6/ 160 by 160	Secure Digital card	The cheapest PDA reviewed, but with a very small screen and limited memory. ★★½☆☆
Sony Clié PEG-T415 find.pcworld.com/21565	Palm OS 4.1	$249	8	2.0 by 2.0/ 320 by 320	Memory Stick	Very thin, but the screen is disappointing; includes remote control and syncing software. ★★½☆☆

[1] The area where information can be displayed, excluding any fixed area for inputting.

[2] MultiMediaCards can also be used in Secure Digital card slots.

(which can be locked to prevent cards from popping out by accident). The E-200's screen is bright and easy to use in all lighting conditions, and you can swap out the rechargeable battery for a spare one (which costs $45); a backup battery will preserve your data if the main battery runs out. A jog dial on the side permits one-handed use.

Compaq IPaq Pocket PC H3850

$560, ★★★★½, find.pcworld.com/21586

The handsome black-and-silver IPaq H3850 is slightly more expensive than the Cassiopeia E-200, but lacks that model's CompactFlash slot and removable battery (it does have a Secure Digital card slot). On the plus side, it has the largest screen we've seen (3 by 2.3 inches) and 64MB of memory. Despite being on the chunky side, it's easy to hold in one hand, and it comes with a slide-on protective case with a flip-open translucent screen cover. Its ample software bundle includes IBM's ViaVoice Mobility Suite for using voice commands.

Handspring Visor Prism

HP Jornada 565

The IPaq allows you to store files in unused space on the flash ROM; they will remain stored there even if the battery runs out completely. Compaq also offers a range of extra-cost add-on sleeves, including one that has a CompactFlash slot ($50, find.pcworld.com/21841) and another that turns the IPaq into a GPRS (General Packet Radio Service) cell phone (find.pcworld.com/21842).

Handspring Visor Prism

$265, ★★½☆☆, find.pcworld.com/21581

The Visor Prism is a tad thicker than the Visor Pro (see page 86) and includes only half the memory. But its bright color screen can display 65,536 colors and is easy to read in low light. The unit's cheerful, cobalt-blue plastic casing and Springboard slot for adding MP3 players make it a great handheld for students. The Visor Prism's only downside is that it has a much-lower-resolution screen than Pocket PC PDAs do (160 by 160, versus 240 by 320), creating a rather blocky look. ▶

DATA TO GO

Syncing: Take Your Data on a Trip

WHICHEVER PDA you choose, you'll want to take your data with you. But if you use a program other than Microsoft Outlook, you may run into trouble: The programs that come with most PDAs work with Outlook only. That's where syncing software comes in: These programs work alongside the syncing apps that come with popular PDAs, supplying the necessary conduits to move information between a PDA and a non-Microsoft desktop program.

SYNC ME UP BEFORE YOU GO

THE MOST POPULAR PDAs come with desktop software—Palm Desktop for Palms, and ActiveSync for Pocket PCs—to transfer that information to and from Microsoft Outlook running on a PC (or to and from Palm Desktop). For people who don't rely on other desktop organizers, these choices may suffice; but business users tied to other personal information managers—say, Lotus Notes or Symantec ACT—need another way to pipe information between these applications and their PDAs.

The most venerable of these, Pumatech's Intellisync, is still the easiest to use (see *New Products*, page 58). The just-released version 5.0.2 adds support for Pocket PC 2002 devices. On the PIM side, Intellisync supports such programs as ACT, Novell Groupwise, Lotus Notes, Lotus Organizer, and Microsoft Schedule+. If you use different apps for different types of information, no problem: With Intellisync, syncing up your contacts from Outlook and your schedule from Lotus Notes is easy.

At $70, however, Intellisync is the most expensive syncing software out there, which gives Laplink's $30 PDASync a real opportunity—especially for users whose syncing needs are simple. Introduced last fall, PDASync supports most of the same PDAs as Intellisync, though Symbian and Pocket PC 2002 are missing (the latter is due in version 2.0, expected later this spring). You can sync up with all the PIMs supported by Intellisync, except Schedule+ and Groupwise, as well as Netmanage Ecco Pro and Frontrange Goldmine.

Unfortunately, PDASync's minimalist user interface lacks the elegance and simplicity of Intellisync's. Though you can set up mix-and-match syncing, the process isn't easy. If you sync frequently or with multiple apps, Intellisync is worth the extra cash. But if your needs are simpler, then PDASync gets the job done—and for less than half as much. *—Yardena Arar*

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HP Jornada 565

$535, ★★★½☆, find.pcworld.com/21583

We admired the silvery-blue HP Jornada's look and its sleek flip-up lid. The lithium ion battery is removable (a spare costs $43), but the PDA has only a CompactFlash slot and 32MB of RAM. The Cassiopeia E-200 and the Toshiba Pocket PC E570 offer twice as much memory, along with both CompactFlash and Secure Digital slots, for a similar price. (HP's Jornada 568 offers 64MB of memory for a street price of around $570). A good range of add-ons are available, including a keyboard that replaces the lid ($60, find.pcworld.com/21843) and a battery that adds a MultiMediaCard slot ($80, find.pcworld.com/21844).

Palm M505

$325, ★★½☆☆, find.pcworld.com/21582

The classy, $325 M505 has a color screen and a distinctively executive look. The unit is thin and light at only 4.9 ounces, yet it includes a Secure Digital slot, has a solid feel, and is available in three colors. You get all the usual Palm applications, plus a vibrating alarm option. Unfortunately, the screen is somewhat dim, and its colors looked washed out compared with those on other color PDAs. Also, the M505's backlight is much fainter than other PDAs'—although this does reduce power drain and boosts how long the built-in rechargeable battery lasts: Our review model ran for several days of moderate use without needing a recharge.

Palm M505

Toshiba Pocket PC E570

Audiovox Maestro

Toshiba Pocket PC E570

$569, ★★★☆☆, find.pcworld.com/21584

The Toshiba Pocket PC E570 costs about the same as the Cassiopeia E-200 and the Ipaq H3850, includes both CompactFlash and Secure Digital slots, and boasts a slightly brighter screen. If you like style, however, the design is disappointingly bland: a straight row of silver application buttons and a small unadorned directional pad. The single side control activates the voice recorder, which captures too much background noise to be of much use. Battery life is a few hours—typical for Pocket PC devices—but you can't swap the battery.

TALK TO THE HAND
Combo Devices

WE'VE ALL BEEN WAITING for the perfect tool that combines a PDA and a cell phone in one ultraportable, easy-to-use device. Perfection may not be here yet, but new PDA-and-cell-phone hybrid devices do a reasonable job of merging our favorite electronic devices (and more are on the way).

We looked at five devices—from Audiovox, Handspring, Motorola, Nokia, and Samsung—that let you make phone calls, keep track of appointments, send e-mail messages, browse the Web, and much more, as long as you are in range of a cellular phone tower. Some even come with keyboards for typing notes or e-mail.

FEATURES COMPARISON

ADVANCED PDAs

DEVICE	Operating system	Street price (1/23/02)	Internal memory (MB)	Active screen size (inches)[1]/resolution (pixels)	Expansion slots[2]	Comments
Best Buy Casio Cassiopeia E-200 find.pcworld.com/21585	Pocket PC 2002	$545	64	2.7 by 2.2/ 240 by 320	CompactFlash, Secure Digital card	Removable battery; bright, clear screen; and plenty of memory. ★★★★☆
Compaq IPaq Pocket PC H3850 find.pcworld.com/21586	Pocket PC 2002	$560	64	3.0 by 2.3/ 240 by 320	Secure Digital card	The biggest screen in the roundup, but no CompactFlash expansion slot. ★★★★☆
Handspring Visor Prism find.pcworld.com/21581	Palm OS 3.5.2	$265	8	2.3 by 2.3/ 160 by 160	Springboard	Bright screen; cheaper than the Pocket PCs. ★★½☆☆
HP Jornada 565 find.pcworld.com/21583	Pocket PC 2002	$535	32	2.7 by 2.3/ 240 by 320	CompactFlash	Good battery life and stylish design, plus a built-in cover. ★★★½☆
Palm M505 find.pcworld.com/21582	Palm OS 4.0.1	$325	8	2.2 by 2.2/ 160 by 160	Secure Digital card	A weak color screen and faint backlight, but very small and stylish. ★★½☆☆
Toshiba Pocket PC E570 find.pcworld.com/21584	Pocket PC 2002	$569	64	2.8 by 2.2/ 240 by 320	CompactFlash, Secure Digital card	Corporate styling and dual expansion slots, plus a very bright screen. ★★★☆☆

[1] The area where information can be displayed, excluding any fixed area for inputting.

[2] MultiMediaCards can also be used in Secure Digital card slots.

But these devices are far from flawless. Most of them are bigger, more confusing to set up, and more expensive than a stand-alone PDA. Perhaps their biggest drawback: clunky overall designs. Some are structured to work better as a PDA (for managing and organizing information), while others work better as a cell phone (for constant voice communication). In our opinion, none of the models here provides an ideal combination, since they all involve numerous, seemingly unavoidable trade-offs: Having a decent-size keyboard, for instance, means making the device bigger than a conventional cell phone, whereas making them the size of a normal phone means making the keyboard smaller and more difficult to use.

COMING SOON TO A HAND NEAR YOU

AN ALL-IN-ONE GADGET that's smaller and sleeker than most current cell phones just isn't here yet, though new products are coming thick and fast, and a number of interesting devices will be launched later this year, such as the Danger Hiptop (see find.pcworld.com/21901).

Soon we'll see models based on Microsoft's Windows-powered Smartphone 2002 platform—previously code-named Stinger (see find.pcworld.com/22661)—that Microsoft claims will deliver mobile phone, personal information manager functions, e-mail, and Web browsing in one unit. Several companies (including Samsung, Mitsubishi, and Sendo) are working on these devices; when joined with the forthcoming faster 3G and GPRS cellular networks (see find.pcworld.com/22441), they should be something to watch for.

Audiovox Maestro PDA1032C and CDM9100

$599, ★★★☆☆, find.pcworld.com/21824

The Audiovox Maestro almost has it all: e-mail, Pocket Microsoft Word and Excel, Web browser, PIM, media player, expandability with Secure Digital and CompactFlash slots, and a cell phone. What it can't do is fit in one pocket, because it consists of two separate devices—a Maestro PDA (a rebadged Toshiba E570 running Pocket PC 2002) and a CDM9100 cell phone—that work together across an included cable. (You can buy such cables for many PDAs and cell phones.) Consequently, you can use each device independently: If you're going somewhere and don't need the PDA, you can take the phone by itself. But if you want the full combo experience, you'll find the Audiovox duo far more awkward than an all-in-one device.

Handspring Treo 180

Handspring Treo 180

$399, ★★★½☆, find.pcworld.com/21825

The Treo 180 combines a PDA and a cell phone into a package smaller than the Handspring Neo; it works better as a PDA than as a cell phone. It has the major functions you'd expect from a Palm handheld, such as scheduling, note taking, and so forth. Best of all, it sports a teeny-tiny QWERTY keyboard for writing e-mail, and it lets you browse Web sites, albeit slowly—a fraction of a page at ▶

GADGETS FOR GADGETS

5 Add-Ons for a PDA

SEVERAL HANDY add-on devices can make your PDA even more useful. Here are some we recommend.

KEYBOARD: Adding a keyboard such as the fold-up Targus Stowaway (find.pcworld.com/21086) or the snap-on Kensington PocketType (find.pcworld.com/21087) can make entering or editing text much easier. The Stowaway is the same size as a notebook keyboard; the PocketType is easier to use in confined spaces.

EXTRA STORAGE: You will be amazed at how much stuff you store on your PDA, so a bit of extra storage space on a CompactFlash memory card or Secure Digital card can help. A 64MB CompactFlash card (find.pcworld.com/21121) costs about $35, and a 64MB Secure Digital card (find.pcworld.com/21082) costs about $60. Each can hold a couple of hours of music or hundreds of documents.

WIRELESS NETWORK CARD: With an 802.11b wireless network card, you can access your network. With a Bluetooth card, you can sync your PDA to a properly equipped PC without plugging it in, or use a suitably equipped cell phone as a wireless modem. The Symbol Wireless Networker (find.pcworld.com/21084) 802.11b CompactFlash card costs $199, while the Palm Bluetooth Secure Digital Card (find.pcworld.com/21085) costs less than $150.

PRESENTATION SYSTEM: A presentation system such as the Margi Presenter-to-Go (find.pcworld.com/21083) lets you plug your Pocket PC or Handspring PDA into any VGA monitor to show presentations, display your digital photographs, or operate your PDA on a bigger screen. A remote control comes with the Presenter-to-Go, and the system does a good job of turning your PDA into a presentation machine.

PROTECTIVE CASE: You can protect your PDA from knocks and drops with a sturdy case, such as the $35 Flipout case (find.pcworld.com/21061), which encloses your PDA in reinforced vinyl coating.

–Richard Baguley

a time on a very small screen. At 1.9 by 1.9 inches, only the Palm M125's screen is smaller.

Unfortunately, the Treo 180 falls short as a phone because of the receiver's design: Unlike with most cell phones, you must flip up a screen guard to place a call; this protects the screen when it's not in use, but it looks rather clunky. The battery lasted for a couple of days of light use, but you can't swap in a spare one, so for anything more than a short trip you'll need to take along the charger. A speakerphone and headset are also included.

Motorola Accompli 009

$649, ★★½☆☆, find.pcworld.com/21823

The Accompli 009 looks like a miniature laptop suitable for a leprechaun. It sports a tiny QWERTY keyboard and a small color screen that, although reasonably easy to read, is a little dim. The unit is a capable organizer that can be used to store contacts and write memos, although the small keyboard limits it to hunt-and-peck typing.

It can also browse the Web, send text messages to other cell phones, and manage e-mail through built-in programs and Motorola's Wisdom Operating System. Though all of the included applications do a reasonable job, very little other software is available for it. The Accompli supports the three major digital phone standards, but you can't use it as a normal phone simply by holding it to your ear. Instead, you must use the plug-in speakerphone or hands-free headset, which makes it rather more awkward to use as a phone than as a PDA.

Motorola Accompli 009

Nokia 9290

Samsung 1300

Nokia 9290 Communicator

Approximately $650, no star rating (preproduction unit), find.pcworld.com/21822

The 9290 Communicator is as pricey as the Accompli 009, yet packs several features—e-mail, Web browsing, Short Message Service messaging, and a PIM—into a medium-size device. Bulkier than the others here at about 6 inches long, 1.8 inches wide, and just under 1 inch deep, it looks like a cell phone from the 1980s when closed up. It opens to reveal a bright, wide-format color screen, a keyboard, and a speakerphone. The built-in apps worked well, and the keyboard is the biggest we've seen on a device of this type.

Samsung SPH-I300

$499, ★★★½☆, find.pcworld.com/21821

The SPH-I300 does a slightly better job of integrating a PDA with a cell phone than the competition. You get the Palm OS, a color screen, an adequate Web browser and e-mail program, and a reasonably comfortable mobile phone—all in a package about the size of a typical Pocket PC. The battery lasted a couple of days in light use, but you can remove it and swap it with the included spare battery. One minor annoyance: during calls on the SPH-I300 the screen can rub against your cheek and leave make-up or oily marks on the LCD. ■

Carla Thornton is a contributing editor, Grace Aquino an associate editor, Richard Baguley a senior associate editor, and Yardena Arar a senior editor for PC World.

FEATURES COMPARISON

COMBO PDA/CELL PHONES

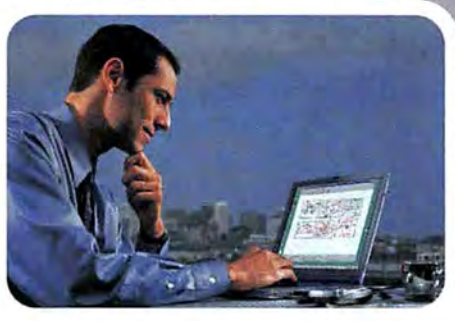
DEVICE	Street price (1/23/02)[1]	Memory	Active screen size (inches)[2]/resolution (pixels)	Screen type	Extra features	Cellular network	Comments
Audiovox Maestro PDA1032C and CDM9100 find.pcworld.com/21824	$599	32MB	2.8 by 2.2/ 240 by 320	65,536-shade color	Connection cable; e-mail and Web browsing apps	Verizon Wireless	A PDA and cell-phone bundle. Works well, but is bulkier than the others. ★★★☆☆
Handspring Treo 180 find.pcworld.com/21825	$399	16MB	1.9 by 1.9/ 160 by 160	16-shade monochrome	Speakerphone, headset, jog dial, keyboard; e-mail and Web browsing apps	Various	An innovative design, but the small screen makes it slightly difficult to use. ★★★½☆
Motorola Accompli 009 find.pcworld.com/21823	$649	1MB	1.6 by 2.3/ 240 by 160	256-shade color	Speakerphone, headset; e-mail and Web browsing apps	Cingular	Very small device, but awkward to use as a cell phone. ★★½☆☆
Nokia 9290 Communicator find.pcworld.com/21822	$650	40MB	1.3 by 4.3/ 640 by 200	4096-shade color	E-mail and Web browsing apps	Various	Larger than most cell phones, but has a good screen and keyboard.[3]
Samsung SPH-I300 find.pcworld.com/21821	$499	8MB	2.4 by 1.7/ 160 by 240	256-shade color	Digital voice and call recorder, spare battery	Sprint PCS	A bright color screen and good cell-phone integration. ★★★½☆

[1] Price from cell phone network when signing up for new service; price without service may be higher.

[2] The area where information can be displayed, excluding any fixed area for inputting.

[3] Preproduction unit reviewed; no star rating.

Electronics for Imaging



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GREAT UPGRADES FOR UNDER $100

Can you teach an old PC new tricks? Absolutely. And with the 23 add-ons here, it's never been cheaper or easier.

PHOTOGRAPHS BY MARC SIMON

NOW MORE THAN EVER, everyone's trying to spend money intelligently. So we've rounded up plenty of ways to extend your computer's capabilities—whether it's into the area of digital photography, Web conferencing, audio, or networking—while keeping a watchful eye on your bank account. Each of the products we recommend costs $100 or less. Best of all, these add-ons are simple to set up and give you a lot of bang for your buck. ▶

Digital Photography: Cheap Shots

BY GRACE AQUINO

ARE YOU THE TYPE of shutterbug who loves disposable cameras and gets excited by the corner drugstore's free double-print offers? If so, the idea of spending $400 or more on a fancy digital camera may not provide quite the same rush. Fortunately, you don't have to dish out that kind of cash to join the digital photography revolution.

For starters, I found the slim and simple SiPix StyleCam digital camera for only $70. This no-frills, point-and-shoot model is about the size of a box of Altoids. It runs on two AAA alkaline batteries, stores about 60 shots in its 8MB of internal memory, and connects to a PC via USB cable to transfer photos. As you might expect, the StyleCam lacks features typically found on more expensive cameras, such as a built-in flash, an LCD, a zoom lens, and a slot for a memory card.

Still, I was satisfied with my SiPix snapshots; they looked nice enough to e-mail to friends and post on a Web site. And if you take pictures in a sunny setting, the camera should produce images that are bright enough for satisfactory prints on 3-by-5-inch paper. But with a maximum resolution of 640 by 480 pixels (compared with 1200 by 1600 for models in the $350 or above price range), the SiPix won't produce Ansel Adams–quality photos.

If you'd rather scan the shoeboxes of photos that are currently stacked in your attic, the $99 Canon CanoScan N670U scanner is a good bet. It produced good-quality color scans but was a tad slow. It's slim and light, and the model's front panel has three quick-start buttons for scanning, copying, and e-mailing. The N670U's design does away with the bulky power brick accompanying many scanners; instead the unit draws power from the USB connection to your PC. On the downside, the N670U lacks accessories that other scanners in its price range offer, such as a transparency adapter (useful for scanning slides or negatives from a film camera) and an automatic document feeder.

ENHANCE AND PRINT

THE CANON SCANNER has a generous software bundle that includes Adobe Photoshop Elements, an image editing program notable for its clean, easy-to-follow interface. Elements costs about $90 on its own, but it comes free with the CanoScan. The software can do such tasks as

Recommended

1. **Stylus C60**, Epson, $99, ★★★★☆
   find.pcworld.com/21461
2. **CanoScan N670U**, Canon, $99, ★★★☆☆
   find.pcworld.com/21421
3. **ACDSee 4.0**, ACD Systems, $50, ★★★★☆
   find.pcworld.com/21481
4. **Microtech USB CameraMate**, SCM Microsystems, $45, ★★★★☆
   find.pcworld.com/21543
5. **StyleCam**, SiPix, $70, ★★½☆☆
   find.pcworld.com/21401
6. **Photoshop Elements**, Adobe, $90, ★★★★½
   find.pcworld.com/21441
7. **128MB of DDR memory**, Crucial, about $45,
   find.pcworld.com/21504

sharpening and resizing photos and removing red-eye effect in flash shots.

Elements has a thumbnail browser, as well. But I prefer **ACD Systems' ACDSee 4.0**, an image management program with a pumped-up Windows Explorer–like interface (with folders on the left side of the interface and thumbnails of photos on the right). I was able to convert file formats and perform minor image enhancements such as cropping and brightening. ACD Systems offers a free 30-day trial of the program, or you can buy it for about $50.

Manipulating photos in Elements and ACDSee uses a lot of computer resources, so it makes sense to add RAM to your PC—especially if your PC has less than 256MB. Though not essential, the extra RAM can speed up opening, editing, or saving images. Memory prices fluctuate almost daily, but at press time you could get 256MB of **DDR memory** from **Crucial** for about $85, or 128MB for around $45.

After taking (or scanning) and editing pictures, you may want to share printed versions with friends and colleagues. The $99 **Epson Stylus C60** can do the printing job quickly. It performed well with graphics and text, and produced pleasingly subtle details in photos. Glossy prints were colorful but had a slightly reddish cast.

One more nifty tool for shutterbugs: If you own or are planning to buy a digital camera that uses a CompactFlash or a SmartMedia memory card, I recommend getting a card reader. It's a small external device that lets you transfer images stored in a camera's memory card more quickly and easily than using a USB cable. A card reader also helps save your camera's batteries—downloading pictures to your PC through a USB cable drains the batteries.

Because I use both CompactFlash and SmartMedia cards with my cameras, I'd go with a dual-slot card reader that accommodates both formats, such as **SCM Microsystems' $45 Microtech USB CameraMate**. If you need to support only one memory card type (such as CompactFlash, SmartMedia, Memory Stick, or MultiMediaCard/Secure Digital), you can purchase a single-slot card reader for as little as $25.

Web: Talking Heads

BY EDWARD N. ALBRO

I HAVE SEVERAL upbeat ways to describe myself—thrifty, economical, prudent. But my family and friends on the other side of the country prefer less pleasant terms: cheapskate, skinflint, tightwad. All because I won't jump on a plane to visit or pay exorbitant phone bills to chat.

But now I have a solution that will keep them—and my wallet—happy. By adding a Webcam and a headset to my PC, I created the ultimate communication device. Instead of spending hundreds on airfares, I send friends a video e-mail so they can hear my voice and see my smiling face. When I feel like chatting, I'll do it over the Net. In fact, with the right software, we can have a cool videophone conversation.

When it comes to choosing Webcams, the trick is to get one that doesn't produce blocky, cheap-looking images. The $50 **Creative Video Blaster WebCam Plus** captures sharp images as large as 320 by 240 pixels at 30 frames per second (if a camera's capture rate is slower than that, you'll get the herky-jerky video associated with shots beamed down from space capsules). Installing the WebCam Plus is easy: Load the supplied software, plug the camera into a USB port, and you're set.

But unlike some Webcams, the Video Blaster lacks a built-in microphone. Obviously, I didn't want to be limited to soundless video (after all, a mime is a wonderful thing to waste), so I needed a good headset. With a microphone that cuts out background noise and earphones that produce clear sound. The $16 **Plantronics Audio 70** fits that bill. The headset plugs directly into the microphone and speaker jacks on your sound card, so you don't need to load any drivers (unlike with headsets that plug into the USB port).

FACE TO FACE

NOW THAT I HAD my hardware, I needed some software to help me reach out and touch someone. The best way I found is with the version of Messenger included with Microsoft's Windows XP. This instant messaging software allows a ▶

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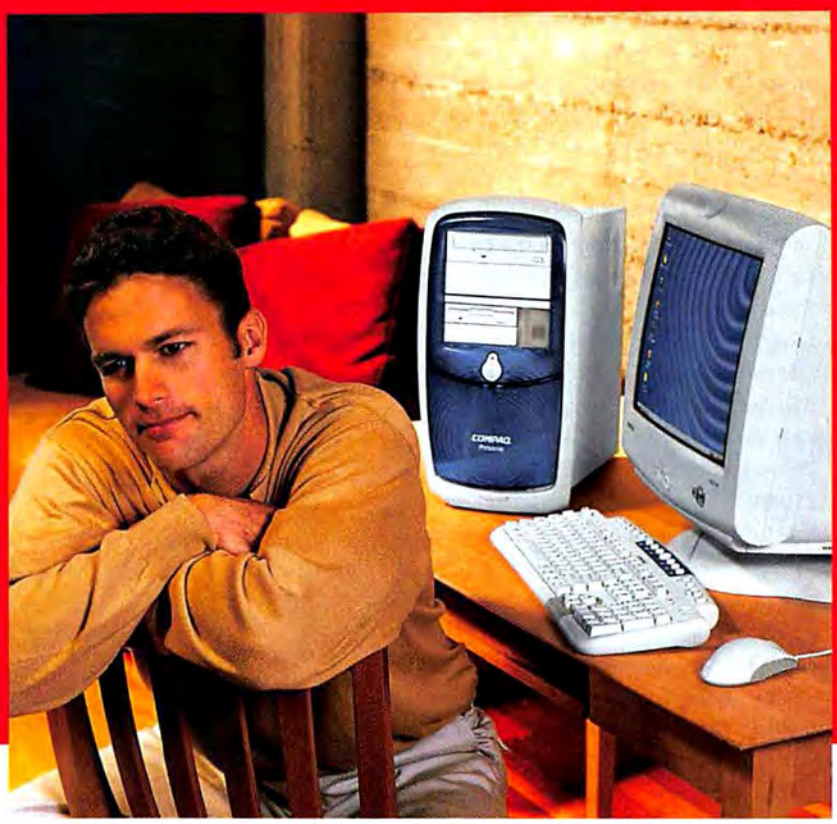

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pleasing videophone experience and is easier to use than NetMeeting. You not only talk to friends but also see them speaking, just as they can see you. The quality, at least over a broadband connection, can be very good. Best of all, calls are free. The catch? Both parties have to be running Windows XP.

Even if you have a bunch of friends and relatives who aren't in a hurry to upgrade their operating system, you still have economical ways to communicate. Most instant messaging clients—AOL Instant Messenger, MSN Messenger, and Yahoo Instant Messenger, for instance—provide free voice chats over the Internet. Again, the sound quality improves significantly with a broadband connection.

What if you don't have broadband? A video e-mail message is a great way to communicate with friends and relatives around the world. Of course, you could simply record a video with the Creative WebCam software and send it as an e-mail attachment. But the attachment's file size would choke most in-boxes. CyberLink's VideoLive Mail 4.0 ($40) shrinks my e-mail messages to a more reasonable size and then automatically packages them using Outlook, Outlook Express, or the software's own e-mail program. The recipient clicks a link and watches the video play in Windows Media Player. You can fine-tune both the video and the audio recording to produce different file sizes. If your friend has a slow dial-up connection, you can create a smaller (and choppier) video by reducing the frame rate and using telephone-quality audio. If you're sending the video to a broadband household, bump the frame rate to 30 frames per second and use CD-quality sound.

Audio: Pump Up the Volume

BY MICHAEL GOWAN

HEY, MUSIC FANS, want to turn your boring beige box into a concert hall, a home theater system, or a music studio? You can, simply by adding a few reasonably priced components and installing some new software. Here's how I turned my PC into a sound-blasting machine.

First, I bought a sound card, which produces every beep, boom, and whistle that software can generate. If your PC's sound card doesn't support Dolby Digital 5.1 sound, that's reason enough to upgrade to the $99 Creative Sound Blaster Audigy MP3+. It offers solid performance and delivers great bass and treble range. The Audigy MP3+ also includes an IEEE 1394 port for connecting devices such as digital video cameras, along with software for ripping MP3s and watching movies.

Unfortunately, setup was a bit tricky, documentation was sparse and difficult to understand, and I couldn't control basic functions, like volume, from my system tray. To get around that, I created a shortcut on my desktop to the AudioHQ utility to handle speaker arrangement, volume, and equalizer settings.

If you're daunted by the complexity of Audigy, try the $79 Voyetra Turtle Beach Santa Cruz sound card. The Santa Cruz is simple to set up and comes with a great control utility. And though it lacks some of Audigy's advanced features, it still produces nearly equal sound quality.

Even an excellent sound card can't reproduce Carnegie Hall without top-notch speakers. To get theater-quality sound, I picked Creative's $90 Inspire 5.1 5300 speaker set. It includes speakers for the center, the left side, and the right side; two surround-sound speakers; and a subwoofer.

Recommended

1. **JBL Sonnet,** Harman Multimedia, $100, ★★★★☆ find.pcworld.com/20941
2. **Inspire 5.1 5300,** Creative, $90, ★★★★☆ find.pcworld.com/20902
3. **PowerDVD,** CyberLink, $50, ★★★★☆ find.pcworld.com/21281
4. **MDR-V300 Studio Monitor Series,** Sony, $50, ★★★★☆ find.pcworld.com/21001
5. **GCE-8240B,** LG Electronics, $100, ★★★½☆ find.pcworld.com/21301
6. **Santa Cruz,** Voyetra Turtle Beach, $79, ★★★★☆ find.pcworld.com\20901
7. **Sound Blaster Audigy MP3+,** Creative, $99, ★★★★☆ find.pcworld.com/20741
8. **16X/48X SD-M1612,** Toshiba, $72, find.pcworld.com/21341

Not Pictured:
RealOne, Real Networks, free, ★★★★☆ find.pcworld.com/20981

The sound system produced rich vocals and deep bass tones, as well as realistic sound effects in games and movies.

Speaker placement is important for achieving acoustic excellence. The small cube-shape of the Creative Inspire's center speaker allowed me to position it in front of my LCD monitor for optimum audio impact. If you have a CRT, put the center speaker on top of it. The surround-sound speakers can be placed at the sides or behind you at ear level.

BEYOND SOUND

THE CREATIVE INSPIRE speakers are more than adequate for most audio needs, but hard-core music fans should consider choosing the $100 Harman Multimedia JBL Sonnet speakers instead. This sound system produced wonderfully crisp highs and robust lows that are essential for rocking out to your favorite tunes.

Want to watch a DVD movie on your PC? If you bought a PC recently, you probably already have a DVD-ROM drive, but if you have an older machine, check out Toshiba's $72 16X/48X SD-M1612.

On the software side, you can settle for the applications bundled with the Audigy sound card, or you can buy a program that's easier to use. I favor CyberLink's PowerDVD. Its handy Dolby Pro Logic II feature sends stereo music out to multiple speakers, producing surround-sound quality. The program also has a resume function that picks up a movie where you previously left off, without your having to manually bookmark it. CyberLink offers a free, 30-day trial version of PowerDVD; otherwise, the software costs $50.

For CD music and MP3 playback, I went the free route with Real Networks' RealOne media player. Its slick interface houses an easy-to-use file management system, and it rips music into MP3 or Real formats at lightning speeds. I even use it for burning tracks to CD-R. Of course, I can't burn tunes without a CD-RW drive. LG Electronics' high-speed GCE-8240B is a good choice for $100. If you need a CD-RW *and* a DVD-ROM drive, consider purchasing a combination CD-RW/DVD-ROM drive. Although it costs about the same as two separate drives, a combo drive eliminates the hassle of installing two devices. On the other hand, having two drives can make copying a lot easier—you can do it drive-to-drive.

Because my neighbors don't share my enthusiasm for really loud Led Zeppelin tunes, I rounded out my new audio setup with high-quality headphones. Sony's MDR-V300 Studio Monitor Series ($50) supports full bass and decent treble tones. Unfortunately, with extended wear the Sony headphones can be a bit uncomfortable.

Networking: For Next to Nothing

BY ALAN STAFFORD

TALK IS CHEAP—even if it involves a bunch of computers communicating over a network. I looked at three inexpensive ways to link two or more PCs for sharing files, a printer, and a Web connection. Which setup is right for you? That depends mainly on where the machines are located and how much you want to spend.

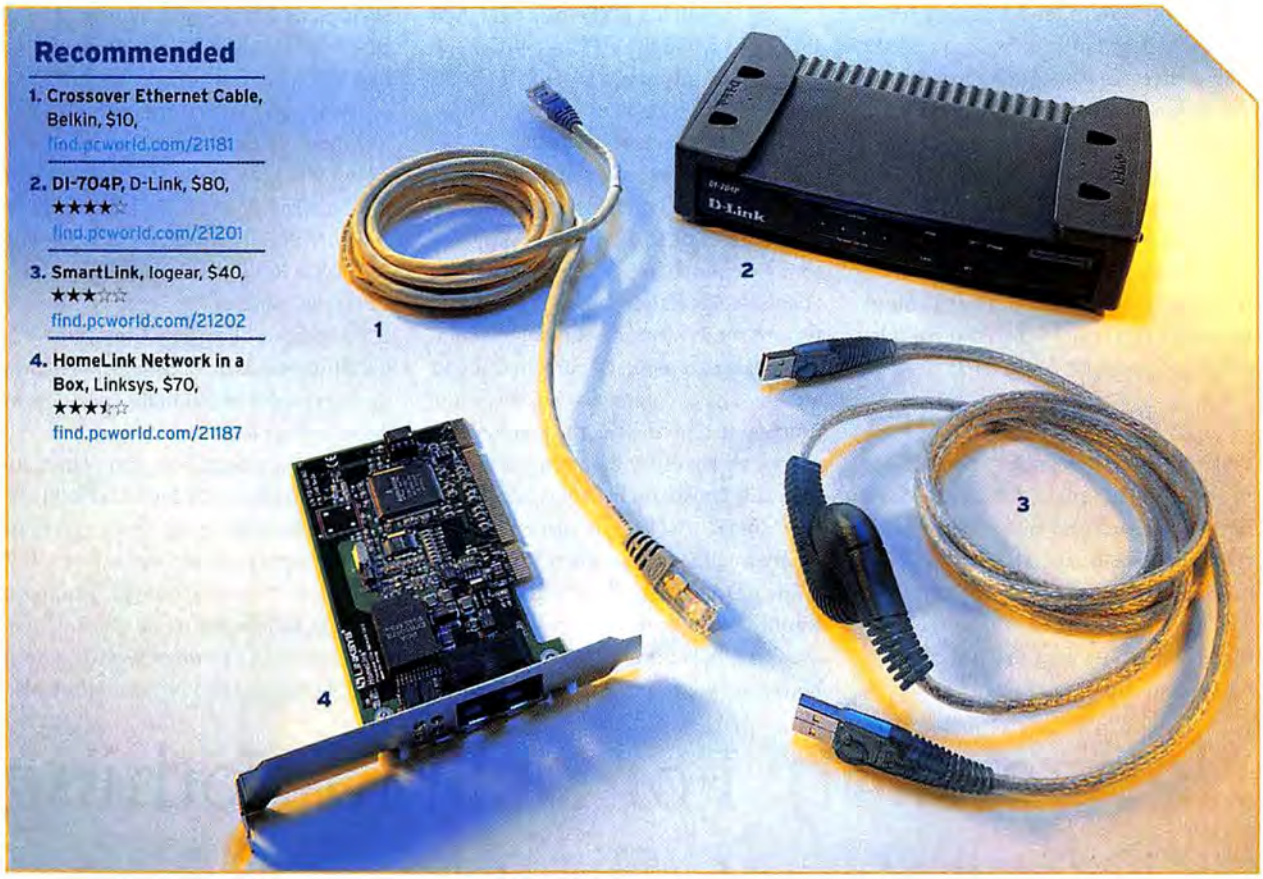
The cheapest way to network two computers equipped with network interface cards is by using a $10 crossover ethernet cable such as Belkin's. If you need to add ethernet cards, you can get them for around $20 apiece from companies like 3Com and Proxim. This setup allows you to share files and a printer. And with Windows' Internet Connection Sharing (for Windows 98 SE and up) installed on the host PC, you can share a dial-up Internet connection. When I tried it, setup was easy, the file sharing speed was quick, and the Web browsing speed nearly matched what I would have obtained if I had connected both systems directly to their own modems. The downside? Both PCs must be turned on, and you can't share a broadband connection unless the host PC has an internal broadband modem or two ethernet cards. Nevertheless, if you're on a budget, you can get by with this setup.

You can network two PCs together for a mere $10. All you need is a crossover ethernet cable and a pair of PCs, each system equipped with a network interface card.

HOOK ME UP

ANOTHER EASY, LOW-COST method for transferring files between PCs or between a PC and a Mac is to use a USB cable. An example is Iogear's $40 SmartLink and its included software. Unfortunately, SmartLink is significantly slower than ethernet, and you can't use it to share a Web connection. My advice: Stick to the crossover ethernet cable—unless you're on the road and your clients don't want to go to the trouble of adding you to their network.

If you have several computers, neither a crossover cable nor a USB cable will do the trick. You could use a hub or a switch (and Internet Connection Sharing for dial-up Web access), but that arrangement still requires a host PC to remain on. That's because hubs and switches can't share among multiple computers the single Internet Protocol (IP) address that a dial-up or broadband Internet service provider makes available to you. In other words, they lack routing capabilities. A better—albeit slightly more expensive—solution is a gateway/router, ▶



which almost always includes a built-in hub or switch to which you can connect multiple computers equipped with ethernet cards. All gateways/routers have firewall-like capabilities, and most have features that let you run a Web server, for example. The gateway/router takes the place of the host PC, staying on all the time and drawing very little power.

Best of all, gateways/routers have become more affordable than ever. Many networking companies offer inexpensive gateway/routers, though most will only work with a broadband connection. However, I tried out **D-Link's DI-704P** ($80), a gateway/router with a built-in, four-port switch and two less-common yet useful features: an external serial port for a dial-up modem, and a parallel port for attaching a printer. If you do have a broadband connection, you can set the gateway to shift to the modem when your broadband goes down. The DI-704P was easy to set up. It didn't allow me to connect a USB printer, however, and my older printers didn't work with the DI-704P reliably.

If you want to connect PCs in different rooms, you could drill holes or spend a lot of money on a wireless network. Why do either if you can get an easier and thriftier setup with a phone-line network, which uses existing phone lines to connect computers at 10 mbps? I used the $70 **Linksys HomeLink Network in a Box**. The package comes with two network cards, two phone cords, and all the necessary drivers. You install the cards in the PCs and then use common telephone cables to connect the cards to nearby phone jacks. The phone-line network operates on a different frequency than your telephone, so you can place calls at any time with no interference.

You can also share Internet access by using Windows' Internet Connection Sharing with either a dial-up or a broadband connection. But again, the host PC must be turned on. I found the browsing and sharing speed acceptable, but Linksys's documentation is incomplete—for example, it lacks instructions for setting up connection sharing. The package is still a great deal. For assistance in setting up connection sharing, visit find.pcworld.com/22581 and read the July 2001 *Internet Tips* column, "Double Up With Internet Connection Sharing." ■

Grace Aquino is an associate editor and Edward N. Albro and Alan Stafford are senior editors at PC World. *Michael Gowan is a freelance writer based in Oakland, California.*

ONLINE

Want more information about products discussed in this article? Point your browser to find.pcworld.com/22601 for a list of the hardware and software add-ons mentioned here, including handy links to the latest prices, specifications, and information on where to buy.

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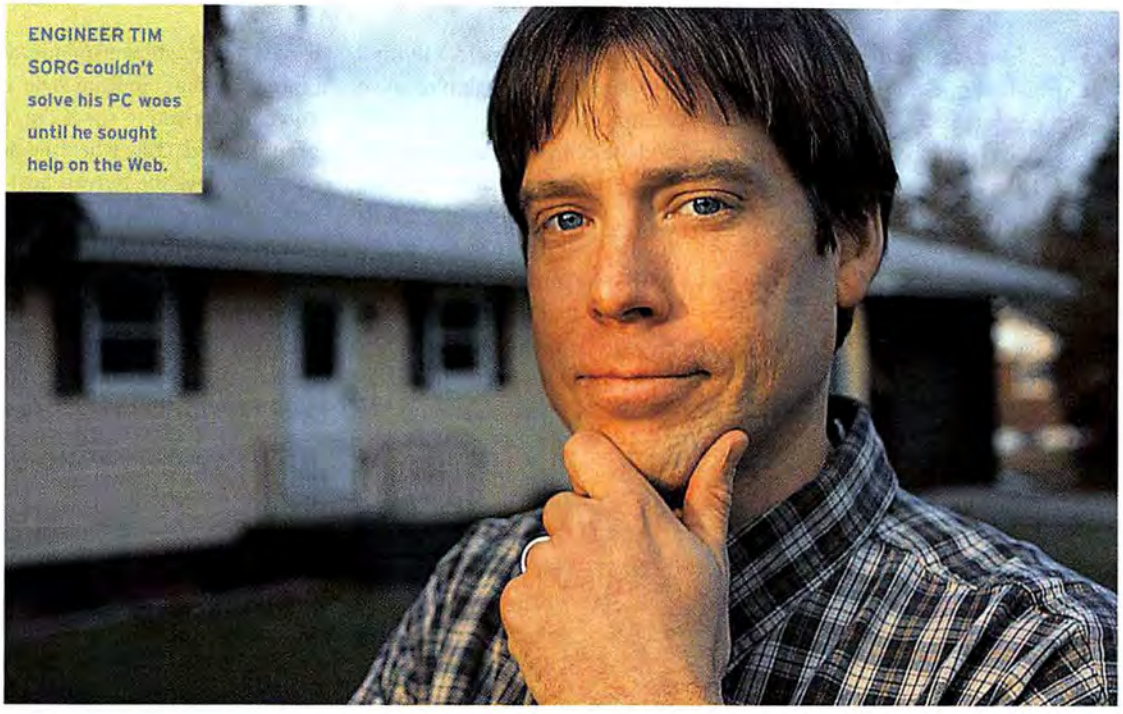

ENGINEER TIM SORG couldn't solve his PC woes until he sought help on the Web.

DO ONLINE COMPLAINTS PAY OFF?

More ticked-off buyers are taking their gripes to the Web. We show you how to get results.

BY DANIEL TYNAN

ANY NORMAL PERSON would have run out of patience long before Tim Sorg did. Virtually from the moment Sorg received his Dell Dimension L800r in December 2000, the electrical engineer from Fort Wayne, Indiana, had problems installing software. Programs got corrupted, and the PC grew increasingly crash-prone.

So Sorg called Dell tech support—and that's when his troubles really began. A representative told him to reformat the hard drive and reinstall Windows. Three reformats later, the system still misbehaved. So Dell sent a technician to replace the RAM. This didn't help. The tech returned three times to replace other parts. Still no luck.

After four on-site visits, 11 reformats, and more than 40 phone calls, Dell replaced the machine. Sorg turned the new PC on—and it crashed. Worse, Dell claimed that he'd never returned his old PC, even though shipping records showed that someone at Dell had signed for it.

So Sorg took his troubles to the Web. In December 2001 his wife, Shirley, filed a complaint at the Better Business Bureau Online. Ten days later Dell called to offer a newer, faster PC. It arrived a week after that. ▶

PHOTOGRAPH: ANDY SNOW

The new machine works adequately. But it's refurbished (the Sorgs had requested a new computer), the fan is noisy, and, Sorg adds, "it doesn't begin to erase the poor way Dell has handled this." (Dell spokesperson Bryant Hilton apologized for Sorg's woes and says the vendor is pleased that the problems were resolved.)

It used to be that when a merchant's customers felt they'd gotten a raw deal, they wrote letters to the company president or to the local paper. If they were really steamed, they'd tell their friends. Now they go on the Web and tell the world. According to TARP (www.e-satisfy.com), an Arlington, Virginia, group that has studied consumers for three decades, customers who've sought online assistance from a vendor and failed to get it are four times more likely to vent their frustrations on the Web—a phenomenon TARP calls "word of mouse."

Using the Net to seek advice and share horror stories isn't new: Twenty years ago, newsgroup posts debated the merits of Sony TVs and warned of leaky Volkswagen Rabbits. But the Web has made the process far easier, thanks to dozens of gripe sites where customers can post reports, seek remedies, or exact revenge. Some sites, such as the Better Business Bureau (www.bbb.org) and PlanetFeedback (www.planetfeedback.com), forward consumer grievances to companies. Others, like The Complaint Station (www.thecomplaintstation.com) and homegrown "companyXYZsucks.com" sites, publicize gripes in an effort to shame vendors into doing the right thing.

These sites promise to make your voice heard. But do they work? To find out, we tested a dozen mediation sites by posting a bogus complaint about a fictional company. We said that we'd paid $49 for a software package called WealthEnhancer 2000 but that the product had never arrived and the company had ignored all contact attempts—the earmarks of a classic Internet scam. To monitor the gripe sites' correspondence with both the "angry customer" and the fictitious company, we directed responses to post office boxes, e-mail accounts, phone numbers, and fax numbers we'd set up.

E-mail is the least-effective method of getting a company's attention.

The results? These sites provide no panacea for apoplectic consumers. While most of the sites posted our complaints for viewing by other visitors, a couple never forwarded them to the company. (See the table at right.)

Two sites contacted our phony company by postal mail; the rest sent an automated e-mail. And e-mail is the least-effective method of getting a company's attention, says Cindy Grimm, TARP's director of benchmarking.

Our test was designed to test whether gripe sites really forward complaints to vendors. But that's only half the battle—however you make contact with a vendor, you have to find someone who's willing to make things right. Otherwise, your problem may remain unresolved. See "7 Ways to Win at Whining" on page 112 for tips on nudging the odds in your favor.

TROUBLE IS THEIR BUSINESS

IN MANY WAYS, the model for consumer gripe resolution is the 90-year-old Better Business Bureau. While most gripe sites use automated mail systems, the BBB has real mediators who give each problem individual attention. When you file a complaint at the bureau's site, a staffer determines if your issue is appropriate (for example, the bureau doesn't handle labor disputes) and then passes it to the office closest to the company in question. That office mails the complaint to the company and contacts you to see if the issue has been resolved. Only when the process is complete does the bureau post a report (satisfactory or otherwise) on its site.

While the process is thorough, the pace can be glacial. The goal is to resolve each claim within 40 working days, says Charlie Underhill, senior vice president of the bureau's dispute resolution division. In our tests, it took the BBB about 10 days to make

SITE COMPARISON

Sour Gripes: No Easy Fix

SITE	Grade
Baddealings.com www.baddealings.com	D
Better Business Bureau www.bbb.org	B+
Bitchaboutit.com www.bitchaboutit.com	C-
Complaint Book www.complaintbook.com	B
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Fight Back With David Horowitz www.fightback.com	B
GotScammed.com www.gotscammed.com	D
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PlanetFeedback www.planetfeedback.com	B
TheSqueakyWheel.com www.thesqueakywheel.com	B
USpeakOut www.uspeakout.com	D+

n/a = Not applicable.

[1] Per incident unless otherwise noted.
[2] Within 30 days of complaint filing.

initial contact with our phony customer and our fictional firm, the second-longest of any site that actually made contact.

Underhill estimates that the BBB resolves around 65 percent of disputes submitted to it; that rate jumps to about 87 percent for its member companies. The success rate surpasses 90 percent for firms (like Dell) that belong to BBBOnLine, a program with strict dispute-resolution guidelines, including binding arbitration if the parties can't agree.

Unlike the BBB, PlanetFeedback also collects questions and compliments. The clever site lets you rate your mood (from furious to thrilled), post a report, and e-mail it to members of Congress.

PlanetFeedback's scorecards are rife with discouraging news about technology companies. At the bottom of the heap are wireless phone providers such as MCI WorldCom and Sprint PCS, which had grades of D and D+, respectively, at press time. PC companies don't fare much better: Compaq, Dell, and Gateway all rated a C–. Meanwhile, two of the most popular products are Krispy Kreme Doughnuts and Mountain Dew. (Perhaps they should rename it PlanetFeedbag.)

The site forwards gripes only to the 23,000 companies in its database, so we couldn't test it using our fictional company. Instead, we asked Tim Sorg to post his Dell problem. Three days later he got a canned e-mail from Dell with the phone number he'd called 40 times already. ▶

DO COMPLAINT SITES really let your voice be heard? Yes and no. When we sent a test gripe to a dozen sites, most of them posted it online—but few seemed poised to serve as an expert mediator between buyer and vendor. Your best bet is still the Better Business Bureau, which has a long track record with companies. Even then, its resolution process is slow, and it doesn't work in every case.

	THE BASICS				WHAT SITE DID WITH OUR GRIPE				
	Cost [1]	Confirms receipt of complaint	Posts complaint on site	Database searchable by company name	Contacted company	Form of contact	Days until first contact	Number of contacts [2]	The upshot
	Free; premium service $10/year [3]	No	Yes	Yes	Yes	E-mail	8	1	Posted complaint on site but did not forward it to company until we nagged.
	Free	Yes	No [4]	Yes	Yes	Postal mail	10	2	Sent two letters to company, asking to clear up complaint; sent another letter to complainant.
	Free	No	Yes	No	Yes	E-mail	1	1	Forwarded link to site with title of gripe, but we couldn't find complaint on site. At press time, site was for sale.
	Free	Yes	Yes	Yes	Yes	E-mail	1	1	Posted complaint and sent detailed e-mail to company the next day; didn't send any follow-ups.
	Free	Yes	Yes	Yes	Yes	E-mail	1	1	Posted complaint and contacted company once.
	Free	Yes	Yes	Yes	No	n/a	n/a	0	Posted complaint but never forwarded it.
	$50	Yes	Yes (selected complaints)	Yes	Yes	E-mail	19	1	Asked whether we wanted to pay $50 to get $49 back; suggested FTC, postal inspectors. Forwarded complaint anyway for free.
	Free	Yes	Yes	Yes	Yes	E-mail	Less than 1	1	Posted complaint and contacted company immediately. Charged the company $10 to delete the complaint.
	Free	Yes	Yes	Yes	Yes	Postal mail	5	1	Posted complaint and forwarded it via postal mail.
	Free	Yes [5]	Yes [5]	Yes	Yes	E-mail	Less than 3 [6]	1	Posted real complaint and forwarded it to Dell; helped draft a letter for mailing.
	$5	Yes	Yes	No	Yes	E-mail	Less than 1	38	Sent gripe page to five search engines; e-mailed company upon each page view. We never got promised e-mail confirmation.
	Free	No	Yes	Yes	No	n/a	n/a	0	Posted complaint on site, notified customer when other site users posted responses. Never contacted company.

[1] Premium service includes up to five certified letters and complaint tracking; temporarily free at press time.
[2] Only if company is part of site's database.
[4] Posts company reports but not individual complaints.
[6] Dell responded to complaint three days after it was sent.

SERVICE TIPS

7 Ways to Win at Whining

THERE'S A RIGHT WAY to get good service, and any number of wrong ways. Here are some tried-and-true methods for getting problems solved *before* you resort to a gripe site.

1 **Reread the fine print.** Is your problem really covered by that warranty? Make sure you're in the right before you start a fight.

2 **One word: *escalate*.** Don't assume that the first person you reach is your last resort. Ask to speak to a manager. Keep going until you find someone who can fix what's wrong.

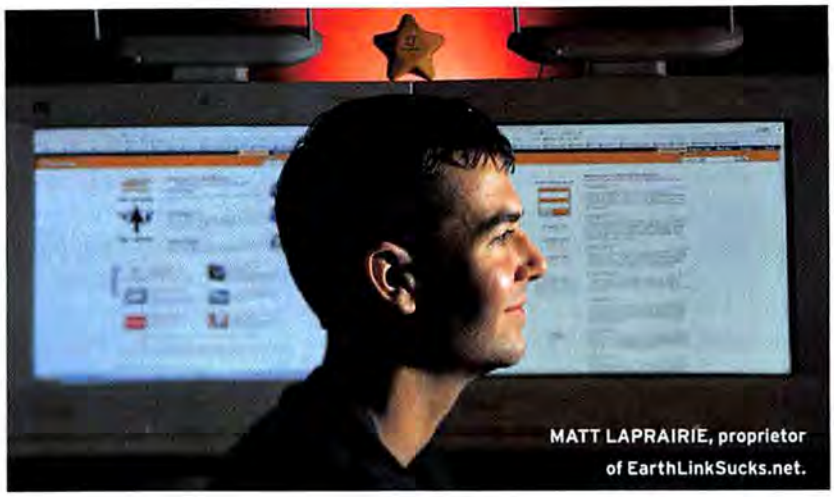
3 **Create a paper trail.** Keep everything—receipts, e-mails, shipping confirmations, a phone log—and be ready to produce these documents when they're needed.

4 **Keep it clean.** Hurling insults and sarcasm may be cathartic, but it'll get your complaint tossed in the circular file. Stick to the facts of your case, and you'll better your odds.

5 **Don't get mad, get help.** Is the company a member of the Better Business Bureau or a trade organization? Look for a logo or a link on the company's site. Many such groups can intervene effectively.

6 **Say what you want.** Do you want a refund? A replacement product? A handwritten apology from the CEO? Most companies say they'll be happy to make you happy, if your request is reasonable. So tell them up front.

7 **Call in the feds.** If nothing else works, contact the authorities. (See find.pcworld.com/22261 for a list of government and nonprofit agencies that can help.) If the business is legit, you'll certainly get its attention. And if it's not, you might help bring it down.



MATT LAPRAIRIE, proprietor of EarthLinkSucks.net.

Then again, consumer advocacy isn't PlanetFeedback's primary mission. "The site is really just a teaser," says Pete Blackshaw, chief marketing officer. "We leverage consumer empowerment to help companies become better listeners." In plain English, that means it sells the data. When you post a comment, the site combines it with other facts—such as how often you buy products and what you spend. (You can decline to provide this info.) The site sells the aggregate data to companies, which use it to gauge public opinion about their products.

At least PlanetFeedback has an actual business model that may keep it going—something many of its rivals lack. Some levy a fee; the priciest, Fight Back With David Horowitz (www.fightback.com), charges $50 per complaint. (When we sought help for our test problem, a Fight Back rep sensibly asked whether we really wanted to spend 50 bucks to recover the $49 we said we'd paid for the software.)

GotScammed.com (www.gotscammed.com) has the strangest business model: The site posts gripes for free and then charges the slammed companies $10 to delete a problem once it's been solved—a practice that isn't mentioned on the site.

Most gripe sites run on a shoestring, and many have already vanished, such as MadNow. Tiny budgets and staffs are likely reasons why some of our complaints to other sites fell through the cracks.

ACCIDENTAL ADVOCATES

AS A RESULT, most grievance sites are labors of love—or of hate. For instance, EComplaints (www.ecomplaints.com) began when former Gartner analyst Jennifer Biscoe was peeved at AT&T Wireless. But the most common venting venues are the "sucks" sites. Run mostly by angry amateurs, some of these sites have evolved into useful places for the similarly afflicted to commiserate and occasionally get problems solved.

Take Matt LaPrairie. The disgruntled ex-EarthLink employee never intended to become a consumer advocate. But when he found that the domain name www.EarthLinkSucks.net was available, he created a parody site that amusingly mimicked the ISP's home page. He put up the site in April 2001. Since then, LaPrairie says, he's received "hundreds if not thousands" of e-mails from the ISP's customers. He's proud of helping to gain refunds for unhappy EarthLinkers.

> 'It appeared EarthLink wanted to buy my silence.'

PHOTOGRAPH PAUL GERO

Last fall LaPrairie got bored with operating the site and offered to sell the domain to EarthLink. The ISP agreed on a price ($500). When LaPrairie read the contract, however, he rejected it. "EarthLink wanted me to sign an agreement saying that I would never make a negative comment about EarthLink—written or verbal," says LaPrairie. "It appeared EarthLink was trying to buy my silence. I was not cool with that."

Since then, EarthLink seems to have learned to live with LaPrairie and his site. When we asked for a response, company spokesperson Dan Greenfield replied, "Sure we would like to buy the domain and shut it down. Please tell him our new offer is $50."

An angry customer's best friend may be another angry customer.

According to VeriSign, the leading domain registrar, at least 27,000 names in the .com, .net, and .org domains contain the word *sucks*. Many are owned by corporations hoping to preempt gripe sites. For example, when Andersen Consulting changed its name to Accenture in October 2000, it registered names containing choice suffixes, including *sucks, reallysucks, bites,* and some too sordid to repeat.

Other companies take legal action. In August 2000, aviation giant Lockheed Martin tried to block Web entrepreneur Dan Parisi from owning lockheedmartinsucks.com, asking an arbitration board to hear the matter. Parisi won, and added the name to his stable of 500-odd "sucks" domains, all of which send users to his free-speech forum, www.sucks500.com.

But gripe site owners don't always prevail. Media titan Vivendi-Universal won its arbitration case against David Sallen, owner of Vivendiuniversalsucks.com. To elude companies' attempts to stop them, some ticked-off consumers register domain names beyond the reach of trademark law, such as www.untied.com (a clever parody of United Airlines' site).

Can speaking out at a grassroots gripe site get your problem resolved? It's not out of the question. Compaq, for example, has a person dedicated to seeking out angry consumers on the Net, says Ann Day, manager of customer support and service. The company usually contacts the owner of an anti-Compaq site and tries to address the issue behind it. "A number of them have voluntarily taken the sites down," Day reports. Dell, on the other hand, doesn't scour the Web for critical sites, says spokesperson Bryant Hilton.

KVETCH AS KVETCH CAN

GRIPE SITES TEACH buyers to be wary, and that's good. But buyers should also be wary of sites that just *look* like consumer advocacy sites. Consider Consumer Defense (www.consumerdefense.com), whose goal seems to be finding defendants for class action lawsuits. Even the respected National Consumer Complaint Center (www.alexanderlaw.com/nccc) ultimately promotes a California law firm.

In the end, an angry customer's best friend may be, well, another angry customer. The savviest answers to our fictional exercise came from users who saw our post and responded. Two even called the toll-free number we'd set up to see if it worked. They correctly diagnosed that our imaginary company might be a scam—something that, among the sites themselves, only Fight Back seemed to deduce.

Even if a gripe site never gets your beef resolved, letting off steam can be therapeutic. It's also an exercise of your constitutional rights, says Gerald R. Ferrera, a professor of cyberlaw at Bentley College in Waltham, Massachusetts: "The courts usually favor counterculture speech in First Amendment cases." If nothing else, he adds, these sites "allow people to vent. It's better than throwing rocks."

And who knows? Sometimes even a virtual rock will hit its mark. ■

Contributing Editor Daniel Tynan gripes frequently from his home in North Carolina.

WEB SOAPBOXES

Get It Off Your Chest

THESE WILD-AND-WOOLLY gripe sites won't resolve your beefs with corporate America, but they provide forums for you to sound off—and warn others.

The Complaint Station: Features forums on topics from @Home to Zippo lighters. The top gripe getter? America Online. www.thecomplaintstation.com

Thegripe.com: Speak out on anything here, but keep it clean—the site posts no profanity. www.thegripe.com

The Rip-Off Report: This ad-rich site features reports on everything from deceptive ads to cheating spouses. www.ripoffreport.com

Screwed Central: Covers a gamut of grievances and offers a revenge forum. www.screwedcentral.com

Sucks500: Hundreds of forums on thousands of topics, the most (un)popular of which are government and Microsoft. www.sucks500.com

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Lab-tested rankings of the best in hardware

TOP 100

EDITED BY MELISSA J. PERENSON

INSIDE

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Top 10 Color Laser Printers
One of three new models on the chart, Lexmark's C910n has automatic color correction and prints on tabloid-size paper.

135

Top 10 CD-RW Drives
Two firsts: a Sony drive with a Memory Stick slot (left), and a Lite-On 32X/12X/40X model.

Pentium 4 Steps Up a Notch

This month marks the debut of the first computers we've tested that use Intel's latest version of the Pentium 4 CPU. Code-named Northwood, the processor doubles the amount of on-chip level 2 cache and, Intel says, runs at a lower temperature than the first-generation P4. Dell and MicronPC supplied two of the four Northwood-based systems appearing on our *Top 15 Home PCs* and *Top 15 Office PCs* charts. Also, home and office versions of Gateway's 700XL make our respective power charts; the home model includes video editing software that complements the system's DVD-RAM/R drive, which allows you to record videos to DVD.

Freelance writers Joel Strauch and Carla Thornton, and PC World editors Richard Baguley, Tracey Capen, Seán Captain, Lisa Cekan, Rebecca Freed, Alexandra Krasne, Heather Morra, Melissa J. Perenson, Kalpana Narayanamurthi, and Alan Stafford contributed to this month's Top 100 section. Ulrike Diehlmann, Robert James, Elliott Kirschling, Jeff Kuta, Tony K. Leung, and Thomas Luong of the PC World Test Center performed testing on the products reviewed here, with support from Julio Giannobile and Julian Weatherby.

PHOTOGRAPHS: MARC SIMON

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Top 10 Digital Cameras

The sole new low-cost entry on our chart: Toshiba's $279 PDR-M25, a basic point-and-shoot, 2.2-megapixel model that produces sharp images.

120

Top 15 Office PCs and Top 15 Home PCs

Systems with Intel's Northwood Pentium 4 CPU reach the charts. The MicronPC Millennia TS Professional (above) is on the office chart; versions of the Gateway 700XL make both.

YOUR GUIDE TO THE TOP 100

EACH MONTH WE TEST a large number of PCs, printers, monitors, and other products. Only the best products land on the charts, which are refreshed monthly.

System configurations are shown as tested. The overall rating for each product is calculated on a 100-point scale and reflects results from our hands-on evaluations and performance tests. A 90-point score is exceptional, while one in the 70s is above average.

The PC WorldBench 4 score is a measure of how fast a PC can run a mix of common business applications as compared with our baseline machine, a Gateway Select 1200 with a 1.2-GHz Athlon processor, 128MB of PC133 SDRAM, and a 20GB hard drive. For example, a PC that scores 120 is 20 percent faster than the baseline system. The policies score is based on vendor support policies (not shown on charts). Please see find.pcworld.com/15720 for additional details on how we compile charts for the *Top 100*.

TEST Center

TOP 15 OFFICE PCs

	POWER SYSTEM	Issue tested	Overall rating	Street price (1/15/02)	PC WorldBench 4 performance score [1] (Faster)	Comments
1	Best Buy Dell Dimension 8200 find.pcworld.com/13160	Jan 02	82	Expensive $2394	Windows 2000 — Good 119	Solid all-around performance characterizes this system, which features a large, 100GB hard disk. (★★★★☆ Nov 01)
2	MicronPC Millennia TS Professional find.pcworld.com/21021	NEW	80	Expensive $2575	Windows XP Professional — Good 111	Offering plenty of expansion room, this system lets you easily access the case interior and drive bays. ★★★★☆
3	Micro Express MicroFlex 1900A find.pcworld.com/21022	NEW	79	Inexpensive $1499	Windows XP Home — Very good 125	This reasonably priced model is a top-notch performer; plus, it includes a DVD+RW drive for recording DVDs. ★★★★☆
4	Polywell Poly 815TS-1260 find.pcworld.com/13161	Jan 02	79	Average $1899	Windows 2000 — Very good 122	Intel's Pentium III for servers powers this unit to an impressive PC WorldBench 4 score. (★★★☆☆ Nov 01)
5	Gateway 700XL find.pcworld.com/21041	NEW	79	Very expensive $2999	Windows XP Professional — Good 118	This pricey system packs a powerful punch; the DVD-RAM/R drive is good for data backup and video recording. ★★★★☆
6	Sys Performance 1900+ find.pcworld.com/21023	NEW	77	Expensive $2456	Windows 2000 — Very good 123	A well-organized interior complements this system's easy-open case; unit comes with a good 18.1-inch LCD monitor. ★★★½☆
7	Pogo Linux Pogo Altura Workstation find.pcworld.com/18781	Mar 02	76	Average $1990	Windows XP Professional — Good 118	Above-average performer can be configured as a dual-boot Linux/Windows XP system at no extra charge. (★★★☆☆ Mar 02)
	VALUE SYSTEM	**Percent of overall rating ▶**		10 percent	25 percent	
1	Best Buy Micro Express MicroFlex 1200C find.pcworld.com/15221	Jan 02	78	Inexpensive $999	Windows 2000 — Very good 117	Excellent performance, ample expandability, and an affordable price keep this system at number one. (★★★½☆ Dec 01)
2	ABS Conquest VP find.pcworld.com/16700	Jan 02	77	Average $1199	Windows XP Professional — Very good 115	An included IEEE 1394 interface bolsters this fast system; the monitor could be better, however. (★★★☆☆ Jan 02)
3	Systemax Ascent-SA14 find.pcworld.com/21043	NEW	77	Inexpensive $999	Windows XP Home — Good 108	Plenty of expansion room and solid performance; however, the manual refers to an earlier version of Windows. ★★★☆☆
4	HP Vectra VL420 find.pcworld.com/21042	NEW	77	Average $1259	Windows XP Professional — Average 97	Corporate PC offers a well-designed case and ample management features; expansion options are limited, though. ★★★★½
5	IBM NetVista A22p find.pcworld.com/19341	Mar 02	76	Inexpensive $1108	Windows XP Home — Average 91	This model features a pop-off front cover for easy drive-bay access; manageability software can be downloaded. (★★★☆☆ Mar 02)
6	Compaq Evo D500 find.pcworld.com/15840	Jan 02	76	Average $1145	Windows 2000 — Average 100	Attractive case offers tool-less access to components, but limited room for future expansion. (★★★½☆ Jan 02)
7	Dell Optiplex GX240 find.pcworld.com/18761	Mar 02	75	Expensive $1511	Windows XP Professional — Average 91	This business-friendly model offers high security and network manageability but little room for expansion. (★★★½☆ Mar 02)
8	Tangent Valera PC find.pcworld.com/10371	Jan 02	74	Average $1129	Windows 2000 — Good 111	This PC offers dual-monitor capability and an integrated IDE RAID controller (but only one hard drive). (★★★☆☆ Jan 02)
		Percent of overall rating ▶		20 percent	20 percent	

All systems tested or retested under our new PC WorldBench 4 test suite. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings.

[1] Performance word scores reflect comparisons of PCs in the same category (power or value) running the same operating system. See "Your Guide to the Top 100" on page 119 for more details.
[2] In gigabytes.

TWO PCs WITH INTEL'S next-generation Pentium 4 chip—formerly dubbed Northwood—land on this month's power chart. Intel uses a .13-micron manufacturing process to build the new chip, so it runs cooler and consumes less power than its predecessors, according to the company. Northwood-based CPUs also have double the on-chip Level 2 cache of their predecessors, jumping from 256KB to 512KB. (See find.pcworld.com/21501 for more about our first look at systems with the new chip.)

In spite of our initial impressions, we could not detect any extra speed boost in the second-place MicronPC Millennia TS Professional ($2575) or the number five Gateway 700XL ($2999); both systems, based on a new 2.2-GHz P4, were outperformed by competing PCs with AMD and older Intel processors on our PC WorldBench 4 tests. Potential buyers should be aware that systems with revamped 2-GHz

PHOTOGRAPH: RICK RIZNER

Visit find.pcworld.com/21502 for reviews of all products tested this month and ranked in this chart.

BASE CONFIGURATION							Extra features	Design/ documentation	Vendor's reliability/ service
CPU	RAM (MB/type)	Hard drive [2]	Monitor size (diagonal inches)	Graphics board	Case type [3]	Open bays/slots			
2-GHz Pentium 4	256/ RDRAM	100	19	64MB GeForce3	Midsize tower	2/3	**Good:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, network adapter, Microsoft Office XP Small Business Edition	Good/ Good	Outstanding/ Fair
2.2-GHz Pentium 4	256/DDR SDRAM	80	19	64MB VisionTek GeForce3 Ti-200	Midsize tower	4/3	**Outstanding:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, V.90 modem, network adapter, Office XP Small Business Edition	Good/ Good	Good/ Fair [4]
1.6-GHz Athlon XP 1900+	512/DDR SDRAM	60	17	64MB GeForce3	Midsize tower	4/2	**Outstanding:** DVD+RW drive,[5] 12X/10X/32X CD-RW drive, V.90 modem, network adapter	Good/ Adequate	*/[4]
1.26-GHz Pentium III	256/ SDRAM	80 [6]	19	64MB Leadtek WinFast GeForce3	Midsize tower	5/3	**Very good:** 16X DVD-ROM drive, 12X/8X/32X CD-RW drive, V.90 modem, network adapter, Lotus SmartSuite Millennium Edition	Very good/ Adequate	*/[4]
2.2-GHz Pentium 4	512/ RDRAM	120	15 (LCD)	64MB ATI Radeon 8500	Tower	3/2	**Outstanding:** DVD-RAM/R drive,[5] 24X/10X/40X CD-RW drive, V.90 modem, network adapter, Office XP Small Business Edition	Good/ Good	Good/ Fair
1.6-GHz Athlon XP 1900+	256/DDR SDRAM	60	18 (LCD)	64MB Gigabyte GA-GF3000DTF-64	Midsize tower	4/2	**Outstanding:** 16X DVD-ROM drive, 24X/10X/40X CD-RW drive, network adapter, Corel WordPerfect Office 2002, Norton AntiVirus	Good/ Adequate	*/[4]
1.53-GHz Athlon XP 1800+	512/DDR SDRAM	120	19	64MB Leadtek WinFast Titanium 200	Midsize tower	4/2	**Very good:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, network adapter	Good/ Adequate	*/[4]
10 percent							10 percent	15 percent	30 percent
1.2-GHz Athlon	256/DDR SDRAM	40	17	64MB Asus AGP-V7700	Midsize tower	3/3	**Good:** 12X DVD-ROM drive, 12X/8X/32X CD-RW drive, V.90 modem, network adapter	Good/ Good	*/[4]
1.4-GHz Athlon	256/DDR SDRAM	40	17	32MB Leadtek GeForce2 Pro	Midsize tower	3/2	**Very good:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, V.90 modem, network adapter	Good/ Adequate	*/[4]
1.47-GHz Athlon XP 1700+	256/DDR SDRAM	40	17	32MB ATI Xpert 2000 Pro	Minitower	3/4	**Good:** 40X-52X CD-ROM drive, network adapter, Microsoft Office XP Small Business Edition	Good/ Adequate	*/[4]
1.8-GHz Pentium 4	256/ SDRAM	20	17	32MB TNT2 Vanta	Desktop	0/3	**Good:** 10X-24X CD-ROM drive, network adapter, chassis-intrusion detection, client management software, Wake-on-LAN	Good/ Adequate	Good/ Fair
1.6-GHz Pentium 4	256/ SDRAM	41	15	32MB VisionTek GeForce2 MX	Midsize tower	2/3	**Very good:** 16X/10X/40X CD-RW drive, network adapter, chassis-intrusion detection, client management software, Wake-on-LAN	Good/ Adequate	Good/ Fair
1.7-GHz Pentium 4	256/ SDRAM	20	15	16MB Vanta	Desktop	0/2	**Average:** 22X-48X CD-ROM drive, network adapter, chassis-intrusion detection, client management software	Good/ Adequate	Good/ Poor
1.8-GHz Pentium 4	256/ SDRAM	20	17	32MB ATI Rage Ultra 32	Desktop	0/2	**Good:** 8X/4X/32X CD-RW drive, network adapter, chassis-intrusion detection, client management software	Good/ Adequate	Outstanding/ Fair
1.2-GHz Athlon	256/ SDRAM	30	17	32MB EVGA E-GeForce2 MX	Midsize tower	4/5	**Good:** 12X DVD-ROM drive, network adapter, Corel WordPerfect Office 2000	Good/ Adequate	*/[4]
10 percent							10 percent	10 percent	30 percent

[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).

[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.

[5] DVD-RW and DVD+RW drives can handle CD-RW functions; DVD-RAM/R drives cannot.

[6] Total space on two hard drives.

COMPUTER SCREEN GRAPHICS: JOHN GODDARD

processors (called 2A-GHz Pentium 4s) are also available, creating some overlap with earlier-generation 2-GHz Pentium 4 machines. Some vendors intend to carry both chips for the near future, so if having the latest CPU model is important to you, ask for it when ordering a system. For example, our power Best Buy, the Dell Dimension 8200 (which Dell opted not to retire, contrary to the report in our January issue), came with the original 2-GHz Pentium 4 at the time we reviewed it; Dell now offers a 2A-GHz version as well.

Also new this month: the Micro Express MicroFlex 1900A, the Sys Performance 1900+, the Systemax Ascent-SA14, and the HP Vectra VL420. Visit find.pcworld.com/21502 to read extended reviews of the systems on this month's chart, as well as of those that didn't make the cut.

THE NICELY EQUIPPED $1499 Micro Express MicroFlex 1900A includes a DVD+RW drive.

TEST Center

TOP 15 NOTEBOOK PCs

	POWER NOTEBOOK	Issue tested	Overall rating	Street price (1/11/02)	PC WorldBench 4 performance score [1] (Faster)	Comments
1	Best Buy Dell Inspiron 8100 find.pcworld.com/14880	Jan 02	90	Very inexpensive $1658	Windows 2000 — Good 100	Built for multimedia, with GeForce2 Go graphics plus IEEE 1394 and S-Video ports. (★★★★☆ Dec 01)
2	Dell Inspiron 4100 find.pcworld.com/16400	Jan 02	89	Average $2228	Windows 2000 — Very good 107	Accommodates lots of add-ins; has dual pointing devices. Optional color palm rests and screen backs cost $20. (★★★★☆ Jan 02)
3	IBM ThinkPad A30p find.pcworld.com/18122	Feb 02	88	Very expensive $3399	Windows 2000 — Outstanding 113	Features dual modular bays, ergonomic sloping case, and huge hard drive. PDA syncing bay device optional. (★★★★☆ Feb 02)
4	Dell Latitude C810 find.pcworld.com/21182	NEW	87	Average $2625	Windows XP Professional — Very good 101	All-in-one has dual optical drive design. Unit is unavailable with both standard and wireless networking connections built in. ★★★½☆
5	HP Omnibook 6100 find.pcworld.com/16402	Jan 02	86	Expensive $2849	Windows 2000 — Very good 106	Corporate speedster has wireless-ready design and handsome, thin case with modular bay. (★★★★½ Jan 02)
6	Gateway Solo 9550xl find.pcworld.com/16401	Jan 02	85	Average $2599	Windows 2000 — Very good 107	Includes giant screen and high-end multimedia connections, but unit is big and heavy. (★★★★☆ Jan 02)
7	IBM ThinkPad T23 find.pcworld.com/14881	Jan 02	85	Expensive $3249	Windows 2000 — Good 105	Equipped with a whopping 48GB hard drive and a big screen with a light at the top. (★★★★½ Dec 01)
	VALUE NOTEBOOK	**Percent of overall rating ▶**		15 percent	20 percent	
1	Best Buy Gateway Solo 5350 find.pcworld.com/18242	Feb 02	82	Average $1799	Windows XP Professional — Very good 94	Comes with removable hard drive, handsome black-and-silver case, and one modular bay, but no big extras. (★★★½☆ Feb 02)
2	Dell Latitude C610 find.pcworld.com/21183	NEW	81	Expensive $2396	Windows XP Professional — Very good 99	Revamp of older model allows wireless and standard networking options to be built in, eliminating need for PC Cards. ★★★½☆
3	Compaq Presario 1720 find.pcworld.com/19482	Mar 02	80	Average $1599	Windows XP Home — Very good 95	Lightweight, well-equipped consumer laptop comes with DVD/CD-RW combination drive and IEEE 1394 port. (★★★½☆ Mar 02)
4	IBM ThinkPad R30 find.pcworld.com/16403	Jan 02	80	Average $1949	Windows 2000 — Good 88	Two-spindle unit has most standard connections, a light at the top of the screen, and built-in 802.11b wireless support. (★★★½☆ Jan 02)
5	HP Pavilion N5445 find.pcworld.com/21184	NEW	80	Average $1649	Windows XP Home — Very good 94	Dedicated audio controls and IEEE 1394 port highlight this handsome consumer-oriented all-in-one with fixed drives. ★★★½☆
6	Fujitsu LifeBook C Series find.pcworld.com/16404	Jan 02	79	Average $1499	Windows 2000 — Good 88	Offers four USB ports and DVD/CD-RW combination drive. Price drops $150 this month. (★★★☆☆ Jan 02)
7	Toshiba Satellite 5005-S504 find.pcworld.com/19484	Mar 02	79	Average $1899	Windows XP Home — Very good 95	Fantastic sound and dedicated audio controls; plus SD and SmartMedia slots. Price falls by $200. (★★★★☆ Mar 02)
8	Compaq Presario 2701 find.pcworld.com/19483	Mar 02	79	Average $1999	Windows XP Home — Very good 97	Dual optical drive design allows for both DVD-ROM and CD-RW drives. Price includes $99 optional second battery. (★★★½☆ Mar 02)
		Percent of overall rating ▶		20 percent	15 percent	

See find.pcworld.com/10860 for details on *PC World*'s Star Ratings.

[1] Performance word scores reflect comparisons of PCs in the same category (power or value) running the same operating system. See "Your Guide to the Top 100" on page 119 for more details.

[2] Except where noted, all CPUs are SpeedStep chips, which run at a slower speed when on battery power.

[3] In gigabytes.

CAN'T DECIDE WHETHER YOU LIKE the eraserhead or the touchpad better? Two new Dells join the Top 15 this month, and both have dual pointing devices. The $2625 Latitude C810, fourth on the power chart, can accommodate a pair of optical drives too, for easy copying of files between a DVD-ROM drive and a CD-RW drive. The $2396 Latitude C610, Dell's latest conservative business machine, snags second place on the value list. It's slender, but it squeezes almost 4 hours out of one battery charge.

The only other newcomer to the chart is HP's home-oriented Pavilion N5445, at number five on the value list. For $1649, you get a laptop with a 1.06-GHz Pentium III-M SpeedStep processor and a DVD-ROM/CD-RW combination drive.

The new $1799 ChemBook 8600 has both a fingerprint scanner for security and a dial similar to the Jog Dials on Sony's VAIO laptops. Though it has inter-

PHOTOGRAPH: RICK RIZNER

Visit find.pcworld.com/21185 for reviews of all products tested this month and ranked in this chart.

BASE CONFIGURATION						Extra features [4]	Overall design	Battery life (hours:min) [5]	Average weight (pounds) [6]	Vendor's reliability/ service
CPU [2]	Screen (inches)	RAM (MB)	Hard drive [3]	Pointing device	Multi-purpose bays					
1-GHz Pentium III-M	15	256	20	Touchpad, eraserhead	1	**Very good:** 8X DVD-ROM drive, built-in modem and network adapter, Microsoft Office XP Small Business Edition 2002	Outstanding	Good/ 3:01	Heavy/ 9.0	Good/Fair
1.2-GHz Pentium III-M	14.1	256	20	Touchpad, eraserhead	2	**Very good:** 8X DVD-ROM and 8X/8X/24X CD-RW combo drive, built-in modem and network adapter, Office XP SBE 2002	Very good	Average/ 2:58	Heavy/ 8.1	Good/Fair
1.2-GHz Pentium III-M	15	256	48	Eraserhead	2	**Very good:** 6X DVD-ROM and 4X/4X/24X CD-RW combination drive, built-in modem and network adapter, Lotus SmartSuite	Outstanding	Average/ 2:19	Heavy/ 8.5	Good/Fair
1.13-GHz Pentium III-M	15	256	30	Touchpad, eraserhead	1	**Good:** 8X DVD-ROM and 8X/8X/24X CD-RW combination drive, built-in modem and network adapter	Very good	Good/ 3:00	Heavy/ 9.1	Good/Fair
1.13-GHz Pentium III-M	15	256	30	Touchpad, eraserhead	1	**Good:** 8X DVD-ROM drive, built-in modem and network adapter	Outstanding	Very good/ 3:58	Average/ 7.8	Good/Fair
1.13-GHz Pentium III-M	15.7	256	30	Touchpad	2	**Good:** 6X DVD-ROM and 4X/4X/24X CD-RW combination drive, built-in modem and network adapter	Very good	Good/ 3:42	Heavy/ 9.3	Fair/Fair
1.13-GHz Pentium III-M	14.1	256	48	Eraserhead	1	**Good:** 8X DVD-ROM drive, built-in modem and network adapter, Lotus SmartSuite	Outstanding	Average/ 2:41	Light/ 6.5	Good/Fair
5 percent						10 percent	10 percent	5 percent	10 percent	25 percent
1-GHz Pentium III-M	14.1	256	20	Touchpad	1	**Good:** 8X DVD-ROM drive, built-in modem and network adapter, Microsoft Works 2002	Very good	Good/ 3:30	Average/ 7.0	Fair/Fair
1-GHz Pentium III-M	14.1	256	20	Touchpad, eraserhead	1	**Good:** 8X DVD-ROM and 8X/8X/24X CD-RW combination drive, built-in modem and network adapter	Very good	Very good/ 3:56	Average/ 7.8	Good/Fair
1-GHz Pentium III-M	14.1	256	20	Touchpad	1	**Good:** 6X DVD-ROM and 4X/4X/24X CD-RW combination drive, built-in modem and network adapter	Average	Good/ 3:13	Average/ 6.8	Fair/Poor
1-GHz Pentium III	14.1	256	30	Eraserhead	1	**Good:** 8X/4X/24X CD-RW drive, built-in modem and network adapter, Lotus SmartSuite	Outstanding	Average/ 2:22	Light/ 6.7	Good/Fair
1.06-GHz Pentium III-M	15	256	20	Touchpad	0	**Good:** 8X DVD-ROM and 8X/4X/24X CD-RW combination drive, built-in modem and network adapter, Microsoft Works 2002	Average	Good/ 3:35	Heavy/ 8.6	Good/Fair
1-GHz Pentium III	14.1	128	30	Touchpad	0	**Good:** 8X DVD-ROM and 8X/8X/24X CD-RW combination drive, built-in modem and network adapter	Average	Good/ 3:18	Average/ 7.7	Good/ [7]
1.1-GHz Pentium III [8]	15	512	30	Touchpad	0	**Good:** 8X DVD-ROM and 8X/4X/24X CD-RW combination drive, built-in modem and network adapter, Lotus SmartSuite	Very good	Poor/ 1:47	Heavy/ 8.7	Good/Fair
1-GHz Pentium III-M	15	512	30	Touchpad	1	**Very good:** 8X DVD-ROM drive, 8X/4X/24X CD-RW drive, built-in modem and network adapter	Very good	Good/ 3:19	Very heavy/ 10.1	Fair/Poor
5 percent						10 percent	10 percent	5 percent	10 percent	25 percent

[4] Word score reflects both listed and unlisted features.
[5] Unless otherwise noted, all notebooks come with a lithium ion battery.
[6] Includes computer, AC adapter, power cord, floppy drive, and optical drive.
[7] Insufficient data to give a rating.
[8] Single-speed desktop CPU.

esting features, the ChemBook also has some drawbacks that prevented it from making the chart. For instance, if the notebook's DVD-ROM drive is using the modular bay, you must turn the notebook off completely to attach the floppy drive.

The $1199 Micro Express NP7120, a metallic-skinned portable, is impressively equipped for the money, but anemic performance numbers spoiled its shot at the chart. This month we also looked at WinBook's new X2 ($2399), the follow-on to the company's thin and light X1. The X2 manages to pack a bigger hard drive and a new TV-out port without increasing its 5.3-pound weight. But it still lacks some standard features, such as a modular bay, found in rivals like the IBM ThinkPad T23 and the Acer TravelMate 600 series. *—Carla Thornton*

DELL'S NEW business laptop, the Latitude C610, is a revamp of last year's C600.

COMPUTER SCREEN GRAPHICS: JOHN GODDARD

TEST Center

TOP 15 HOME PCs

	POWER SYSTEM	Issue tested	Overall rating	Street price (1/14/02)	PC WorldBench 4 performance score [1] (Faster)	Comments
1	Best Buy Dell Dimension 8200 find.pcworld.com/19883	NEW	94	Average $2857	Windows XP Home: Good 113	Top-notch entertainment PC has crisp, powerful sound. Its monitor was stunning on DVD movies and games, but text looked fuzzy. ★★★★☆
2	ABS Performance Ti 500 find.pcworld.com/17321	Feb 02	89	Very inexpensive $1679	Windows XP Home: Very good 117	Loaded system in a towering black case delivers speed, smooth game play, and powerful sound at a bargain price. (★★★★☆ Feb 02)
3	Gateway 700XL find.pcworld.com/20681	NEW	88	Expensive $2999	Windows XP Home: Very good 118	System comes well stocked for video or image editing. The sound system is powerful, and the LCD monitor is sharp. ★★★★☆
4	Compaq Presario 8000Z find.pcworld.com/19221	Mar 02	84	Average $2451	Windows XP Home: Very good 116	Well-equipped system drops $109 this month. Comes with everything you need to edit and burn home movies on DVD. (★★★½☆ Mar 02)
5	Falcon Northwest Mach V Athlon 2000 find.pcworld.com/19222	Mar 02	84	Very expensive $4656	Windows XP Home: Outstanding 126	If you have the cash, you'll be hard-pressed to find a better entertainment system than this Mach V. (★★★★½ Mar 02)
6	Polywell Poly 880XP-1800 find.pcworld.com/19224	Mar 02	82	Average $2650	Windows XP Home: Very good 119	This system delivers great performance. It has a large, good-looking LCD monitor and crisp-sounding speakers. (★★★½☆ Mar 02)
7	Sony VAIO PCV-MXS10 find.pcworld.com/19225	Mar 02	70	Expensive $3399	Windows XP Home: Poor 93	This PC offers a wide variety of features for multimedia enthusiasts, but its performance is slow. (★★★★☆ Mar 02)
	VALUE SYSTEM	**Percent of overall rating ▶**		10 percent	25 percent	
1	Best Buy NuTrend Athlon Mega 3 find.pcworld.com/15112	Dec 01	95	Average $1339	Windows XP Home: Outstanding 111	Our speedy value champ includes a great-looking LCD monitor, a printer, and extensive documentation. (★★★½☆ Dec 01)
2	Polywell Poly 880NF find.pcworld.com/19901	NEW	95	Average $1399	Windows XP Home: Outstanding 115	Fastest value system even speeds past some power contenders. Comes with an LCD monitor, as well. ★★★½☆
3	Dell Dimension 4400 find.pcworld.com/19882	NEW	90	Average $1488	Windows XP Home: Good 97	The successor to Dell's 4300 adds DDR RAM for a slight speed boost. Images on its 17-inch monitor looked faded. ★★★½☆
4	NuTrend Intrepid SE find.pcworld.com/17301	Feb 02	89	Inexpensive $1099	Windows XP Home: Very good 103	A low-cost but high-performance value PC with nice extra features. Monitor quality is unimpressive, however. (★★★½☆ Feb 02)
5	Gateway 500XL find.pcworld.com/19884	NEW	83	Expensive $1649	Windows XP Home: Very good 100	While a bit pricey for a value system, this Gateway came nicely packaged with an easy-access case and an LCD monitor. ★★★½☆
6	Polywell Poly 1000DU find.pcworld.com/15114	Dec 01	74	Average $1325	Windows XP Home: Good 93	System squeezes impressive performance from a low-cost processor and includes a variety of extras. (★★★☆☆ Dec 01)
7	Dell Dimension 2100 find.pcworld.com/15104	Dec 01	74	Very inexpensive $798	Windows XP Home: Average 79	Though this well-built, low-cost PC is fine for basic computing, it remains the slowest performer on the chart. (★★★☆☆ Dec 01)
8	Gateway Profile 3CX find.pcworld.com/19223	Mar 02	64	Expensive $1699	Windows XP Home: Good 94	Space-saving all-in-one design includes a good monitor, but the unit is pricey and offers little room for expansion. (★★★☆☆ Mar 02)
		Percent of overall rating ▶		20 percent	20 percent	

Go to find.pcworld.com/10860 for details on *PC World*'s Star Ratings.

[1] Performance word scores reflect comparisons of PCs in the same category (power or value) running the same operating system. For more details, see "Your Guide to the Top 100" on page 119.

[2] In gigabytes.

[3] Vertical cases are towers (over 20 inches), midsize towers (15.5 to 20 inches), or minitowers (under 15.5 inches). Horizontal cases are desktops (5 inches or taller) or compacts (under 5 inches). All-in-one PCs integrate a system and a monitor.

NEW DELL AND GATEWAY systems do well on this month's power chart. With a PC WorldBench 4 score of 113, the Dell Dimension 8200 is slower than most other ranked power systems. But it won the Best Buy award anyway, thanks in part to its rich entertainment offerings—a ground-shaking sound system and some of the best game play and DVD movie playback we've seen. Meanwhile, Gateway's 700XL, scoring 118 on PC WorldBench 4, held its own with all but the fastest Athlon-based systems.

Dell and Gateway newcomers make a weaker showing on the value chart. Dell's Dimension 4400 takes third place behind our long-reigning champ, the NuTrend Athlon Mega 3, and Polywell's quick, new Poly 880NF. Two spots down, Gateway's well-appointed 500XL takes fifth place.

The Falcon Northwest Mach V's price looks $561 higher this month, but Falcon gave us the wrong figure for our March

PHOTOGRAPH: RICK RIZNER

Visit find.pcworld.com/20701 for reviews of all products tested this month and ranked in this chart.

BASE CONFIGURATION						Extra features	Graphics/ sound quality	Setup and ease of use	Vendor's reliability/ service
CPU	RAM (MB/type)	Hard drive [2]	Monitor (inches)	Graphics	Case type [3]				
2.2-GHz Pentium 4	256/ RDRAM	80	19	64MB GeForce3 Ti 500	Midsize tower	**Average:** 16X DVD-ROM drive, 24X/10X/40X CD-RW drive, V.90 modem, network adapter, Microsoft Works Suite 2002	Very good/ Outstanding	Very good	Outstanding/ Good
1.53-GHz Athlon XP 1800+	256/ DDR SDRAM	60	19	64MB Leadtek WinFast Ti 500 TD	Tower	**Good:** 16X DVD-ROM drive, 24X/10X/40X CD-RW drive, V.90 modem, network adapter, Corel WordPerfect Office 2002, Roxio Easy CD Creator 5	Very good/ Outstanding	Good	*/* [4]
2.2-GHz Pentium 4	512/ RDRAM	120	15 (LCD)	64MB ATI Radeon 8500	Midsize tower	**Outstanding:** DVD-RAM/R drive,[5] 24X/10X/40X CD-RW drive, V.92 modem, network adapter, two USB 2.0 ports, Office XP Small Business Edition	Very good/ Good	Very good	Fair/Fair
1.53-GHz Athlon XP 1800+	512/ DDR SDRAM	120	19	64MB GeForce3 Ti 500	Midsize tower	**Average:** DVD-RW drive,[5] 24X-48X CD-ROM drive, V.90 modem, network adapter, Microsoft Works 6.0 and Money 2000 Standard	Very good/ Outstanding	Very good	Fair/Poor
1.66-GHz Athlon XP 2000+	1024/ DDR SDRAM	80 [6]	22	64MB VisionTek Xtasy 6964	Midsize tower	**Average:** 16X DVD-ROM drive, 24X/10X/40X CD-RW drive, network adapter; Deus Ex, Giants (games)	Very good/ Outstanding	Very good	*/* [4]
1.53-GHz Athlon XP 1800+	256/ DDR SDRAM	80 [6]	18 (LCD)	64MB Leadtek WinFast GeForce 3 Ti 500	Midsize tower	**Average:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, V.90 modem, network adapter; Deus Ex, Giants, Sacrifice (games)	Very good/ Very good	Very good	*/* [4]
1.7-GHz Pentium 4	512/ SDRAM	80	15 (LCD)	32MB GeForce2 MX	Minitower	**Outstanding:** DVD-RW drive,[5] V.90 modem, network adapter, MiniDisc drive, Adobe Photoshop Elements and Premiere LE, Corel WordPerfect 2002	Good/ Good	Very good	Good/* [4]
10 percent						10 percent	15 percent	5 percent	25 percent
1.33-GHz Athlon	256/ DDR SDRAM	40	15 (LCD)	64MB Leadtek WinFast GeForce2	Midsize tower	**Outstanding:** 16X DVD-ROM drive, 24X/10X/40X CD-RW drive, V.92 modem, network adapter, Epson Stylus C60 color printer, WordPerfect Office 2000	Good/ Good	Average	*/* [4]
1.4-GHz Athlon XP 1600+	256/ DDR SDRAM	80	15 (LCD)	32MB integrated GeForce2 MX	Midsize tower	**Very good:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, V.90 modem, network adapter	Good/ Poor	Good	*/* [4]
1.7-GHz Pentium 4	256/ DDR SDRAM	40	17	64MB GeForce3 Ti 200	Midsize tower	**Very good:** 16X DVD-ROM drive, 24X/10X/40X CD-RW drive, V.90 modem, network adapter, Microsoft Works Suite 2002	Good/ Average	Very good	Outstanding/ Good
1.7-GHz Pentium 4	256/ DDR SDRAM	40	17	32MB VisionTek Xtasy 5332	Midsize tower	**Very good:** 16X DVD-ROM drive, 24X/10X/40X CD-RW drive, V.92 modem, network adapter, Corel WordPerfect Office 2002	Good/ Very good	Good	*/* [4]
1.8-GHz Pentium 4	256/ DDR SDRAM	40	15 (LCD)	64MB GeForce2 MX400	Minitower	**Very good:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, V.92 modem, network adapter, Microsoft Works Suite 2002	Very good/ Average	Very good	Fair/Fair
1-GHz Duron	128/ DDR SDRAM	40	19	32MB Matrox Millennium G450	Midsize tower	**Very good:** 16X DVD-ROM drive, 16X/10X/40X CD-RW drive, V.90 modem, network adapter, Lexmark Z53 Color Jetprinter, Logitech Webcam	Good/ Very good	Average	*/* [4]
1.1-GHz Celeron	128/ SDRAM	20	17	Integrated Intel 810	Minitower	**Limited:** 24X-48X CD-ROM drive, V.92 modem, Microsoft Works Suite 2002	Average/ Average	Good	Outstanding/ Good
1.2-GHz Pentium III	128/ SDRAM	40	15 (LCD)	Integrated Intel 810	All-in-one	**Good:** 16X/10X/40X CD-RW drive, V.90 modem, network adapter, Microsoft Works Suite 2002	Limited/ Limited	Very good	Fair/ Fair
10 percent						10 percent	10 percent	5 percent	25 percent

[4] Insufficient data to give a rating.
[5] DVD-RW and DVD+RW drives can handle CD-RW functions; DVD-RAM/R drives cannot.
[6] Two 40GB hard drives with RAID.

COMPUTER SCREEN GRAPHICS: JOHN GODDARD

issue. The company says it will honor the originally quoted price of $4095 for anyone who mentions seeing it in *PC World*.

FAREWELL, SDRAM?

THE DELL DIMENSION 4400 and the Gateway 500XL use Intel's revised 845 chip set to unite a Pentium 4 processor with low-cost, high-performance DDR SDRAM memory. Going forward, we expect DDR to continue to gain ground on older PC133 SDRAM. For instance, the Dell Dimension 4300 and the HP Pavilion 7966 dropped off the value chart this month because Dell and HP are replacing them with Pentium 4 models using DDR. PC133 remains a bit cheaper, however, and it will still be found on bargain-priced P4 systems, as well as on PCs with Celeron or Pentium III processors.

THE ENTERTAINER: Dell's Dimension 8200 will please game, movie, and music fans.

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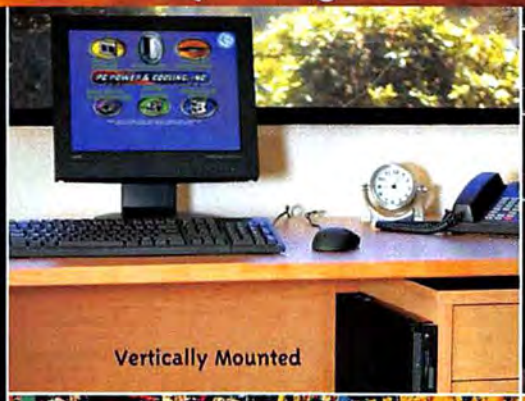

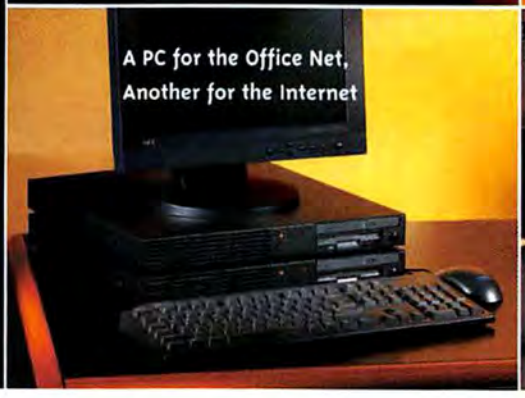

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TOP 10 SCANNERS

Visit find.pcworld.com/22361 for reviews of all products tested this month and ranked in this chart.

COMPAQ'S NEW S200 has 24-hour daily phone support for the first 90 days, and a $100 price. It earns third place on the chart, while new models from Benq (formerly Acer peripherals) and Visioneer miss out. Despite the Benq 7400UT's 2400-by-4800-dpi resolution, its high price and poor scan quality keep it off the chart. Visioneer's corporate 9650 USB has a built-in 25-page automatic document feeder, but its low resolution (600 by 1200 dpi) dragged down its rating. ▶

	SOHO SCANNER	Street price (1/20/02)	Overall rating	Scan quality	Scan speed (sec per page)		Comments
					Black-and-white	Color [1]	
1	Best BUY Microtek ScanMaker 4800 find.pcworld.com/18981	$100	90	Good	41 @ 300 dpi	249 @ 1200 dpi	**FEATURES:** USB, 1200 by 2400 dpi, 11.3-by-17.1-by-3.1-inch case,[2] 6 pounds, 8.5-by-11.7-inch scanning area; includes transparency adapter; no automatic document feeder. **SUMMARY:** Great price for a high-resolution scanner, but tech support is free for only 90 days. (★★★☆☆ Feb 02)
2	Canon CanoScan N1240U find.pcworld.com/13141	$149	89	Good	40 @ 300 dpi	303 @ 1200 dpi	**FEATURES:** USB, 1200 by 2400 dpi, 10.1-by-15.1-by-1.3-inch case,[2] 3.3 pounds, 8.5-by-11.7-inch scanning area; no optional transparency adapter or ADF. **SUMMARY:** Compact unit offers glorious color and ample software, but it isn't as speedy as many other USB scanners. (★★★☆☆ Nov 01)
3	Compaq S200 NEW find.pcworld.com/20601	$100	89	Good	33 @ 300 dpi	257 @ 1200 dpi	**FEATURES:** USB, 1200 by 2400 dpi, 11.6-by-18.2-by-3.2-inch case,[2] 5.5 pounds, 8.5-by-11.7-inch scanning area; no optional transparency adapter or ADF. **SUMMARY:** Low-priced unit features high resolution, but image quality could be sharper and free phone support ends after 90 days. ★★★☆☆
4	Visioneer OneTouch 8920 find.pcworld.com/16180	$150	89	Good	23 @ 300 dpi	429 @ 1200 dpi	**FEATURES:** USB, 1200 by 4800 dpi, 16.7-by-11.7-by-4.5-inch case,[2] 7.2 pounds, 8.5-by-11.7-inch scanning area; includes transparency adapter; no optional ADF. **SUMMARY:** This scanner has 48-bit color and high resolution but is the slowest SOHO model here for color scans. (★★★★☆ Jan 02)
5	Epson Perfection 1650 Photo find.pcworld.com/15842	$249	88	Good	18 @ 300 dpi	417 @ 1600 dpi	**FEATURES:** USB, 1600 by 3200 dpi, 10.9-by-17.7-by-4.6-inch case,[2] 6.8 pounds, 8.5-by-11.7-inch scanning area; includes transparency adapter; no optional ADF. **SUMMARY:** High-resolution scanner makes zippy black-and-white scans—but it doesn't come cheap. (★★★★☆ Dec 01)
6	Microtek ScanMaker 5700 find.pcworld.com/15844	$380	88	Good	29 @ 300 dpi	88 @ 1200 dpi	**FEATURES:** USB and IEEE 1394,[3] 1200 by 2400 dpi, 11.4-by-19.7-by-4.5-inch case,[2] 10.4 pounds, 8.5-by-11.7-inch scanning area; built-in transparency adapter; ADF optional. **SUMMARY:** The only IEEE 1394 model on the SOHO chart offers speed and strong image quality, but at a hefty price.
7	Canon CanoScan N670U find.pcworld.com/15841	$99	88	Good	39 @ 300 dpi	93 @ 600 dpi	**FEATURES:** USB, 600 by 1200 dpi, 10.1-by-15.1-by-1.4-inch case,[2] 3.3 pounds, 8.5-by-11.7-inch scanning area; no optional transparency adapter or ADF. **SUMMARY:** Slim unit has ample software, but bargain price is offset by mediocre performance and low resolution. (★★★☆☆ Dec 01)
	CORPORATE SCANNER						
1	Best BUY HP Scanjet 7450c find.pcworld.com/10423	$760 [4]	95	Good	17 @ 300 dpi	687 @ 2400 dpi	**FEATURES:** USB and SCSI,[5] 2400 by 2400 dpi, 12.3-by-22.6-by-7.3-inch case,[2] 13.8 pounds, 8.5-by-14-inch scanning area; includes transparency adapter and ADF. **SUMMARY:** High-resolution $700 unit handles legal-size documents and transparencies; it blazed through our text speed tests.
2	Epson Perfection 2450 Photo find.pcworld.com/16181	$399	95	Excellent	18 @ 300 dpi	983 @ 2400 dpi	**FEATURES:** USB and IEEE 1394,[6] 2400 by 4800 dpi, 11.9-by-18.7-by-4.8-inch case,[2] 12.8 pounds, 8.5-by-11.7-inch scanning area; includes transparency adapter; no optional ADF. **SUMMARY:** Dual-format unit with ultrahigh resolution and a great price, but slow on color. (★★★★☆ Jan 02)
3	Microtek ScanMaker 8700 Pro Design find.pcworld.com/15843	$1100	94	Excellent	29 @ 300 dpi	83 @ 1200 dpi	**FEATURES:** USB and IEEE 1394,[3] 1200 by 2400 dpi, 22.3-by-15.3-by-6.3-inch case,[2] 25.5 pounds, 8.5-by-14-inch scanning area; built-in transparency adapter; ADF optional. **SUMMARY:** Powerful imaging software, great scan quality, and blazing performance. (★★★★☆ Dec 01)

HOW WE TEST: All scanners are tested at default settings under Windows 98 on a Gateway GP7-550 (550-MHz Pentium III) PC with 128MB of RAM, using each scanner's bundled software. Overall rating is based on image quality (25 percent), speed (SOHO 22 percent; corporate 25 percent), ease of use (SOHO 17 percent; corporate 10 percent), features (SOHO 16 percent; corporate 20 percent), support (10 percent), and price (10 percent). Speeds are timed from start of scanning until cursor control is regained. Data based on tests designed by the PC World Test Center. Visit find.pcworld.com/10860 for details on *PC World*'s Star Ratings. [1] At unit's maximum optical resolution. [2] In order: width, depth, height. [3] Tested with IEEE 1394 interface. [4] Priced with SCSI adapter. [5] Tested with SCSI interface. [6] Tested with USB interface.

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TOP 10 PRINTERS

Visit find.pcworld.com/22381 for reviews of all products tested this month and ranked in this chart.

THREE NEW COLOR LASER PRINTERS make the chart this month, but they can't unseat the reigning Best Buys from Oki Data and Lexmark. Lexmark's new, eighth-place C910n can print tabloid-size documents and has automatic color correction and impressive paper-handling capabilities, along with a hefty price. We also tested the Minolta-QMS Magicolor 2210 GN and the Brother HL-2600CN this month; both are priced within the reach of a midsize office at $1999. Meanwhile, the price of the tenth-place Minolta-QMS Magicolor 6110 GN drops by a substantial $705.

	COLOR LASER PRINTER	Street price [1] (1/15/02)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/ graphics	Comments
1	Best BUY Oki Data Oki C7200n find.pcworld.com/14942	$2210	87	11.9/2.3	Excellent/ Good	**FEATURES:** Rated 20 ppm monochrome/12 ppm color. Standard 64MB of RAM, 1200-by-600-dpi maximum resolution, 530 sheets input, 500 output. **SUMMARY:** This LED model ranks among the faster printers on the chart, especially for graphics. Text quality is impressive too, with thick, dark letters, though colors appear too bright. Price has dropped $42 since December 2001.
2	Best BUY Lexmark C720n find.pcworld.com/14941	$2469	87	12.0/2.0	Excellent/ Excellent	**FEATURES:** Rated 24 ppm monochrome/6 ppm color. Standard 64MB of RAM, 2400-by-1200-dpi maximum resolution, 250 sheets input and output. **SUMMARY:** Lexmark's speedy color laser creates beautiful images. Text appears sharp and fine, and color graphics show rich colors, shading, and detail. The price is reasonable, but this model lacks the paper-handling features of other color lasers.
3	Minolta-QMS Magicolor 2200 DeskLaser find.pcworld.com/21661	$999	84	6.4/0.7	Excellent/ Good	**FEATURES:** Rated 20 ppm monochrome/5 ppm color. Standard 32MB of RAM, 1200-by-600-dpi maximum resolution, 650 sheets input, 500 output. **SUMMARY:** The Magicolor 2200 DeskLaser is the lowest-cost color laser printer we've seen. Its print speeds are the slowest among our current batch, but black text is perfectly crisp, like that of its discontinued cousin, the 2200 GN.
4	Tektronix Phaser 750N by Xerox find.pcworld.com/14946	$1999	80	7.3/1.4	Good/ Very good	**FEATURES:** Rated 16 ppm monochrome/5 ppm color. Standard 64MB of RAM, 1200-by-600-dpi maximum resolution, 350 sheets input, 500 output. **SUMMARY:** The Phaser 750N offers pedestrian print speeds for text and graphics, but it delivers pleasing color images. Benefits include a user-friendly control panel and a comprehensive on-screen manual.
5	Minolta-QMS Magicolor 2210 GN NEW find.pcworld.com/20541	$1999	80	10.0/1.3	Excellent/ Good	**FEATURES:** Rated 20 ppm monochrome/5 ppm color. Standard 128MB of RAM, 1200-by-1200-dpi maximum resolution, 650 sheets input, 500 output. **SUMMARY:** A good choice for small offices, the Magicolor 2210 GN has many upgrade options, but no USB connection. Text prints are crisp and have no jaggedness, but color graphics appear washed out and fuzzy. ★★★★☆
6	Brother HL-2600CN NEW find.pcworld.com/20542	$1999	79	12.1/1.8	Very good/ Adequate	**FEATURES:** Rated 24 ppm monochrome/6 ppm color. Standard 64MB of RAM, 2400-by-600-dpi maximum resolution, 250 sheets input and output. **SUMMARY:** The HL-2600CN is easy to install and quite affordable for a color laser printer, but add-on options will cost you. Its speedy text printing counterbalances the merely adequate graphics quality. ★★★½☆
7	Oki Data Oki C9200n find.pcworld.com/14947	$5186	79	12.8/2.5	Excellent/ Very good	**FEATURES:** Rated 26 ppm monochrome/21 ppm color. Standard 128MB of RAM, 1200-by-600-dpi maximum resolution, 650 sheets input, 600 output. **SUMMARY:** Pricey unit prints both text and graphics extremely quickly, on sheets as large as 12 by 18 inches. Text looks sharp, and narrow lines appear distinct; color images, though detailed, look too orange.
8	Lexmark C910n NEW find.pcworld.com/20822	$4849	78	12.8/3.0	Very good/ Good	**FEATURES:** Rated 28 ppm monochrome/28 ppm color. Standard 64MB of RAM, 600-by-600-dpi maximum resolution, 1200 sheets input, 1650 output. **SUMMARY:** This high-speed printer with high-volume capabilities turned in the fastest graphics speed on the chart and tied for fastest text speed. Gray-scale graphics images have good range and black text is solid. User manuals are online only. ★★★★☆
9	Xerox Phaser 860N find.pcworld.com/14948	$2399	78	7.2/2.8	Very good/ Good	**FEATURES:** Rated 10 ppm monochrome/10 ppm color. Standard 64MB of RAM, 464-by-928-dpi maximum resolution, 200 sheets input, 250 output. **SUMMARY:** Xerox's solid-ink printer uses heated wax instead of a laser and toner. Graphics speed is the second fastest here, and images appear detailed, if somewhat filmy. Letters are dark, with a hint of jaggedness.
10	Minolta-QMS Magicolor 6110 GN find.pcworld.com/14980	$3794	78	9.5/0.9	Excellent/ Very good	**FEATURES:** Rated 24 ppm monochrome/12 ppm color. Standard 256MB of RAM, 1200-by-1200-dpi maximum resolution, 250 sheets input and output. **SUMMARY:** Intended for graphics professionals, this unit can print tabloid-size formats and creates fabulous text, color, and gray-scale images. Despite its sizable memory, this model's print speed lags a little. Price drops $705. (★★★½☆ Dec 01)

HOW WE TEST: The overall rating for color laser printers is based on print quality (25 percent), price (25 percent), features (15 percent), ease of use (15 percent), speed (10 percent), and service and support (10 percent). For all ratings, higher is better. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings. [1] All street prices include a network card.

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TOP 10 MONITORS

Visit find.pcworld.com/21764 for reviews of all products tested this month and ranked in this chart.

IBM'S NEW 17-INCH professional display, the P77, steals the limelight this month, snagging the top spot on the chart and a Best Buy. Its crisp, dark text and brilliant colors make it ideal for just about any task. Two other new models also climb aboard: NEC-Mitsubishi's MultiSync FE700+ lands in third place with fine text and lovely graphics. The MultiSync's low price makes it especially appealing. Dell's M782 finishes at number five, with solid image quality and a moderate price. An ADI display and another NEC-Mitsubishi model fell short. Next month we'll look at 19-inch CRT displays. ▶

	17-INCH MONITOR	Street price (1/11/02)	Overall rating	Quality of text/ graphics	Comments
1	Best BUY IBM P77 NEW find.pcworld.com/21761	$345	91	Excellent/ Excellent	**FEATURES:** 16-inch viewable area, .24mm–.25mm [1] FD Trinitron aperture grille tube,[2] up to 85-Hz refresh rate,[3] up to 1600 by 1200 resolution at 70 Hz, TCO'95 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Pricey professional model outshines its competitors with clear, detailed text and rich, lifelike colors. Controls are comprehensive but can be confusing. ★★★★☆
2	Best BUY Samsung SyncMaster 700NF find.pcworld.com/10571	$239	90	Very good/ Very good	**FEATURES:** 15.9-inch viewable area, .25mm [1] Diamondtron NF aperture grille tube, up to 119-Hz refresh rate,[3] up to 1600 by 1200 resolution at 70 Hz, TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Renders sharp text and beautiful color graphics. A nifty retracting panel on the front bezel holds easy-to-use on-screen controls. (★★★★½ Sept 01)
3	NEC-Mitsubishi MultiSync FE700+ NEW find.pcworld.com/21762	$209	89	Very good/ Excellent	**FEATURES:** 15.9-inch viewable area, .25mm [1] Diamondtron NF aperture grille tube, up to 87-Hz refresh rate,[3] up to 1024 by 768 resolution at 70 Hz, TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Crisp text and bright colors make this inexpensive newcomer suitable for all purposes. On-screen controls require a lot of button pressing. ★★★★☆
4	ViewSonic G75f find.pcworld.com/13380	$205	88	Very good/ Good	**FEATURES:** 16-inch viewable area, .25mm [1] Perfect Flat shadow mask tube, up to 105-Hz refresh rate,[3] up to 1600 by 1200 resolution at 70 Hz, TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Text is clearly readable and colors appear well saturated. On-screen controls are well organized, but button combinations take a while to figure out. Drops $64 in price. (★★★★☆ Nov 01)
5	Dell M782 NEW find.pcworld.com/21763	$229	87	Very good/ Good	**FEATURES:** 15.9-inch viewable area, .25mm [1] shadow mask tube, up to 75-Hz refresh rate,[3] up to 1280 by 1024 resolution at 70 Hz, TCO'95 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Displays clear, dark text and bright colors; appropriate for general home or business use. Help button in on-screen controls provides useful tips. Has a stylish black case with silver buttons. ★★★☆☆
6	Iiyama Vision Master Pro 413 find.pcworld.com/13260	$250	87	Very good/ Very good	**FEATURES:** 15.9-inch viewable area, .25mm [1] Diamondtron NF aperture grille tube, up to 115-Hz refresh rate,[3] up to 1600 by 1200 resolution at 70 Hz, TCO'99 compliant, three-year warranty, 12-hour weekday toll-free support. **SUMMARY:** Produces bright, vibrant graphics. Controls are woefully confusing. Dual, switchable inputs allow you to share the monitor. Price falls $49. (★★★★☆ Nov 01)
7	Compaq P720 find.pcworld.com/16267	$329	87	Excellent/ Very good	**FEATURES:** 16.2-inch viewable area, .25mm [1] Diamondtron NF aperture grille tube, up to 118-Hz refresh rate,[3] up to 1600 by 1200 resolution at 70 Hz, TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** This sleek black-and-silver monitor has eight navigation and shortcut buttons. Image quality looks great all around, with sharp text and realistic colors. (★★★★☆ Jan 02)
8	Sony CPD-G220S find.pcworld.com/10572	$330	84	Very good/ Very good	**FEATURES:** 15.9-inch viewable area, .24mm–.25mm [1] FD Trinitron aperture grille tube,[2] up to 85-Hz refresh rate,[3] up to 1600 by 1200 resolution at 70 Hz, TCO'99 compliant, three-year warranty, 24-hour daily toll-free support. **SUMMARY:** Impressive image quality at a relatively high price. While the controls are a bit confusing, the manual explains them and includes a thorough troubleshooting section. (★★★★☆ Sept 01)
9	KDS XF-7i find.pcworld.com/16266	$159	83	Good/ Satisfactory	**FEATURES:** 16-inch viewable area, .25mm [1] shadow mask tube, up to 85-Hz refresh rate,[3] up to 1280 by 1024 resolution at 70 Hz, three-year warranty, 11-hour weekday toll-free support. **SUMMARY:** Still boasts the lowest price on the chart. Text and graphics look generally detailed, though not outstanding. On-screen menus and documentation cover the basics. (★★★☆☆ Jan 02)
10	Eizo Nanao FlexScan T565 find.pcworld.com/10576	$415	82	Good/ Very good	**FEATURES:** 15.8-inch viewable area, .25mm [1] FD Trinitron aperture grille tube,[2] up to 118-Hz refresh rate,[3] up to 1600 by 1200 resolution at 70 Hz, TCO'99 compliant, three-year warranty, 8-hour weekday toll-free support. **SUMMARY:** Colors in photos and Web pages look lovely, and text is sharp. But far less expensive models perform even better, and tech support hours are minimal. Includes a USB hub. (★★★★☆ Sept 01)

HOW WE TEST: Twelve judges rate a monitor's text and graphics quality. We evaluate each unit on how well it displays typical business letters, spreadsheets, Web pages, and scanned photos. 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 the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings.
[1] Specification represents diagonal dot pitch for shadow mask monitors and stripe pitch or varying stripe pitch for aperture grille monitors. [2] Uses an aperture grille tube in which parallel wires near the sides of the screen are strung farther apart than those at the middle. [3] Maximum refresh rate at 1024 by 768 resolution (the tested resolution for this size monitor).

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TOP 100 TEST Center

TOP 10 CD-RW DRIVES

Visit find.pcworld.com/22101 for reviews of all products tested this month and ranked in this chart.

THIS MONTH, we took Lite-On's LTR-32123S 32X/12X/40X drive for a spin. It's the fastest drive we've tested to date, but it earns only second place because it lacks the better documentation and tech support hours of the first-place unit. That model, TDK's 24/10/40 VeloCD ReWriter, takes over the top spot from the discontinued Philips PCRW2010. TDK has replaced the VeloCD ReWriter's old Sanyo drive mechanism with a Lite-On one. Another newcomer in April, the number nine Sony CRX175M ($195), is virtually identical to the number five Sony CRX175A except for its Memory Stick slot.

	CD-RW DRIVE	Street price (1/16/02)	Overall rating	Performance/ support policies	CD-R write speed for 650MB/ CD-RW write speed for 100MB (min:sec)	Comments
1	Best Buy TDK 24/10/40 VeloCD ReWriter find.pcworld.com/21801	$145	88	Very good/ Outstanding	4:09/1:18	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 2MB buffer, buffer underrun protection, Ahead Nero Burning ROM 5.5 and InCD 2.31, one-year warranty, 10.5-hour daily toll-free support. **SUMMARY:** Essentially the same drive as last month's number two model, but TDK has replaced its Sanyo drive mechanism with a Lite-On one. (★★★★☆ Oct 01)
2	Best Buy Lite-On LTR-32123S NEW find.pcworld.com/21802	$150	82	Outstanding/ Average	3:43/1:06	**FEATURES:** 32X/12X/40X,[1] IDE, internal, 2MB buffer, buffer underrun protection, Ahead Nero Burning ROM 5.5 and InCD 3.12, one-year warranty, 9-hour weekday support (calls are not toll-free). **SUMMARY:** The first 32X drive we've tested has the fastest speed scores on the chart. Lackluster documentation and stingy tech support hours. ★★★★☆
3	I/O Magic MagicWriter DR-CDRW2440 find.pcworld.com/19441	$120	81	Very good/ Average	4:11/1:19	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 2MB buffer, buffer underrun protection, Ahead Nero Burning ROM 5.5 and InCD 2.26, one-year warranty, 9-hour weekday toll support (calls are not toll-free). **SUMMARY:** A $30 price drop boosts this drive six spots higher on the chart than last month. Fast, with easy installation. (★★★☆☆ Mar 02)
4	QPS Que Internal 24x10x40x CD-RW find.pcworld.com/14040	$135	81	Very good/ Average	4:12/1:20	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 2MB buffer, buffer underrun protection, Ahead Nero Burning ROM 5.5 and InCD 2.23, one-year warranty, 11.5-hour weekday support (calls are not toll-free). **SUMMARY:** Commendable CD-R and CD-RW performance and a competitive price keep this model high on the chart. (★★★☆☆ Dec 01)
5	Sony CRX175A find.pcworld.com/18221	$150	79	Very good/ Very good	4:07/1:18	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 2MB buffer, buffer underrun protection, BHA B's Recorder Gold 3.01 and B's Clip 2.29, one-year warranty, 12-hour weekday and Saturday toll-free support. **SUMMARY:** Its $150 price holds this model down, but the solid CD-R/RW write performance and top-notch software won't disappoint. (★★★★☆ Feb 02)
6	Yamaha CRW3200 LightSpeed3 find.pcworld.com/19461	$185	79	Very good/ Good	4:09/1:16	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 8MB buffer, buffer underrun protection, Ahead Nero Burning ROM 5.5 and InCD 2.31, one-year warranty, 8.5-hour weekday toll-free support. **SUMMARY:** High price knocks this speedy drive down the chart. Its excellent software bundle includes Adobe Photo Deluxe 4.0 and Adobe ActiveShare. (★★★★☆ Mar 02)
7	Teac CD-W524E find.pcworld.com/18182	$130	78	Good/ Average	4:30/1:33	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 2MB buffer, buffer underrun protection, Roxio EasyCD Creator 5.1 and DirectCD 5.1, one-year warranty, 9-hour weekday support (calls are not toll-free). **SUMMARY:** Though this drive is a little sluggish compared with other 24X offerings, Teac includes an above-average software bundle. (★★★★☆ Feb 02)
8	Yamaha CRW2200EZ LightSpeed find.pcworld.com/20483	$165	77	Very good/ Good	4:49/1:16	**FEATURES:** 20X/10X/40X,[1] IDE, internal, 8MB buffer, buffer underrun protection, Ahead Nero Burning ROM 5.5 and InCD 2.11, one-year warranty, 8.5-hour weekday toll-free support. **SUMMARY:** This model has the slowest CD-R performance on the chart, but it comes with a terrific software bundle. (★★★★½ Oct 01)
9	Sony CRX175M NEW find.pcworld.com/21803	$195	77	Very good/ Very good	4:06/1:18	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 2MB buffer, buffer underrun protection, BHA B's Recorder Gold 3.01 and B's Clip 2.29, one-year warranty, 12-hour weekday and Saturday toll-free support. **SUMMARY:** Configured very similarly to Sony's fifth-place unit, this is the first CD-RW drive we've tested that has a Memory Stick slot. ★★★★☆
10	Plextor PlexWriter 24/10/40A find.pcworld.com/14023	$160	75	Good/ Good	4:39/1:39	**FEATURES:** 24X/10X/40X,[1] IDE, internal, 4MB buffer, buffer underrun protection, Adaptec EasyCD Creator 5.01 and DirectCD 5.01, one-year warranty, 10-hour weekday toll-free support. **SUMMARY:** Not as fast as other drives in the same speed class; however, the device's drivers make it easy to create music CDs. (★★★☆☆ Dec 01)

HOW WE TEST: To gauge CD-ROM read performance, we time how long the drive takes to install Microsoft Office 2000 SBE (disc one). To determine CD-R write performance, we burn data to CD-R discs from an image file and on the fly. We evaluate digital audio extraction speed by extracting 320MB of musical tracks from an audio CD to our hard drive. We measure CD-RW performance by copying 100MB of files to a CD-RW disc, then rewriting the same data to the same disc. Overall ratings are based on performance (35 percent), price (25 percent), features (20 percent), tech support policies (10 percent), and ease of installation (10 percent). See find.pcworld.com/10860 for details on *PC World*'s Star Ratings. [1] Vendor's speed ratings, listed in order: CD-R write/CD-RW write/CD-ROM read.

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TOP 10 DIGITAL CAMERAS

Visit find.pcworld.com/21621 for reviews of all products tested this month and ranked in this chart.

ONE NEW DIGITAL CAMERA makes the chart this month: Toshiba's $279 PDR-M25 hits number four. This simple point-and-shoot model produces fairly sharp images. Its shutter button, zoom, and other functions seemed slow to react, however. The Kodak DX3700 just missed the chart. Its battery life was the longest we've seen, but it took dark and off-color photos. Also falling short, Konica's tiny KD-300Z fits anywhere, but its battery lasted a mere 90 shots in our tests. Canon discontinued several of its cameras this month to make way for new models; watch for future reviews.

	CAMERA: UNDER $500	Street price (1/16/02)	Overall rating	Image quality	Ease of use	Battery life/ shots	Comments
1	Best Buy Toshiba PDR-M71 find.pcworld.com/17961	$399	80	Good	Good	Very good/ 329	**FEATURES:** 3.1-megapixel CCD resolution, 8MB SmartMedia card, 35mm–98mm focal range;[1] USB and video output; 12.1 ounces. **SUMMARY:** The PDR-M71 offers long battery life and more versatility than most sub-$500 cameras, but it underexposed some of our test shots. Price drops by $100. (★★★½☆ Feb 02)
2	Best Buy Casio QV-2900UX find.pcworld.com/14807	$399	77	Adequate	Very good	Very good/ 366	**FEATURES:** 2.11-megapixel CCD resolution, 16MB CompactFlash media, 40mm–320mm focal range;[1] serial, USB, and video output; 14.1 ounces. **SUMMARY:** This model has a well-designed case with reprogrammable buttons, and its battery life is above average. Includes a serial port. (★★★½☆ Dec 01)
3	HP Photosmart 318 find.pcworld.com/14806	$199	77	Adequate	Very good	Very good/ 294	**FEATURES:** 2.31-megapixel CCD resolution, 8MB internal memory,[2] 38mm focal length;[1] USB output; 10.4 ounces. **SUMMARY:** The Photosmart 328 offers the barest point-and-shoot capabilities and takes somewhat blurry photos, but it remains the least-expensive camera on the chart. (★★½☆☆ Dec 01)
4	Toshiba PDR-M25 NEW find.pcworld.com/20862	$279	77	Good	Good	Adequate/ 220	**FEATURES:** 2.2-megapixel CCD resolution, 8MB SmartMedia card, 38mm–114mm focal range;[1] USB and video output; 12 ounces. **SUMMARY:** This inexpensive model has a sturdy body and is very simple to use, but it doesn't have many fancy controls to play with. It takes sharp photographs with accurate colors. ★★★☆☆
5	Olympus Camedia C-2040 Zoom find.pcworld.com/10584	$449	77	Very good	Good	Adequate/ 217	**FEATURES:** 2.11-megapixel CCD resolution, 8MB SmartMedia card, 40mm–120mm focal range;[1] USB and video output; 13.7 ounces. **SUMMARY:** The C-2040 XZoom is solidly designed and creates realistic photos, but it won't capture audio with its video recording, and its battery life is short. (★★★½☆ Dec 01)
6	Fujifilm FinePix 2600 Zoom find.pcworld.com/17965	$299	77	Adequate	Adequate	Good/ 286	**FEATURES:** 2.11-megapixel CCD resolution, 16MB SmartMedia card, 38mm–114mm focal range;[1] USB and video output; 9 ounces. **SUMMARY:** This simple point-and-shoot model is easy to use and comes with a large storage card, but its photos looked unimpressive in our tests. (★★★☆☆ Feb 02)
7	Nikon Coolpix 775 find.pcworld.com/17968	$399	76	Adequate	Good	Good/ 270	**FEATURES:** 2.14-megapixel CCD resolution, 8MB CompactFlash media, 38mm–115mm focal range;[1] USB and video output; 8.1 ounces. **SUMMARY:** With nine picture settings and video capability, the tiny Coolpix 775 adds a few extra features to a basic point-and-shoot camera. (★★★☆☆ Dec 01)
8	Casio QV-3500EX find.pcworld.com/17967	$499	75	Very good	Adequate	Very good/ 298	**FEATURES:** 3.34-megapixel CCD resolution, 16MB CompactFlash media, 33mm–100mm focal range;[1] serial, USB, and video output; 15.9 ounces. **SUMMARY:** The QV-3500EX is not easy to use, but it takes great photos. Its Best Shot feature lets you set the camera for the type of picture you want to take. (★★★½☆ Dec 01)
9	Kodak DX3900 Zoom find.pcworld.com/17962	$399	74	Good	Good	Excellent/ 389	**FEATURES:** 3.3-megapixel CCD resolution, 8MB CompactFlash media, 35mm–70mm focal range;[1] USB and video output; 9.6 ounces. **SUMMARY:** The DX3900 Zoom has the longest battery life of the Top 10 and can connect to an optional docking station for easy photo upload. (★★★☆☆ Feb 02)
10	Olympus Camedia D-510 Zoom find.pcworld.com/17969	$399	73	Adequate	Adequate	Very good/ 326	**FEATURES:** 2.11-megapixel CCD resolution, 8MB SmartMedia card, 35mm–105mm focal range;[1] USB and video output; 11.5 ounces. **SUMMARY:** The Camedia D-510 Zoom includes a 9X digital zoom, panorama capability, and other nice extras; but it's hard to use, and its image quality is mediocre. (★★½☆☆ Dec 01)

HOW WE TEST: Each camera's overall rating is based on price (15 percent), picture quality (30 percent), ease of use (15 percent), features (20 percent), battery life (10 percent), and support (10 percent). For all ratings, higher is better. To gauge picture quality, we take a series of shots, with and without flash, at 640 by 480 resolution and at the camera's highest resolution. We take pictures of a complex still life and of a mannequin to see how well each camera captures image details and subtle colorings such as skin tones. A panel of judges reviews the on-screen and printed photos and assigns image-quality scores; we then average those scores. Camera weights include batteries. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on *PC World*'s Star Ratings. [1] 35mm film equivalent. [2] Camera includes a media card slot.

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MORE REVIEWS

MISSED AN ISSUE OF *PC World* or passed your copy along to a friend? Here's a recap of other Top 100 topics from previous issues and from PCWorld.com. To read reviews of the products ranked on these charts, go online and type in the *PC World* Find-It URL at the top of each chart (for example, find.pcworld.com/21262 for items on the *Top 10 Graphics Boards for Gamers* chart). Next month's *Top 100* will include ink jet printers and digital cameras priced at $500 and over. ■

AT THE TOP of the heap is Maxtor's DiamondMax D540X, a 120GB hard drive that provides ample room for data and multimedia files.

SNAP AND GO: Canon's 4-megapixel PowerShot S40 offers outstanding image quality in a compact package.

GAMING BOARDS

find.pcworld.com/21262

	GRAPHICS BOARDS FOR GAMERS From PCWorld.com, January 2002
1	Best Buy ATI Radeon 8500 find.pcworld.com/17122
2	Best Buy Gainward CardExpert GeForce2 TwinView/ Vivo Golden Sample find.pcworld.com/11423
3	MSI MX400 Pro-VT32S find.pcworld.com/14540
4	Asus AGP-V7100 Pro Pure 32MB find.pcworld.com/13101
5	VisionTek Xtasy 6964 find.pcworld.com/21261
6	VisionTek Xtasy 6564 find.pcworld.com/17661
7	Gainward CardExpert GeForce2 Ti/500 XP Vivo Golden Sample find.pcworld.com/17721
8	MSI MX400 Pro-TC64S find.pcworld.com/11302
9	Asus AGP-V7100 Pro TV 64MB find.pcworld.com/16220
10	VisionTek Xtasy 5864 find.pcworld.com/17701

HARD DRIVES

find.pcworld.com/20201

		HARD DRIVES From the March 2002 issue
50GB AND OVER	1	Best Buy Maxtor DiamondMax D540X (120GB) find.pcworld.com/19521
	2	Western Digital Special Edition WD1000JB WD Caviar find.pcworld.com/19562
	3	Western Digital Caviar find.pcworld.com/19561
	4	Maxtor DiamondMax Plus D740X (80GB) find.pcworld.com/19501
	5	IBM Deskstar 120GXP find.pcworld.com/19564
	6	Maxtor DiamondMax D540X (160GB) find.pcworld.com/19503
	7	IBM Deskstar 60GXP find.pcworld.com/19565
UNDER 50GB	1	Best Buy Maxtor DiamondMax Plus D740X (40GB) find.pcworld.com/19502
	2	Seagate Barracuda ATA IV find.pcworld.com/19523
	3	Seagate U Series 6 find.pcworld.com/19542

PRINTERS

find.pcworld.com/19581

	INK JET PRINTERS From the March 2002 issue
1	Best Buy Lexmark Z43 Color Jetprinter find.pcworld.com/10561
2	Best Buy Epson Stylus C80 find.pcworld.com/16660
3	Lexmark Z53 Color Jetprinter find.pcworld.com/10560
4	HP Deskjet 920c Color Inkjet Printer find.pcworld.com/19264
5	Canon S630 Color Bubble Jet Printer find.pcworld.com/13501
6	Canon S300 Color Bubble Jet Printer find.pcworld.com/16641
7	Canon S500 Color Bubble Jet Printer find.pcworld.com/16644
8	Epson Stylus C60 find.pcworld.com/16647
9	HP Deskjet 845c Color Inkjet Printer find.pcworld.com/16680
10	HP Deskjet 940c Color Inkjet Printer find.pcworld.com/16681

DIGITAL CAMERAS

find.pcworld.com/20301

	DIGITAL CAMERAS $500 AND OVER From the March 2002 issue
1	Best Buy Casio QV-4000 find.pcworld.com/16261
2	Best Buy Canon PowerShot G2 find.pcworld.com/14800
3	Epson PhotoPC 3100Z find.pcworld.com/14804
4	Nikon Coolpix 995 find.pcworld.com/14801
5	Sony Cyber-shot DSC-S85 find.pcworld.com/14803
6	Olympus D-40 Zoom find.pcworld.com/19143
7	Toshiba PDR-M81 find.pcworld.com/14802
8	Canon PowerShot S40 find.pcworld.com/19141
9	Nikon Coolpix 885 find.pcworld.com/19142
10	Olympus C-4040 Zoom find.pcworld.com/16264

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You already know that memory upgrades are the fastest, most reliable way to boost your PC's performance—so what's holding you back?

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Now the largest independent memory manufacturer, Kingston Technology Company Inc., is helping users to successfully upgrade their own systems, through demonstrations and system-specific memory guides.

Visitors to www.Shop.Kingston.com can access detailed hardware advice as well as an easy-to-follow animated tutorial. "We wanted to show users how easy it is to install memory," says Jason Jacobi, a Kingston spokesman. "And once they see it for themselves, they can feel comfortable buying the upgrade they need to run today's leading software and operating systems, including Microsoft Windows XP."

Kingston TECHNOLOGY

KINGSTON MAKES IT EASY FOR YOU

Customers at Shop.Kingston.com already use the site's Memory Configurator to choose memory by system model, memory specification, or Kingston part number. PDA users, and those with digital cameras and MP3 players, can search for their upgrades by device type.

Now Kingston's animated online tutorial, "Memory Installation in 3 Steps," shows users how just how easy it is to install memory. The animated demo reviews a typical system's layout and components and illustrates the correct way to place modules in a PC's memory bays.

Kingston also provides free, detailed Adobe Acrobat PDF-formatted installation guides for PCs from leading manufacturers, as well as guides for installing Flash memory modules and software drivers.

First-time memory buyers will especially benefit by clicking on Kingston's animated installation guide, from the Shop.Kingston.com homepage. "It takes the anxiety out of the installation process for users at any level," says Jacobi. "After watching it, you won't be afraid anymore to take the cover off of your PC."

QUALITY YOU CAN COUNT ON

By installing their own modules, users can experience firsthand the high quality of Kingston's modules. IT professionals rely on Kingston memory to update their systems. And many leading PC manufacturers in the United States build Kingston memory right into their new machines.

Kingston each year builds and tests more than two million customized modules for hardware manufacturers and systems developers. Now consumers, through Shop.Kingston.com, can receive the same memory, and the same warranties, as Kingston's business customers.

"Kingston has a good handle on quality," says Kingston consumer Tim Scovell. "I'm always adding modules to my systems, and the Kingston memory works every time."

Kingston's memory is system-specific, and the company guarantees the compatibility of modules selected through the Kingston Memory Configurator. "It leads you to the exact memory your system requires," Jacobi adds.

In the unlikely event that a customer has trouble with his upgrade, he or she can call Kingston at 800-435-0640 and consult with a memory expert, 24/7.

With its latest support for novice upgraders, and with its 24/7 customer service, Kingston is making its memory products and professional-level support available to every consumer. "At Shop.Kingston.com," Jacobi says, "Web surfing, gaming, and exciting multimedia are going to be possible on more systems than ever before."

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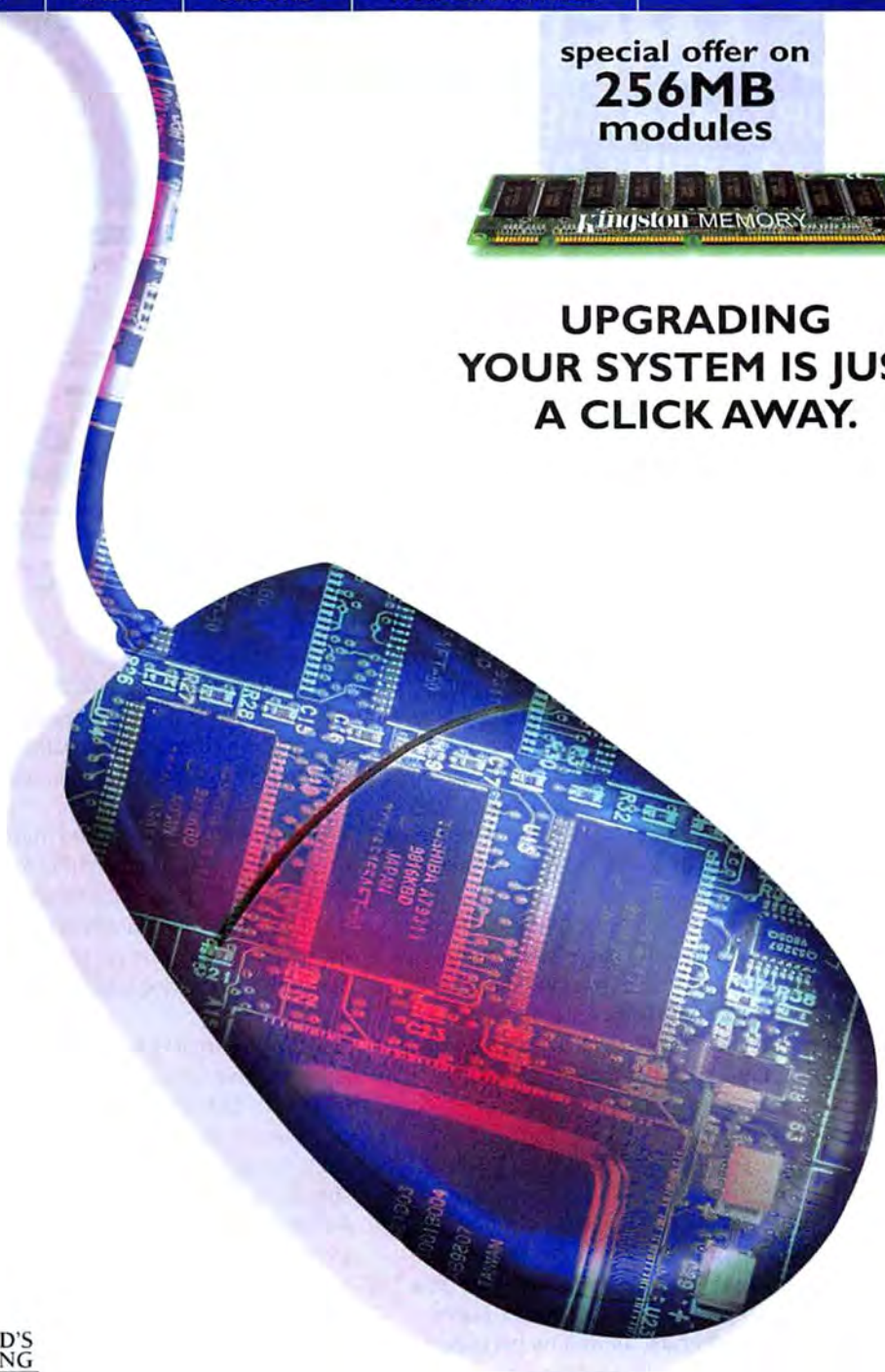

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PC AMERICA: INVENTORY MANAGEMENT AT POINT OF SALE

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The home page for PC America speeds you to the point-of-sale products you need.

While many motorists in Dimondale, Mich. say the family-owned Windmill Truck Stop is a home away from home, its controller, Kevin Edelmann, says it's been more like a house of accounting horrors. Besides monitoring retail fuel sales in the truck stop's "truckers only" area, he also has to keep an eye on commuters' and travelers' purchases in the king-sized complex's convenience store, family restaurant, motel, and auto service center. "Keeping track of all of that inventory has been a nightmare," Edelmann says.

The Point of Sale (POS) system that the Windmill had been using since 1982 did a fine job of ringing up sales, but it couldn't tell store managers anything about what was on the shelf. "The system only broke sales down by department," Edelmann says. "So it couldn't tell the difference between a tube of toothpaste and a bottle of shampoo."

Edelmann found only a few POS solutions that were easy to use, Microsoft Windows-based, and able to support multiple input devices. And none of them could manage the 20,000-plus items in the Windmill's convenience store and restaurant. "We desperately needed a solution that could bring all of these components of our business together," he says.

PC AMERICA

Things finally turned around at the Windmill once Edelmann deployed PC America's Cash Register Express (CRE 2000), a Windows-based POS program that works with ordinary PCs and peripherals, as well as barcode scanners, receipt printers, and pole displays (which show charges at the checkout counter). Now all of the Windmill's cashiers can use touch screens and barcode scanners to enter orders and update inventory. And setting up CRE 2000 could not be easier, says Edelmann. "PC America did an excellent job pulling all of the hardware together initially. But the great thing about their software is that I can grab any component I want off the shelf and throw it together in no time. This is one slick program."

The Windmill has processed more than half a million transactions with CRE 2000 and PC America's Restaurant Pro Express (RPE 2000) since October 1999. And Edelmann predicts that PC America will continue to develop the software he needs to keep things running smoothly. "PC America is constantly improving upon their products," he says.

Now PC America is helping retailers like the Windmill to move beyond the sale itself to increase revenues. A new feature in CRE 2000 gives businesses the ability to print coupons on the bottom of sales receipts on an Epson TM-T88II receipt printer. They can use the coupons to advertise specials on slow business days (e.g., "10 Percent Off All Purchases Every Tuesday"), or to give their customers discounts on overstock items (e.g., "Get a Free Six-Pack of Pepsi on Your Next Visit").

CRE 2000's couponing feature promises retailers an excellent route to a crucial dimension in retail sales. "Repeat business is the most important aspect of any business," says PC America's president, Howard Gosman. "With this addition to our POS package, we are giving our customers a quick and easy-to-use method for creating it."

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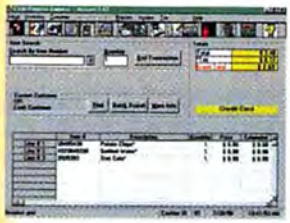

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All PC America Software requires Microsoft Windows. The software was written in Visual Basic using Microsoft Access Files. The source code is available.

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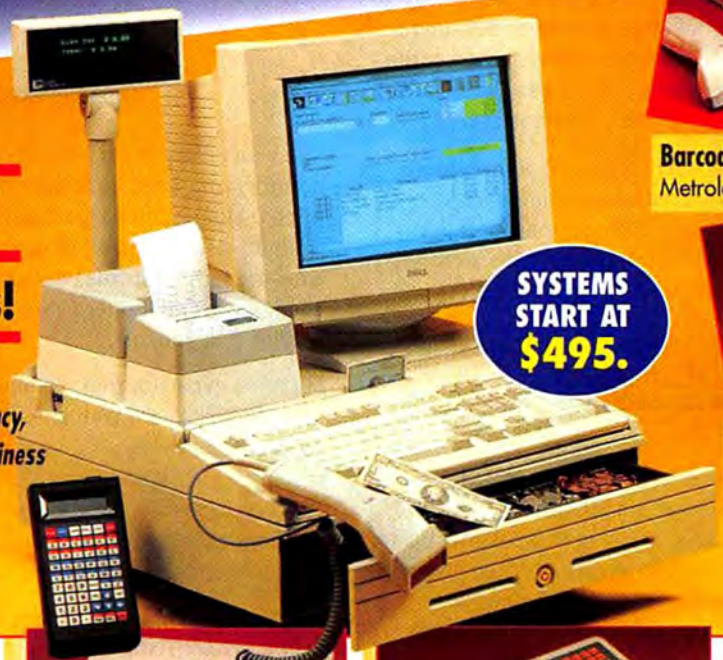

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Which is more important, the photo of your baby's first smile or the photo of your son's first day of school? Last month's sales totals or next month's sales projections? For handheld PC users and digital photographers, deciding what to keep and what to delete when their storage cards get full can be agonizing. Fortunately, it's easy to escape this desperate ritual by buying "flash" memory cards.

"You can use these cards as 'digital film' in your camera, or to back up phone numbers, addresses, and larger files from your PDA," says Scott Heimgartner, product marketing manager at Crucial Technology, a division of Micron, a leading maker of DRAM.

crucial TECHNOLOGY
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However, Heimgartner points out, digital devices don't all accept the same card format. Handheld PC users and others can avoid any confusion by using Crucial's Web site, Crucial.com, to find the right type of card for their devices. The site's Memory Selector tool searches Crucial's database of more than 15,000 computers and electronic devices for fully compatible memory upgrades.

"Crucial.com makes choosing the right flash memory card easy," says Heimgartner. "You simply use the Memory Selector to find the right card for your camera, MP3 player, or handheld. Then you can complete your order in a matter of seconds."

Online checkout at Crucial.com is quick and easy. All online buyers receive a 10-percent discount, and two-day shipping is free in the US.

ALWAYS COMPATIBLE

Crucial offers a money-back guarantee that the memory upgrades purchased through the Memory Selector will be 100-percent compatible with its customers' digital devices. The site also backs all of its flash memory cards with a five-year warranty.

As a subsidiary of DRAM maker Micron, Crucial can offer memory upgrades directly to consumers, at factory-direct prices. Micron, the largest memory manufacturer in the United States, tests all of its memory modules under extreme temperatures, voltages, and operating conditions. And it offers extensive warranties and free service and support.

Micron's expertise in flash memory is abundantly evident at the Crucial.com Web site. Crucial.com includes a comprehensive discussion of flash memory, a list of the technology's benefits, and a glossary of memory terms. "We want to make sure that when you're buying a flash memory card, you're getting the right capacity for your storage needs," Heimgartner says.

Users of MP3 players, for example, typically require between 64MB and 128MB of memory in their devices. 32MB is often enough to store a low-res family photo collection on a camera or PDA. But business professionals using their handhelds to store spreadsheets will want to upgrade to 128MB of CompactFlash memory.

GREAT PRICES, GREAT SERVICE

Even though memory prices continue to fluctuate, it's still an excellent time to buy from Crucial.com. The site keeps its prices down by cutting out the middleman. Crucial's customers save money by investing in upgrades that boost their systems' performance and reliability, and add data storage space.

"Crucial," says Heimgartner, "has built a reputation for dealing honestly and directly with its customers. When you order from Crucial, you can expect high-quality products that are backed by our incredible service and support."

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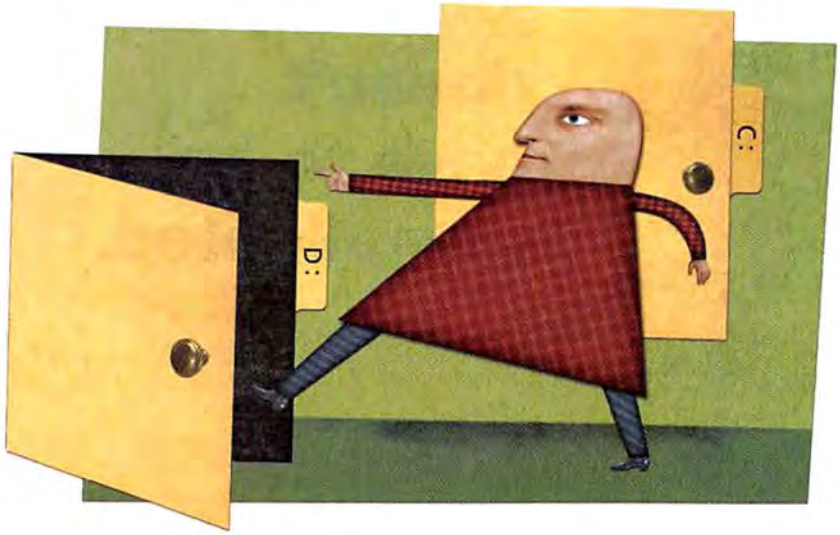
HERE'S HOW

EDITED BY MICHAEL S. LASKY AND DENNIS O'REILLY



WINDOWS TIPS

SCOTT DUNN

Open Explorer to the Folders You Use Most

WHEN I OPEN Windows Explorer, the tree pane shows the folders on my C: drive. I store most of my files on my D: drive, so I have to click the minus sign next to the C: drive to hide its folders, then click the plus sign next to the D: drive to show that drive's folders. Is there a way to make the D: drive's folders visible by default?

Ramon Gonzalez, Sidney, Ohio

YOU CAN SAVE yourself a few seconds and several mouse clicks each day by setting Explorer to launch where, when, and how you prefer. But why settle for one shortcut to open Explorer? It's easy to create shortcuts that open Explorer to all the files and folders you access most often.

First, create a submenu for your shortcuts on your Start menu: Right-click the *Start* button and choose *Open*. Select *File•New•Folder*, and when the New Folder icon appears, type a name and press **<Enter>**. I call my shortcuts menu 'Xplorers' so I can display it any time I want by pressing **<Ctrl>-<Esc>-X**.

You can add shortcuts to this folder by right-dragging another folder to it and choosing *Create Shortcut(s) Here* when you release the button (see **FIGURE 1**), but in Windows 2000, Me, or XP, this creates a cascading menu listing the folder contents, not a shortcut that opens the folder. To create a shortcut that will open an Explorer window in any Windows version, open the new (Xplorers) folder, right-click inside it, and choose *New•Shortcut*.

If you were to type just the path to your target folder in the text box that appears (for example, **e:\doc**), the shortcut would simply open the folder. To make a shortcut that opens a two-pane Explorer window, you need to precede the folder path with **explorer.exe**, a space, and one of the command-line switches listed in **FIGURE 2**. Separate multiple switches from the folder path by typing a comma, and be sure that the folder path is at the end of the command line. Now click *Next*, type a name for your shortcut, and select *Finish*.

Repeat these steps for each custom Explorer window you want to launch. If you need to make changes later, or if you want to customize one of your shortcuts,

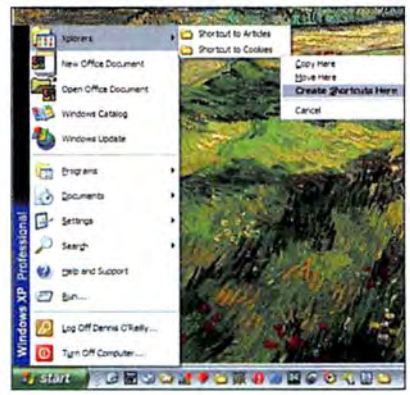


FIGURE 1: CREATE SHORTCUTS to your favorite files and folders by right-dragging.

ILLUSTRATION: JOYCE HESSELBERTH

146 WINDOWS TIPS
Change the folder Explorer opens to, and create shortcuts that will open Explorer to all your favorite folders.

148 INTERNET TIPS
Use your instant messaging application to share files; a glitch in Windows 2000's Internet time commands.

150 STEP-BY-STEP
Sometimes one screen is not enough. A multimonitor graphics card will expand your desktop's horizons.

152 HARDWARE TIPS
The safe way to upgrade to Windows XP is by multibooting your PC; keep your wrists healthy by counting clicks.

154 ANSWER LINE
Keep documents in your print spool for faster reprinting; cable modem quandary: USB or ethernet? Pass on AGP's fast writes; print many photos on a single page; save CD-R data.

right-click it, choose *Properties*, and select the *Shortcut* tab. You can edit the command line in the Target box, use the *Change Icon* button to give the shortcut a new look, or add a Shortcut key, among other options. Now you can access these folders fast, by choosing any of them from your new Start submenu.

SHORTCUTS MADE TO ORDER

A SHORTCUT WITH the command line **explorer.exe /e,d:\work** will open a two-pane Explorer window with the 'work' folder on the D: drive selected in the left pane. To open the same folder on the left but with the file 'My Picture.jpg' selected on the right, use the /select switch: **explorer.exe /e,/select,d:\work\My Picture.jpg**. In Windows 98 you can use the /select switch only with folder names, not files. Also, the folder path you use will be selected on the right in Windows 98 only after you press **<Tab>** to move the focus to that pane.

To make a shortcut that opens a folder window with no tree pane, enter the command line **explorer.exe d:\work** (without the /e switch), or just **d:\work**. This command line launches the folder in a new Explorer window the first time you run the shortcut, but subsequent launches will move you to this folder in the Explorer window that's already open. To open a new window each time, use the /n switch: **explorer.exe/n,d:\work**. (This switch doesn't work in Windows 98.) If you use the /e switch, you don't need the /n because a new window will open each time in any case.

The /root switch is useful when you're working with network drives. To avoid cluttering the tree pane with dozens of shared network folders, enter a command line similar to **explorer.exe /e,/root,\\server\work** (your path will differ). In this example, the network 'work' folder on the server named 'server' will appear at the top of the tree as if no other drives existed.

These switches sometimes work in mysterious ways, their wonders to behold. You can use these quirks to make shortcuts to the Windows Desktop. In Windows 9*x*, use the /root switch without specifying a folder: **explore.exe /e,/root,** (be sure to include that final comma). In Me, 2000, and XP, add the /select switch and a folder path as well: **explorer.exe/e,/select, /root, c:** (see **FIGURE 3**). Oddly, you can replace 'c:\' in this command line with any folder path and the shortcut will still display the Desktop, complete with My Computer, the Recycle Bin, and all your other Desktop items. Remove the /e to see the Desktop folder with no tree pane.

Opening an Explorer window to My Computer or My Documents sometimes requires special codes to represent these objects. Depending on your version of Windows, however, you may be able to use a workaround that requires less typing. Again, Figure 3 lists the appropriate command lines to use in these cases. As before, omit /e if you don't want to open a two-pane Explorer window. ■

USE WINDOWS EXPLORER.EXE SWITCHES

SWITCH	Effect
/e	Opens a two-pane window with tree on left.
/n	Opens a new window each time the command is launched; doesn't work in Windows 98; not needed if /e is used.
<folder path>	Selects the folder in Explorer.
/root,*<folder path>*	Makes the specified folder the top level of the tree pane; useful for network drives when you don't want the tree pane cluttered with many unneeded folders.
/select,*<folder path or file path>*	Displays the container of the specified folder or file on the left, with the specified folder or file selected on the right; Windows 98 will not accept file names.

FIGURE 2: THESE COMMAND-LINE SWITCHES can make shortcuts to open special folders.

OPEN EXPLORER TO THE FOLDER YOU WANT

DESIRED FOLDER	Command line (for a single pane, remove /e from any item)
Desktop (Windows 9*x*)	explorer.exe /e,/root,
Desktop (Windows Me, 2000, XP)	explorer.exe /e,/select,/root,*<any folder path>*
My Computer	explorer.exe /e,::{20D04E0-3AEA-1069-A2D8-08002B30309D}
My Computer, with one drive selected	explorer.exe /e,/select,*<drive letter>:*
My Documents (Windows Me, 2000, XP)	explorer.exe
My Documents (all versions)	explorer.exe /e,::{450D8FBA-AD25-11D0-98A8-0800361B1103}

FIGURE 3: OPEN A TWO-PANE EXPLORER window with these command-line switches.

Send Windows-related questions and tips to scott_dunn@pcworld.com. Windows Tips *pays $50 for published tips and questions. Scott Dunn is a contributing editor for* PC World.

INTERNET TIPS

SCOTT SPANBAUER

Create Your Own File Sharing Network

NAPSTER IS IN suspended animation. Gnutella and other file sharing systems are slow and rife with viruses. Sure, you can put your files on an FTP server or a Web site, but doing so may be more effort than you're willing or able to make. If all you want to do is share a few photos, documents, or media clips with selected friends and family, let your instant messaging application do the sharing.

AOL Instant Messenger version 4.7 and ICQ 2001b (the most recent versions of those apps) allow you to designate a shared file folder on your system and specify who can see and download its contents. To set up file sharing in AIM, click the wrench icon to open AIM's Preferences dialog box, and select *File Sharing* in the Category list. Identify the folder you'd like to share and the Buddy group you want to share files with. To make files available to all users, or to establish additional access criteria for Buddies and non-Buddies, uncheck *Allow only users in Buddy group*. Friends who want to retrieve your files must have an AOL Instant Messenger account and enabling software. (Visit find.pcworld.com/20241 to download the software.) To access your files, they need only right-click your name in their Buddy Lists and then choose *Get File*.

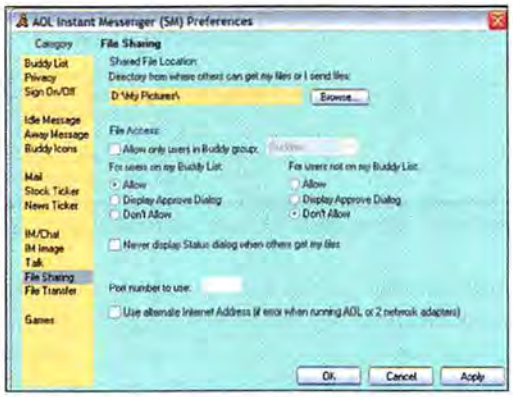


FIGURE 1: SHARE FILES WITH FRIENDS, or with the entire universe, using AIM (shown here) or ICQ.

To share files in ICQ 2001b, click the *Services* button, choose *Shared Files*, and then click *Activate Service*. Unlike AIM's file sharing feature, ICQ doesn't let you choose the folder you want to share—instead, you have to copy files to the program's default folder, \Program Files\ICQ\Shared Files. To control who can download the files, click the *Main* button, choose *Security and Privacy Permissions*, and then select *Contact Info/Files* under Permissions. The 'Shared Files' settings on the right side of the dialog box let you control who can see your files: all ICQ users, only those on your contact list, or no users at all. To download your files, friends will need an ICQ account and software. (Go to find.pcworld.com/20261 for a free copy.) To download your shared files, they click the file icon next to your name in ICQ's contact list and choose *View user's Shared Files directory*.

THE TROUBLE WITH TIME

SEVERAL SURPRISED readers wrote to report that the YATS32 utility I recommended in the December 2001 column (find.pcworld.com/20841) contained the dreaded Nimda virus. Though there's no guarantee that even the highest-quality shareware will arrive at your computer virus-free, this case was a rare false positive. A Symantec Norton AntiVirus definition file released about the same time as the December issue contained an error that caused it to incorrectly detect Nimda in the InstallShield install utility included with the YATS32 download. If you have Norton AntiVirus, update your virus definition file. See Symantec's site at find.pcworld.com/20262 for more details.

The same column did contain misinformation that was completely my fault. In testing Windows 2000's Internet time commands, I repeatedly received an error that kept me from connecting to the remote time server. I incorrectly attributed this error to my unique firewall settings; but in fact Windows 2000's Net time command simply won't work for most users (see Microsoft's Knowledge Base article at find.pcworld.com/20263 for details).

To query an Internet time server, the Net time command must be running on a Windows 2000 server configured as a primary domain controller. Since very few of us have access to such a server, the Windows 2000 Net time commands are pretty much useless. I apologize for wasting your time with my poor research. Thankfully, the rest of my advice was correct. ■

Send your questions and tips to nettips@spanbauer.com. We pay $50 for published items. Scott Spanbauer is a contributing editor for PC World.

FAST, FREE VIRUS DEFENSE

AN ANTIVIRUS TOOL is an indispensable part of any Internet toolbox. Top-notch commercial utilities such as Panda Antivirus Platinum and Symantec's Norton AntiVirus repeatedly top *PC World*'s roundup reviews. I've managed to live happily for years without antivirus software, but every once in a while a virus slips by my vigilance. Grisoft's free AVG 6 Anti-Virus System is just what I need at those moments. AVG's one-button disk scan scours drives and removable media, removing both viruses and doubts. Updates are free. Go to find.pcworld.com/20264 to download the program.

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STEP BY STEP

STAN MIASTKOWSKI

Double Your Screen Space

THE TOP DOWN

Benefits: Extend the Windows desktop and keep multiple applications open full-screen on dual monitors. Watch full-screen video on one monitor while running applications on the other.

Cost: Dual-monitor AGP card, $85-$125; second monitor, $100 and up

Time Required: 45 to 60 minutes

Expertise: Intermediate

Vendors: ATI Technologies (www.ati.com), Matrox (www.matrox.com), NVidia (www.nvidia.com)

INSTEAD OF STRUGGLING with tiling or overlapping windows on a single monitor, why not hook up a second monitor and extend your Windows desktop so you can run multiple applications on separate screens? This would allow you to do research on the Internet (or to check your e-mail) on one screen while typing in a word processor or using other applications on another. Or you could watch a DVD movie full-screen on one monitor while using other applications on the other. The possibilities are nearly endless.

Windows 98 SE, Me, 2000, and XP all support multiple monitors. You could plug a second graphics card into your PC, but since most computers use the AGP slot for the primary graphics card, you would need to find a PCI graphics card. Those cards are no longer common, don't offer the performance of AGP cards, and require another add-in slot. We recommend that you instead purchase an AGP card specifically designed with ports to handle multiple monitors. Such cards cost about the same as a standard graphics card, and they offer features such as direct digital outputs for flat-screen LCD monitors, the ability to hook up a television for video display, and software that lets you save your favorite desktop schemes.

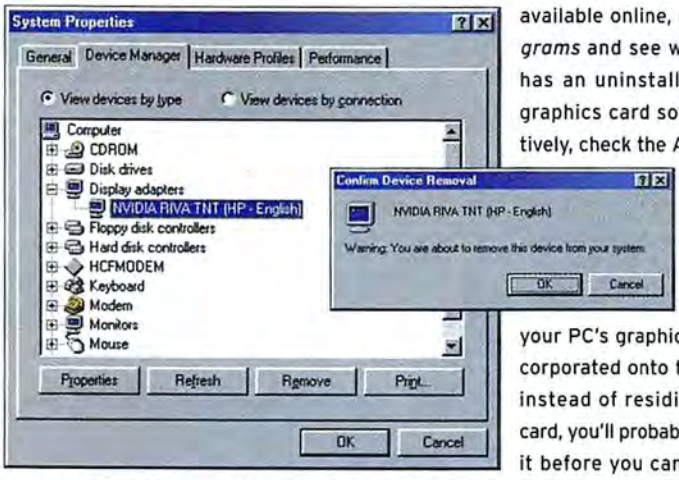
Though we don't cover this alternative here, if you'd rather install a second graphics card, you'll find extensive information on the subject by searching for "multiple monitors" in Windows Help.

You'll also need a second monitor, of course. Depending on your budget, it can be large or small, a CRT or an LCD. ■

Stan Miastkowski is a contributing editor for PC World.

1 Get the latest drivers. After you purchase your multiple-monitor card, go to the maker's Web site and get the latest drivers. Manufacturers are constantly upgrading their drivers to improve performance and fix compatibility problems, so it pays to obtain the latest version. If you have a CD-R or CD-RW drive, put the drivers on a CD-R for easy access.

2 Uninstall the old software. To improve your chances of completing a trouble-free board swap, it's a good idea to uninstall any utilities and drivers that your current graphics card uses. First check your current card maker's Web site to see whether it contains any information on uninstalling the software. If your card maker's site doesn't have an uninstall utility available online, go to *Start•Programs* and see whether your PC has an uninstall entry for your graphics card software. Alternatively, check the Add/Remove programs dialog box. If nothing is evident, just forge onward.



Important: If your PC's graphics circuitry is incorporated onto the motherboard instead of residing on an add-in card, you'll probably have to disable it before you can install the new graphics card. Check your PC's manual for the precise steps involved; usually you must disable the on-motherboard graphics from within your PC's BIOS setup. Procedures for entering the setup vary, but holding down <Delete> or <F1> during start-up are the most common ones.

3 Swap the boards. Before opening your PC, make sure you do a complete backup. Then turn off your PC and unplug it from the wall outlet. Disconnect the monitor cable. To avoid static discharge, which can damage PC components, use an antistatic wrist strap according to the manufacturer's directions when working inside your PC. Open the case, remove the screw that holds down your existing graphics card, and carefully withdraw the card. Remove your new graphics card from its packaging, carefully but firmly insert it into the slot, and secure it with the screw that you removed earlier.

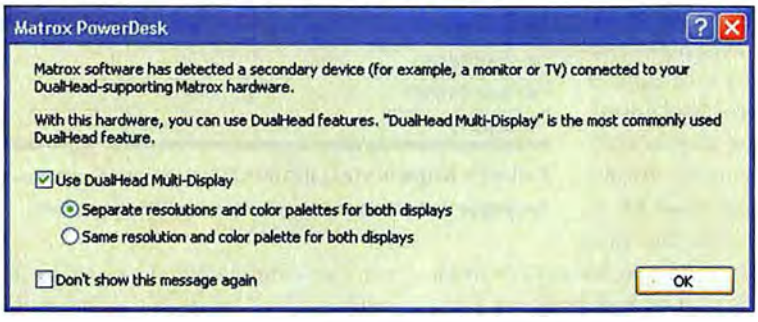
PHOTOGRAPHS: KEVIN CANDLAND

4 Connect the monitors. Set your second monitor up next to your original monitor. (It can be positioned either to the left or to the right of the first monitor, depending on which is more convenient.) Follow the manufacturer's directions, and make sure that you connect your primary monitor to the correct connector. Cards with digital connectors for LCD screens come with adapters for attaching standard analog monitors. Most of them also carry special cables for connecting televisions, for viewing DVD movies and other video content on your PC, or for more general use as a low-resolution secondary display.

5 Install the software. Reconnect your PC's power cord and turn the system on. Windows should detect the new card and start the Found New Hardware Wizard. Follow the on-screen directions.

After you finish installing the card, follow the manufacturer's directions to install any software that offers special features for multiple monitors. You'll usually need to restart your PC at this point.

6 Adjust the setting. If the software asks you whether you want to enable multiple-monitor support, make sure you say yes. Follow the directions to enter the monitor setup screen, and there set the multiple-monitor configuration, the resolutions, and the color depth. You'll need to give the software some information about how your monitors are arranged, and you may want to spend some time adjusting settings such as where dialog boxes will appear by default.



7 Enjoy the extra space. Experiment with new arrangements for the various programs you use. Having multiple monitors may not change the way you use your word processor, but that second monitor can be a great place to house applications that you keep running in the background, such as e-mail clients and media players. With apps like Adobe Photoshop, you can create a larger, less cluttered workspace by moving palettes to the secondary screen.

HARDWARE TIPS

KIRK STEERS

Multiboot Your PC to Avoid UnXPected Problems

A NEW OPERATING system version is like a new pair of shoes: It may look good, but you won't know how well it fits until you've traveled in it awhile. Getting used to Windows XP can be as painful as breaking in a pair of discount cowboy boots. Wouldn't it be nice if your PC could run your old Windows version *and* XP, so you could get acclimated to the new OS at your own pace? Well, it can.

Windows XP's installation lets you retain your old operating system by configuring your PC for multibooting. Each time you start your system, the Windows XP boot loader will offer you the choice of running XP or your previous OS.

Before we begin, back up your data. Let me say that again: Back up your data! Windows XP and boot-management utilities alter your hard disk's master boot record. This is usually safe, but an error can be disastrous. Your best bet is to use a program such as PowerQuest's $70 Drive Image 5 to back up your entire disk.

Load the XP installation CD-ROM into your PC. If it doesn't start automatically, click *Start•Run* and type ***x*:setup**, where *x* is your CD-ROM drive's letter designation. On the Welcome to Windows Setup screen, select *New Installation (Advanced)* under Installation Type. Continue the setup process until you see the Setup Options page. Select first *Advanced Options* and then *I want to choose the install drive letter and partition during Setup.*

For the new hard-drive partition, select a letter that differs from the letter your current OS uses (the letter C designates most users' hard drives). If you use all your available partitions already, you could install XP on the partition that your current OS resides on, but you'll be much less likely to encounter problems if you create a new partition for Windows XP.

Your system sees a drive partition as a discrete data storage area—one that's as distinct as a hard drive, CD-ROM drive, or floppy disk. Though a CD-ROM or floppy drive can hold only a single partition, the space on a hard drive can be assigned a single drive letter or divided into multiple partitions with their own drive letters.

To add a partition to your existing drive, you must have enough free space available to accommodate Windows XP: a minimum of 1.5GB, and preferably 2GB. To convert some of your drive's free space into a new partition, you need partitioning software such as PowerQuest's $69 PartitionMagic 7 or V Communications' $40 Partition Commander. (Windows' Fdisk will do the job free, but it requires that you delete all the data on the disk.)

Both PartitionMagic 7 and V Communications' $70 System Commander 7 include better multiboot utilities than the one in Windows XP. For example, System Commander features a helpful wizard. If you want to install two or more operating systems on your PC, or a second OS after Windows XP has already been installed, you would be wise to use one of these two programs to partition your drive.

Some applications that are installed under your old operating system may not work with your new Windows XP installation. Many programs use files stored in the original operating system's partition. While many programs will work fine when run from a version of Windows XP installed as the system's second OS, others won't. If you have disk space to spare, you can avoid potential hassles by installing second copies of your programs from within Windows XP. Just make sure that you install them to a drive partition other than your original OS's partition.

The Windows XP installation asks whether you want to update your hard disk to the NT file system (NTFS). If you're upgrading from Windows 2000 and don't plan to install Windows 9*x*, say *yes*. But if you want to install Windows 9*x*, say *no*. Windows 9*x* can't read from or write to partitions formatted as NTFS; it sees only partitions that use the FAT or FAT32 file systems (see **FIGURE 1**). ■

WINDOWS FILE-SYSTEM COMPATIBILITY

OPERATING SYSTEM	File systems supported		
	FAT	FAT32	NTFS
Windows XP	✔	✔	✔
Windows 2000	✔	✔	✔
Windows 98/Me	✔	✔	
Windows 95 OSR2	✔	✔	
Windows 95	✔		

FIGURE 1: WHEN INSTALLING MULTIPLE operating systems, remember that Windows 9*x* can't use the NTFS file system.

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Print Documents Faster the Second Time Around

I USE MY printer's 'Keep printed documents' option to reprint documents quickly. What are the disadvantages of keeping these documents?

Ioannis Sechopoulos, Montevideo, Uruguay

YOU'VE FOUND a little-known but handy setting in Windows 2000 and XP (but not available in Windows 98 or Me). Windows deletes documents from the printer spool by default as soon as they're printed. But keeping documents there lets you print them again in a snap. The price you pay is lost hard drive space.

You can turn on the option in the printer's Properties dialog box. To reach it in Windows 2000, select *Start•Settings•Printers*. In Windows XP, you may have *Printers and Faxes* on your Start menu, or you may have to open *Control Panel*, click *Printers and Other Hardware*, and finally select *View installed printers or fax printers*. If your Control Panel option opens a menu, choose *Printers and Faxes*. Right-click your printer and select *Properties*. Click the *Advanced* tab, check *Keep printed documents*, and click *OK*.

You'll also want a shortcut to the printer spool. In the Printers or 'Printers and Faxes' window, drag the printer icon to your desktop, your Quick Launch toolbar, or your Start menu. If Control Panel is displayed as a menu, **<Ctrl>**-drag the printer icon from the menu. To reprint a document, just launch the printer shortcut, right-click the file, and select *Restart*.

You'll eventually get a long list of printed documents. And the folder containing those printouts—either C:\WINDOWS\System32\spool\PRINTERS or C:\WINNT\System32\spool\PRINTERS—will be huge. To clean out the spool, launch the printer icon, right-click the files you don't need, and select *Cancel*.

USB OR ETHERNET TO CONNECT YOUR CABLE MODEM?

MY CABLE COMPANY offers two ways to connect its cable modem to my computer: USB or a network interface card. Which should I choose?

Robert Mui, New York

AN ETHERNET NETWORK interface card is faster than a USB connection, but the speed difference is irrelevant because USB still outpaces any cable modem.

Ease of use is relevant, however. Many cable companies charge a lower setup fee if you install the cable setup yourself, or if they can do it quickly.

Plugging a modem into an existing port on your computer is much simpler than opening the PC and installing a card. Many home systems ship with two powered USB ports (the ones in the back of the machine) but no ethernet card. Check the back of your PC and make your decision based on what ports are free. If you lack both types of ports, you or your cable company can install an ethernet card, or you can buy a USB hub for about $15.

But there's another issue. If you plan to share the cable connection, go with ethernet, even if it means installing a network card. If you want to give multiple computers access to your broadband link, ethernet is the preferred solution.

The easiest way to share a cable connection is through an Internet router that provides several ethernet ports. The cable modem and the computers connect to the router to give each PC Internet access, as well as access to files and applications on the other machines.

True, not all routers are limited to ethernet. Many can connect to a computer wirelessly via 802.11b. And yes, some support USB-based networking. Linksys's EtherFast Cable/DSL Router with USB and 3-Port Switch (available on sale for as little as $100) lets you connect one device via USB and three others via ethernet. But the cable modem-to-router connection must be ethernet.

Luckily, you may not have to decide between USB and ethernet. Some cable modems have both connectors. Ask your cable provider for one of those.

GET 'ANY FOLDER' BACK

THE MENU THAT appears when I right-click a file and select *Send To* used to have an 'Any Folder' option that opened a dialog box for selecting my target. The option vanished after a recent Windows upgrade. How do I get it back?

Steven Ferrari, Caracas, Venezuela

THE SEND TO•ANY FOLDER right-click option (see **FIGURE 1**) was one part of ▶

FIGURE 1: COPY OR MOVE FILES to any folder from the Send To menu with Microsoft's chestnut of a freebie, PowerToys.

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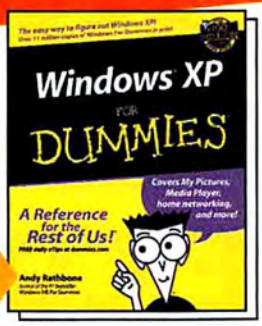

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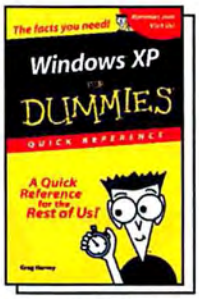

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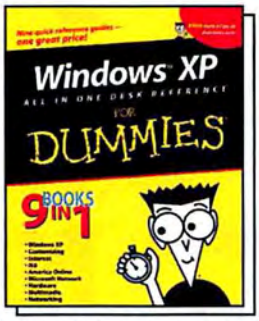

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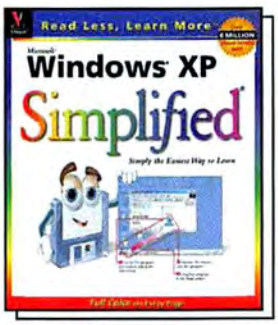

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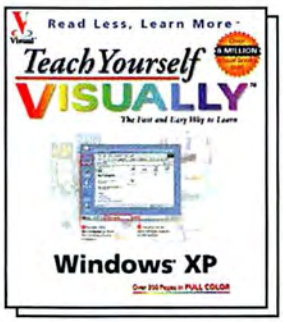

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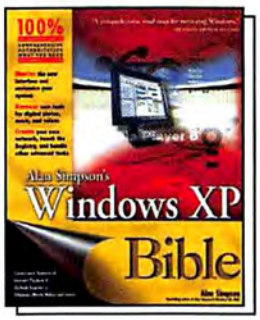

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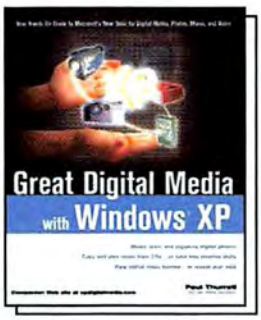

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Microsoft's Windows 95 PowerToys freeware, which you can download at find.pcworld.com/20101. Not all PowerToys work properly in later versions of Windows, however, and Microsoft recommends against using them. But I've used Send To•Any Folder in Windows Me and XP without any problems. (Note that the version of PowerToys for Windows XP lacks the Send To•Any Folder option.)

Installing Windows 95 PowerToys is a bit tricky, though. After you download the program, move the file w95powertoy.exe to its own folder and then double-click it. The folder will fill up with files. Right-click the file sendtox.inf, and select *Install*. If a dialog box tells you that it can't find a file, click the *Browse* button and go to the folder in which you placed w95powertoy.exe, and then click *OK* twice.

Once you've finished the installation, your Send To menu will have several new options in addition to 'Any Folder'. If you don't want all of the new options, select *Start•Settings•Control Panel*, double-click the *Add/Remove Programs* icon, and on the Install/Uninstall tab, double-click *Send To Extensions Power Toy*. Uncheck the options you don't want and click *OK*.

WHAT IS THAT BIOS SETTING?

I WAS FOOLING around with my BIOS settings to improve performance recently, and I found something I didn't understand. Should I enable "fast writes" for my AGP port?

Ilya Blokh, Homewood, Alabama

PROBABLY NOT. In theory, fast writes let the CPU send certain kinds of image data directly to the graphics card, bypassing main memory. This increases performance under certain conditions.

Unfortunately, those conditions are pretty rare. Some gamers report occasional, modest improvements with fast writes enabled, but most tests show no positive effect. I've seen as many reports of fast writes slowing systems down as I have of them speeding systems up. What's worse, systems with fast writes enabled are often more prone to crashes. All in all, it's best to leave fast writes off.

PRINT MULTIPLE PHOTOS ON ONE PAGE

I WANT TO PRINT two or three photographs on a single page. I have Adobe PhotoDeluxe Business Edition, which doesn't appear to have this feature. Is there a way around this limitation?

Bill Williams, Basking Ridge, New Jersey

PHOTODELUXE BUSINESS Edition can't do it outright, but there's a workaround. And some free alternatives actually do a better job.

FIGURE 2: PRINTING TWO OR MORE photos on a single page in PhotoDeluxe involves creating a new document.

First, the workaround: Open the photos in PhotoDeluxe and select *File•New*. In the New dialog box, set the width and height to match your paper (probably 8.5 by 11 inches), and set the resolution to match that of your printer. When you click *OK*, you'll get a new blank document. Click on each photograph in its own window, choose *Edit•Copy* (or right-click and select *Copy*), return to the blank document, and choose *Edit•Paste* (or right-click and then select *Paste*). Now you can move, resize, and rotate the pictures on the page as you wish (see **FIGURE 2**).

If you find this process a bit clumsy, you'll be glad to hear that you may already have a better program for the job. One place to look is the software bundle that came with your printer. For instance, many Hewlett-Packard ink jet printers come with a nice little program called ▶

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FREE CD-RW FIX

IN MY DECEMBER column, I recommended Roxio's ScanDisc (not to be confused with Microsoft's ScanDisk) for salvaging data on a damaged CD-R or CD-RW disc. I also said that the version included with DirectCD 5 is a major improvement over earlier versions, but that you can get it only if you buy the entire package. Reader Mike Lawrence of Tucson, Arizona, has shown me the error of my ways. The current version of ScanDisc is available for free. Go to find.pcworld.com/20144 for your download.

either PhotoSmart or Photo Imaging. In the Start menu, check in the submenus for your printer to see if that or a similar program is loaded on your system.

Good news on the OS front: Decent photo-printing capabilities are built into Windows XP. Just open Windows Explorer and select the pictures you want to print by clicking them as you hold down **<Ctrl>**. Then right-click one of the selected pictures and choose *Print*. The resulting wizard will show you several layout options for multiple photos.

For an online option, check out www.picturebuzz.com, an advertiser-supported Web site that lets you select photos from your hard drive and output them to your printer. It offers many layout options for multiple pictures. One flaw: It's yet another site that requires registration.

Ulead Systems gives away a free, advertiser-supported version of its Ulead Photo Explorer 6. You can download it at www.ulead.com/pex/freeware or go to find.pcworld.com/20142 to download a trial version of the $25 Photo Explorer 7. Photo Explorer is a great tool for organizing your photos, setting up slide shows, and so on. The program's File•Print dialog box has options for printing one, two, or four images per page, and you can customize the size of the images. ■

Send your questions to answer@pcworld.com. Answer Line *pays $50 for published items. You'll find a collection of Contributing Editor Lincoln Spector's humorous writing at www.thelinkinspector.com.*

ATTENTION MEMOREX CD RECORDER USERS

IF YOU CURRENTLY OWN OR HAVE OWNED A
MEMOREX CR-622 or MEMOREX CDRW-1622 manufactured on or before December 31, 1998 THAT WAS PURCHASED IN THE UNITED STATES, **CALL 1-800-207-0343 OR GO ONLINE AT WWW.MEMTEKCDRECORDERSETTLEMENT.COM TO LEARN HOW YOU MAY BE ELIGIBLE TO OBTAIN CERTAIN BENEFITS AT NO COST TO YOU AS PART OF A PROPOSED SETTLEMENT OF THE CLASS ACTION DESCRIBED BELOW.**

The purpose of this notice is to inform you of a proposed settlement of this litigation as explained in detail in a Notice of Class Action Settlement, which you are encouraged to obtain and read in its entirety. You may obtain the Notice of Class Action Settlement by calling 1-800-207-0343, by going online at www.memtekcdrecordersettlement.com, or by emailing Class Counsel at the address below. If you currently own or have owned a Memorex CR-622 or Memorex CDRW-1622 CD Recorder manufactured on or before December 31, 1998, you may be a member of the Class and your rights will be affected by legal proceedings in this action. To determine whether your drive was manufactured before December 31, 1998, you must look at the top panel of the drive where the month and date of manufacture is located.

A hearing will be held at the Superior Court of California, County of Alameda, Alameda County Administration Building, 1221 Oak Street, Oakland, California, in Department 22 at 3:00 p.m. on June 7, 2002 ("Settlement Hearing") to determine: (1) whether the proposed settlement of this action is fair, reasonable and adequate; (2) whether a final judgment should be entered dismissing the litigation on the merits as to Memtek Products, Inc. with prejudice to Plaintiffs and all members of the Settlement Class who do not timely request exclusion; and (3) whether applications to be made by Class Counsel for payment of fees and reimbursement of expenses and an incentive fee award to Plaintiffs should be approved by the Court.

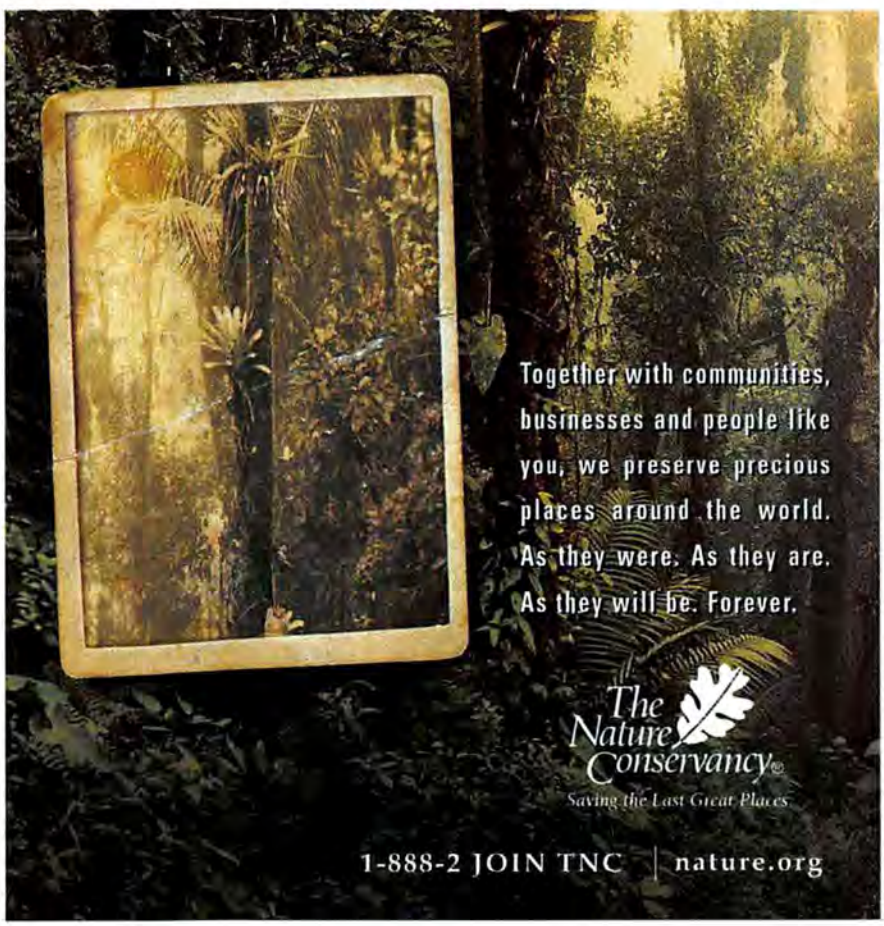
Under the Settlement Agreement, Memtek will provide Settlement Class Members with a replacement CDRW drive of equal or better specifications of your Memtek Recorders (i.e. at least a 2 x 2 x 6) or, for those class members who can demonstrate that such relief would not benefit them, $50.00, as more fully detailed in the Notice of Class Action Settlement.

You have a right to be excluded from the Class as detailed in the Notice of Class Action Settlement. If you wish to be excluded from the Class you must notify Class Counsel in writing, postmarked by April 26, 2002, at the following address: Jonathan Shub, SHELLER, LUDWIG & BADEY, 1528 Walnut Street, Philadelphia, PA 19102, Email: jshub@sheller.com

If you properly request exclusion, the terms of the settlement will not be binding as to you and you will be excluded from the Action. If you do not request exclusion from the Class and the settlement becomes effective, you will be bound by the terms of the settlement.

This is a summary notice only. For more information, call 1-800-207-0343, go online at www.memtekcdrecordersettlement.com or email Class Counsel, Jonathan Shub, at jshub@sheller.com.

PLEASE DO NOT CONTACT THE COURT.
Dated: January 28, 2002 By Order of the Superior Court of California



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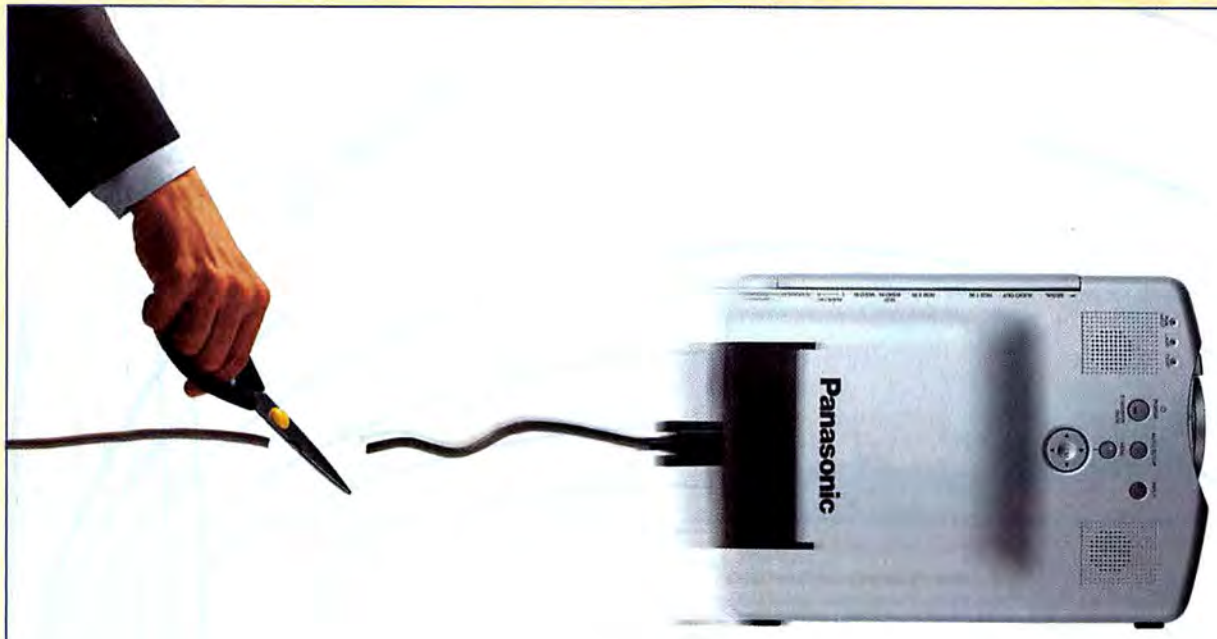

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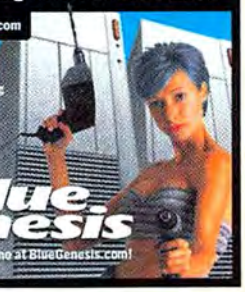

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Max. possible cost to you/ month	$15.95	$169.65	$469.10	$1,516.95
Your monthly gross profit @ $21.95 domain	N/A	$658.50	$1,865.75	$6,585.00
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Additional Profit Reselling AIT Extras**	**N/A**	**$1,500.00**	**$4,250.00**	**$15,000.00**
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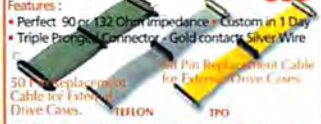

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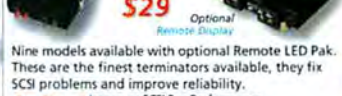

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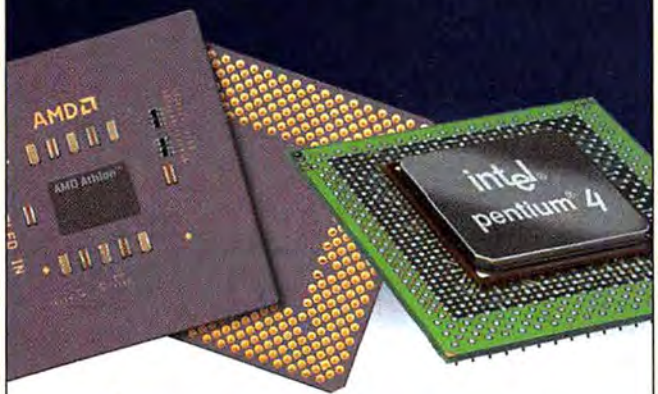

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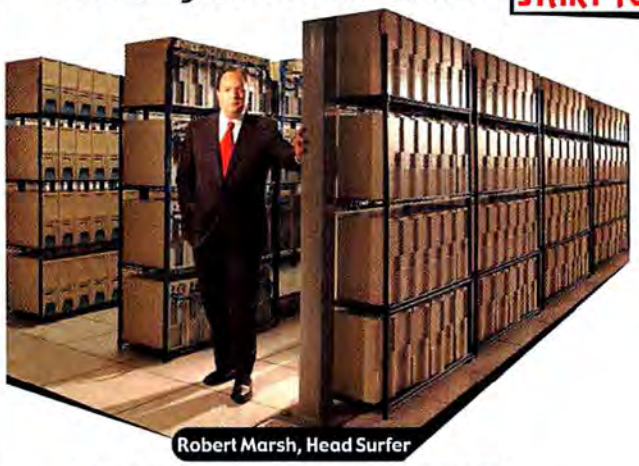

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FULL DISCLOSURE

STEPHEN MANES

Revealed! Why Web Sites Bring Us Woe

WHY DO SO MANY PEOPLE find so many Web sites so exasperating? Until now, no rational theory could possibly explain the horrible usability fiascos that sites big and small inflict upon us with every click.

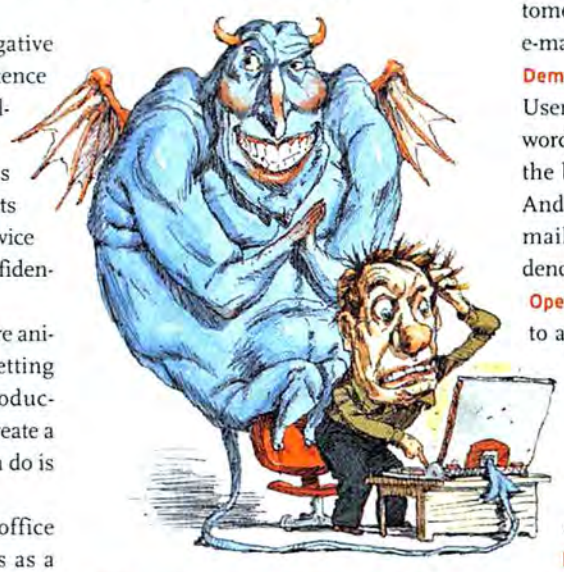
But the Full Disclosure Investigative Team recently discovered the existence of a secretive, yet successful, consultancy known as Web Online Experts—WOE for short. This dubious outfit has evidently been offering its services for years. Just look at the advice we uncovered in the company's confidential documentation:

Go flashy and stay flashy. Users adore animation! Don't even think about letting them skip your clever Flash introductions. If you've put in the effort to create a jazzy intro, the least a customer can do is sit through it on every visit.

Get loud. Workers surfing at the office enjoy a blast from their speakers as a pleasant respite from the daily grind—particularly if it's so loud they can't help sharing it with the boss two cubicles away.

Protect users from drive crashes. Hard disks can go bad when you least expect it. Design your site so that the "Save As" option refuses to capture to disk the information users want, thereby forcing them to preserve invoices, confirmation numbers, and other important information on good, solid paper. To placate travelers who sometimes find themselves without access to a printer, simply add a message urging "Write this down!"

Use human brainpower to format data. Why waste your company's programming and processing power on intelligently interpreting your users' input, when it's easier to keep 'em guessing? Someone too dim to realize that in your world "phone number" means digits without hyphens is someone you don't want as a customer.



Why does site design remain hellaciously bad? Here's the shocking inside story.

Cripple the Back button. Minimize indecision! Make sure that the Back button keeps the user locked securely in your domain. And punish those who try to key back to fix a single item—zero out the entire form, so they have to start from scratch. Your customers will quickly learn to get things right the first time!

Hide essential information. Incoming phone calls? A needless expense. Minimize costs by listing 800 numbers on a page users can locate only by finding the site map and digging downward. A customer who isn't satisfied with a canned e-mail response is a born troublemaker.

Demand passwords and e-mail addresses. Users expect to create and use new passwords for every site they visit. It's some of the best fun you can find on the Web! And nothing pleases them more than a mailbox full of fascinating correspondence with colorful HTML graphics.

Open lots of windows. Pop-ups add spice to any site, but pop-unders are better. Hide new windows, and frustrated users will click again and again, wondering when something will happen. When they discover all the boxes they have to close, you get more chances to bond with them.

Draft a very long privacy policy. If 20 pages are good, 50 are better! Frame the whole thing as a single scrollable page in a tiny, non-resizable window, so navigation is a challenge instead of a bore.

Use a tenth-rate search engine. Why waste money on decent search tools? People will soon figure out that Google works better on your site than your own engine does. You pocket the profits!

Now that we have revealed these dastardly practices, Webmasters may abandon them in shame. (Full disclosure: PCWorld.com currently follows a few of them itself.) If not—to use the consultancy's own slogan—WOE is the Web! ■

Contributing Editor Stephen Manes, a cohost of the public television series Digital Duo, *has written about PCs for nearly two decades.*

ILLUSTRATION: JOHN CUNEO

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***Computer Shopper* Editor's Pick**
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– October 2001

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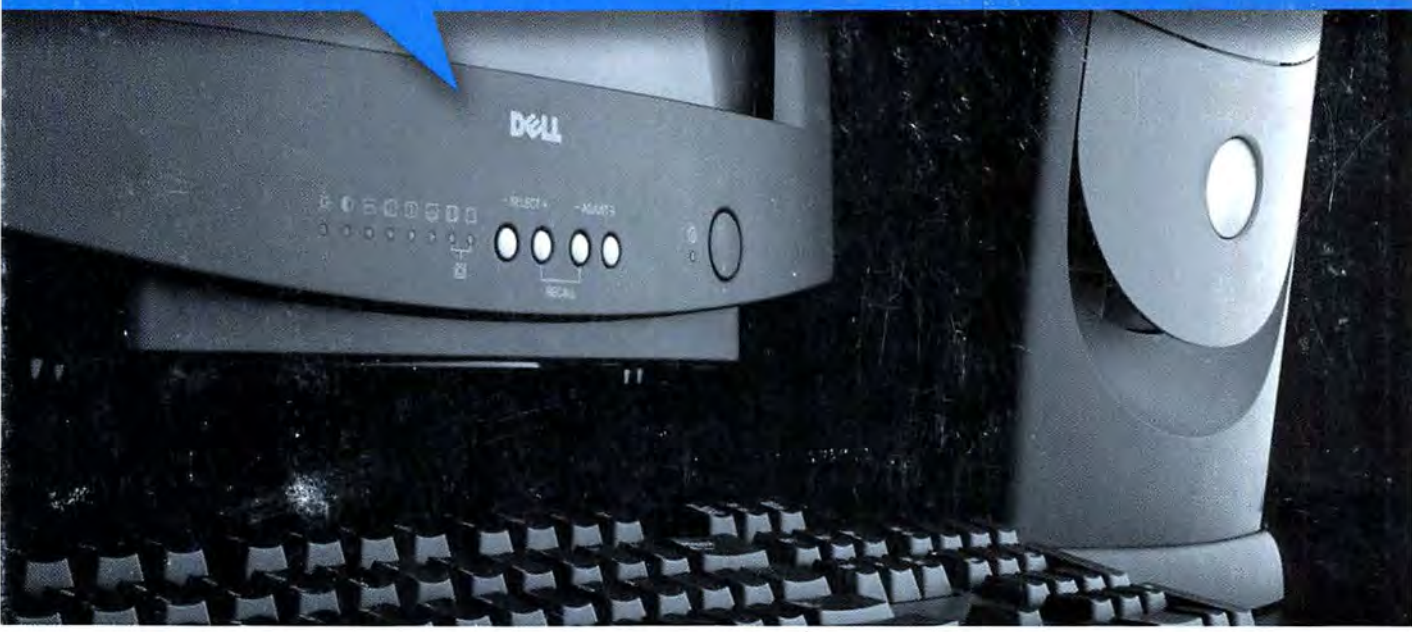

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