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THE NEXT WINDOWS



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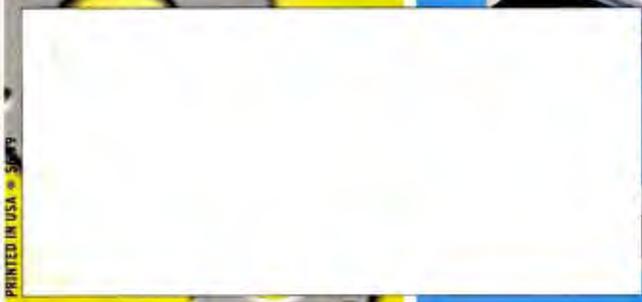
COOL WEB TOOLS

HIGH-DEF DVD



FOR 2006

**TODAY'S
HOTTEST
PRODUCTS
& BIGGEST
BREAK-
THROUGHS**



PRINTED IN USA • 50¢

Acer AcerPower™ S260

- Intel® Celeron™ D Processor 335 (2.80GHz)
- Memory: 256MB
- 80GB hard drive
- CD-ROM drive
- Windows® XP Professional

Recommended accessories and services:
Acer 17" LCD monitor \$229.95 (CDW 776588)
Acer 2nd- and 3rd-year depot warranty extension
\$68 (CDW 432473)

\$409 DESKTOP
CDW 753025
-30 TRADE-IN
\$379



Monitor and speakers
sold separately

HP Compaq Smart Buy Business Desktop dc5100

\$189
INSTANT
SAVINGS

Monitor sold
separately



- Intel® Pentium® 4 Processor 520 with
HT Technology (2.80GHz)
- Memory: 256MB
- 40GB hard drive
- 48X CD-ROM drive
- Windows® XP Professional

Recommended accessories and services:
HP Smart Buy 256MB memory upgrade \$45 (CDW 833335)
HP Smart Buy CD-RW/DVD-ROM internal combo drive
\$55 (CDW 642140)
HP Care Pack 4-year, next business day, 9 x 5, onsite warranty
upgrade \$110 (CDW 573011)

\$649 DESKTOP
CDW 790689
-30 TRADE-IN
\$619



HP ProLiant ML110 G2 Tower Server

- Provides all the relevant server features in an easy-to-use package
- Offers an affordable server solution with appropriate technology
suitable for small- to medium-size businesses
- Intel® Xeon™ Processor (3.20GHz)
- Memory: 256MB
- 80GB hard drive

\$809⁹⁵
CDW 751917



HP ProLiant DL140 G2 Rack-mount Server



- Offers an affordable 1U, dual processor capable server
equipped with essential performance features
- Ideal for general purpose and high performance computing
- Memory: 1GB std. with 8 DIMM slots for a maximum
memory load of 16GB
- Supports NHP SATA and SCSI hard disk drives
- Intel® Xeon™ Processor with 64-bit Technology (2.80GHz)

\$1376⁰⁸
CDW 780480



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\$1299 NOTEBOOK
CDW 833592
-200 TRADE-IN
\$1099



Toshiba Tecra A4-S313

- Intel® Centrino® Mobile Technology
- Intel® Pentium® M Processor 740 (1.73GHz)
- Intel® PRO/Wireless 2200 Network Connection (802.11b/g)
- Memory: 512MB
- DVD±RW Super Multi Drive
- 15.4" WXGA active-matrix display

Recommended accessories and services:

Toshiba Lithium-ion battery \$159.36 (CDW 745296)

Toshiba port replicator \$179 (CDW 577638)

Acer TravelMate® 4062WLMi

- Intel® Centrino® Mobile Technology
- Intel® Pentium® M Processor 740 (1.73GHz)
- Intel PRO/Wireless 2200 Network Connection (802.11b/g)
- Memory: 512MB
- DVD-dual drive (DVD±RW)
- 15.4" active-matrix display

Recommended accessories:

Acer power adapter \$69.26 (CDW 648942)

Acer eZDock docking station \$289.05 (CDW 751670)

\$1249 NOTEBOOK
CDW 852518
-200 TRADE-IN
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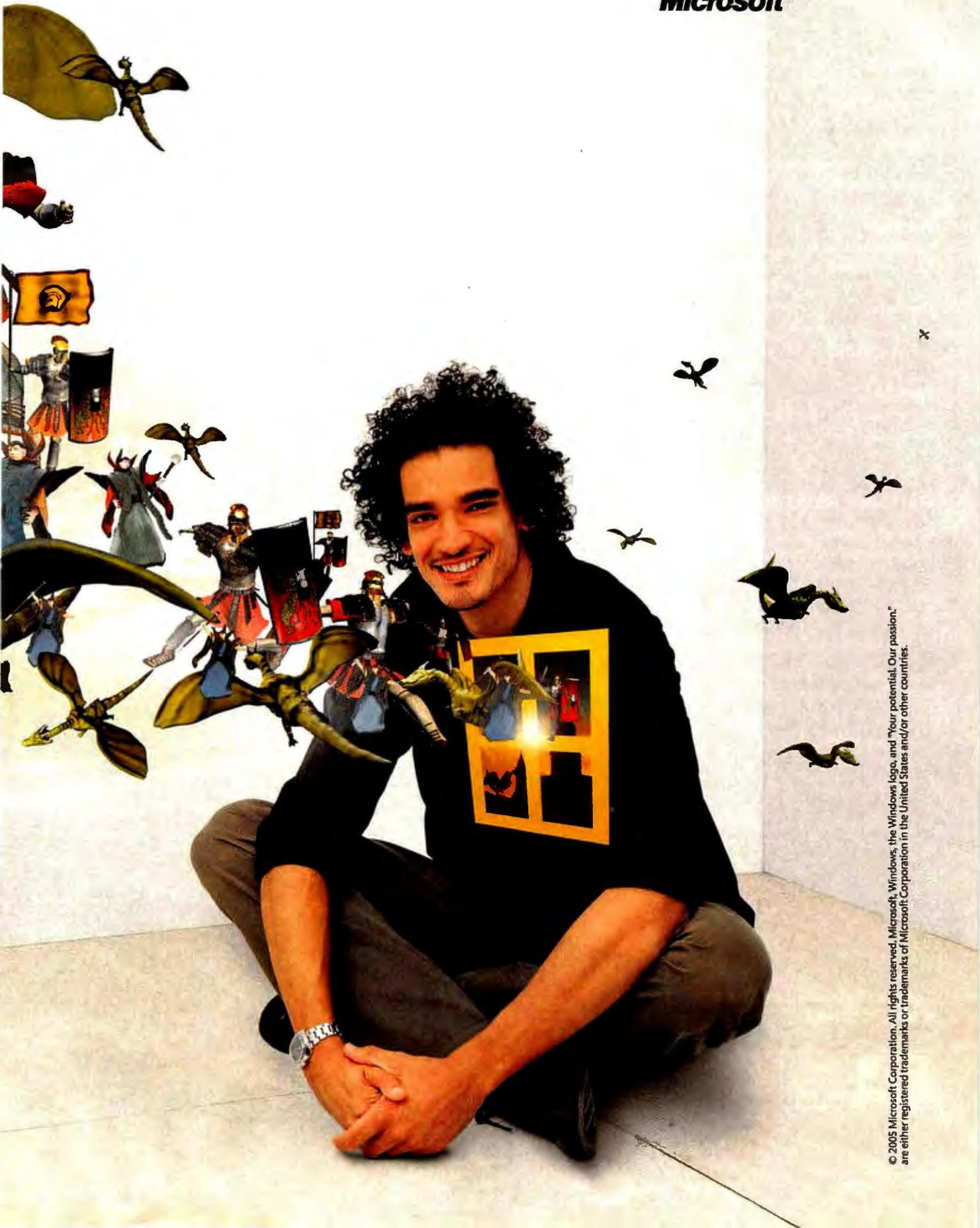
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Magnesium Alloy Chassis

Exterior casework material used in aerospace manufacturing maximizes durability without adding unnecessary weight.

60GB Hard Drive¹

Toshiba micro-engineering fits 60GB of data in a tiny 1.8-inch drive.

Thin. Light. Goes for hours.

Toshiba is always striving to make notebooks smaller, thinner, lighter — without compromising functionality. The Portégé[®] R200 is the latest result of that philosophy. Its sleek chassis is built from materials similar to those used in fighter jets. And starting at 2.68 lbs.² and just over half an inch thin, it still has enough battery life to last up to five hours.³ Portability plus performance. Size plus stamina. That's 360° innovation. That's Toshiba.

Hard Drive Protection⁵

3D accelerometer detects free falls and quickly prepares the hard drive for impact to help protect your data.

Where can innovation take you?
ToshibaByDesign.com/R200

Fingerprint Reader

Embedded biometric sensor helps prevent unauthorized access for better security.

Up to Five Hours of Battery Life³

Proprietary battery design and low-voltage processor optimize battery efficiency.

TOSHIBA

Innovation **by design.**

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6 seconds/image, duplex scanning*
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Perfect for busy mobile professionals who need a fast and reliable duplex scanner with a small footprint. Now you can scan and file all of your documents and photographs electronically right alongside your electronic documents from Microsoft Office, PDF files from Adobe Acrobat and image files from numerous other applications. Measuring only 2" x 2.5" x 12" and weighing a mere 20 ounces, the Strobe XP 300 is slim and lightweight. Fits neatly on a desk and packs easily alongside your laptop or in your briefcase. Scans anything, anywhere because it's both USB-powered through your USB port or wall-powered mode to conserve your laptop battery. Now you can quickly scan, file and store all of your documents, plastic ID cards, photos, articles, brochures and business cards no matter where you are.

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114 Software-Giant Killers

You don't have to break the bank for high-quality software. Instead of paying steep prices for the big packages, give these free and low-cost challengers—for office tasks, graphics, finances, and more—a try.



PRINTERS

133 Color Lasers Get Affordable

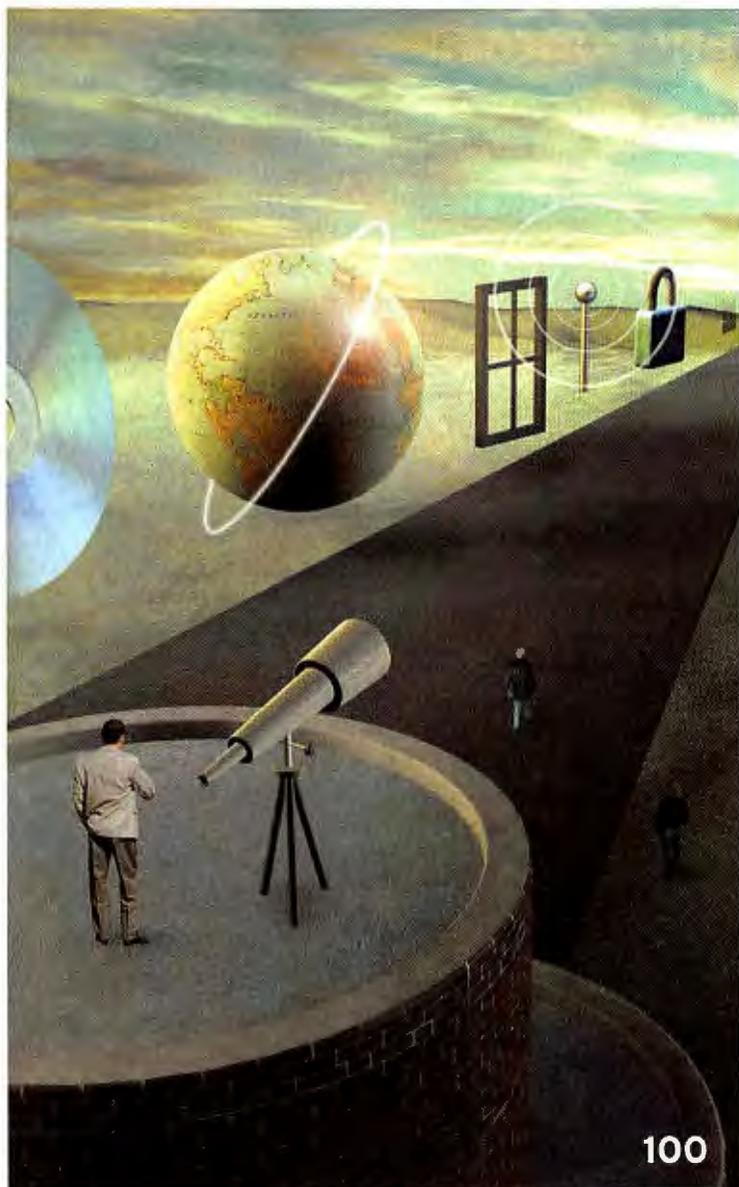
Many of the new models print color pages fast and pop out high-quality text—at prices rivaling those of photo inkjets. But purchase price is only half the story. Find out which printers are cheapest to operate over time.

ONLINE SHOPPING

157 Deal Finders

Online shopping has evolved: These days, many sites do the comparison shopping for you, searching for the best prices on everything from new PCs to office products to bottled water. After winnowing them down to nine worth trying, we pick our favorite.

ON THE COVER



FUTURE TECH

100 What's New for 2006

Next year promises to be a great one for tech innovations. Here's the scoop on some of the biggest developments in store: the release of Windows Vista, high-def-friendly DVD, the Web 2.0 revolution, advanced LED-backlit LCDs that have super-fast response times, long-range Wi-Max wireless, Apple Macs with Intel CPUs, and next-gen game consoles.



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Cover photography by Marc Simon

DO THE IMPOSSIBLE:

**Respond to 30 emails before
finishing your coffee...**

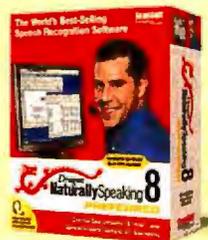
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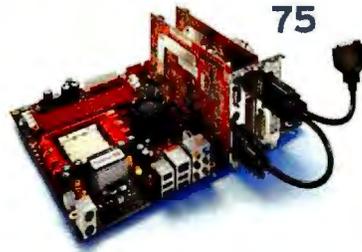
NUANCE

Dragon Dictation Solutions

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TO ACCESS INFORMATION about any item in *PC World* with an accompanying Find-It URL, enter find.pcworld.com/xxxxx (where *xxxxx* is the appropriate five-digit number) into your browser's location field. You'll jump to a Web page containing the information you want.

COMING UP IN JANUARY

Photography Superguide: The best cams, software, services, and accessories for point-and-shoot users.

Strip Your PC: Get a lean, clean machine by dumping unnecessary apps, files, features, and other gunk.

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**I checked my e-mail after I
finished the conference call.**

I replied to all

AND

I adjusted my sunglasses.

I took aim at the asphalt

as I popped the clutch,

ignoring the view

in my rearview mirror.

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LARGE-CAPACITY PLAYER

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Digital DVD Projector

HDTV
COMPATIBLE

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The MovieTime™ digital DVD projector from Optoma Technology easily turns any room into an instant screening room – right out of the box. With its built-in DVD player and speakers, MovieTime delivers bright, theater-quality images and easy-to-use features. Compact and stylishly designed, MovieTime is perfect for a wide-range of home entertainment options, from watching the latest DVD movie to playing the hottest titles on a video game console.

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J&R

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accept no

24" UltraSharp™ Flat Panel Display, XPS 200 desktop and XPS M170 notebook shown.

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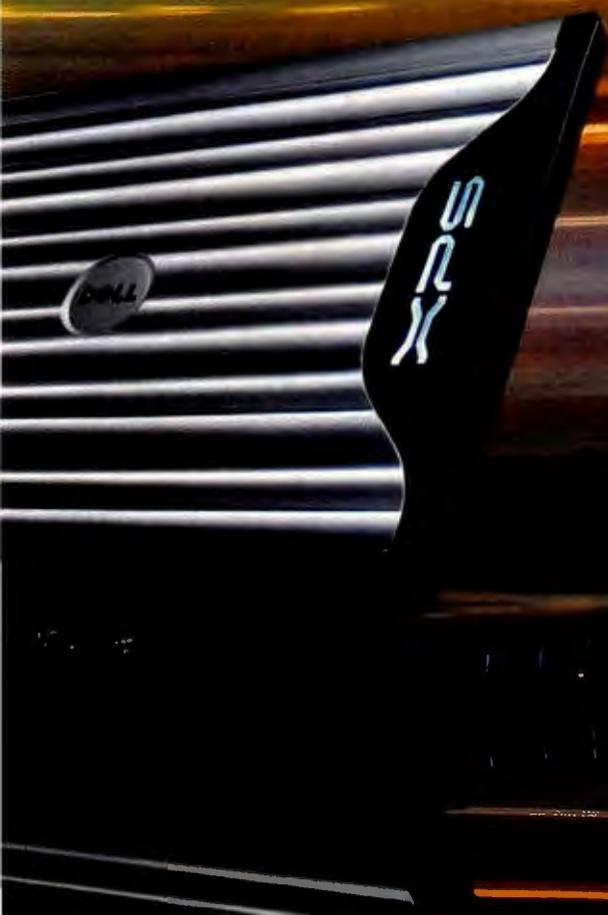


XPS

experience

Dell is taking personal computing to breathtaking new heights. With XPS muscle and powerful technology like the Intel® Pentium® D Processor* on the XPS 200 desktop, you can launch a full flight of programs, glide effortlessly between windows and let your creativity soar like never before. Adrenaline-rush performance, stunning design and dedicated support from specially trained XPS technicians are all part of the XPS experience. XPS does it all. And now so can you. Other XPS systems start at \$999.

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We still have Office 97.

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New Tools for Better Buying Decisions

You asked for it: We've upgraded our product reviews and rating system.

LAST MARCH, we invited a group of typical *PC World* subscribers to our San Francisco offices. After plying them with coffee, sticky rolls, and a tour of our Test Center, we got down to business: How would they change our product reviews to make them even more useful?

They had ideas. Lots of them. Editors, testers, and designers listened, scribbled notes, and brainstormed new concepts, which we proceeded to run by a panel of hundreds of readers. And then we went to work building the next generation of *PCW* reviews.

You'll find the fruits of our labor in *Reviews and Rankings*, a new section starting on page 62. A radical departure it isn't—readers urged us not to mess too much with a good thing—but it reflects the many requests we heard. Such as...

"Give us a one-stop resource."

The folks we surveyed asked for a unified product extravaganza rather than two disparate sections (our old *New Products* and *Top 100*). So, like *New Products*, *R&R* includes hands-on evaluations of an array of items, from mainstream hardware to specialty software and services. And like the *Top 100*, it boasts lab-based rankings of products in major categories, such as this issue's *Top 10 Desktop PCs*, *Top 10 Notebook PCs*, and *Top 10 Digital Cameras*.

The chart lineup will vary; sentiment ran strong that the magazine should pinpoint a few timely subjects each month, with our site serving as a comprehensive repository. Visit www.pcworld.com/reviews for all current rankings.

"How about an improved ratings system?"

With this issue, we bid our Star Ratings adieu, and replace them with all-new PC



OUR PRODUCT REVIEWS are powered by the collective smarts and hard work of the reviews staff and the Test Center. Back row (from left): Ramon McLeod, Laura Blackwell. Third row: Eric Butterfield, Dan Sommer, Tom Mainelli. Second row: Elliott Kirschling, Alan Stafford, Tony Leung, and creative director Robert Kanen. Front row: Narasu Rebbapragada, William Wang, Thomas Luong, Melissa Perenson.

World Ratings. (Yup—we like the new system so much we named it after ourselves.) *PCW* Ratings use a 100-point scale, giving us more elbow room to specify a product's precise quality compared with its rivals. Each rating is accompanied by a bottom-line word score, from "Superior" (we love it!) to "Poor" (skip it!).

"These new ratings are based on four things—performance, design, specs, and price," explains Senior Performance Analyst Jeff Kuta, one of the new scale's architects. Unlike Star Ratings, a product's *PCW* Rating can change as the market does. If an 8-megapixel camera's price tumbles by \$100, for example, its rating

may improve to reflect its better value. But if affordable 9-megapixel models arrive, the 8-megapixeler's rating could drop.

PC World Ratings will pop up throughout the magazine—as they do in the *News and Trends* story on cheap new laptops on page 22 and in "Color Lasers Get Affordable" on page 133. And of course, all new reviews on *PCWorld.com* will use them (already-published evaluations will retain their Star Ratings). For a detailed look at the methodology behind the measurements, see find.pcworld.com/49902.

"The more buying advice, the better."

The new section's reviews are complemented by three monthly elements—*Ask Our Experts*, *Tech Trend*, and *Gotcha!*—in which editors field shopping questions, spotlight features you'll find in the latest products, and puncture the hype that abounds in the tech world.

"Help us find stuff on your site."

Each month, *Reviews and Rankings* will wrap up with *More Reviews at PCWorld.com*, a hand-picked guide to online items that we think you'll like.

Performing such a thorough overhaul of *PCW*'s product evaluations has "meant long hours and long discussions—and a fair amount of spirited debate," says Senior Editor Tom Mainelli.

But we're not done listening and making tweaks. Write me at mageditor@pcworld.com with your thoughts on this issue's changes—and your ideas for the next generation of reviews to come. ■

Contact *PC World* Editor in Chief Harry McCracken at mageditor@pcworld.com; read his blog at blogs.pcworld.com/techlog.



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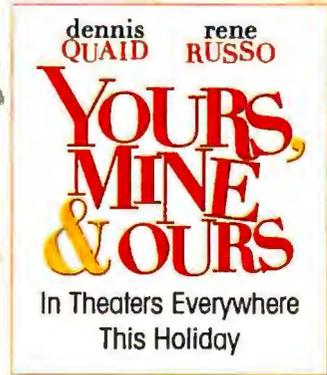
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NEWS & TRENDS

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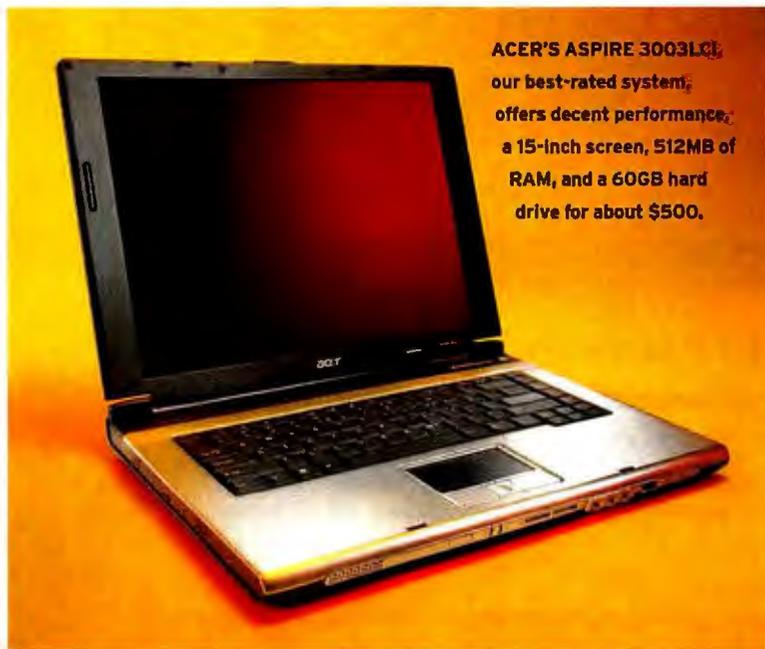
- 28 UNEXPECTED EXTRAS WITH YOUR FREE TOOLS
- 30 U3: PORTABLE PROGRAMS ON A USB DRIVE
- 34 MOVING YOUR NUMBER TO VoIP? PLEASE HOLD
- 36 PLUGGED IN: FASTER AND BETTER WEB E-MAIL

Solid \$500 Laptops

NOTEBOOK PRICES HAVE HIT A NEW \$500 LOW. WE TESTED THREE BUDGET UNITS, WHICH PROVED SURPRISINGLY CAPABLE AT STANDARD OFFICE TASKS. BY TOM SPRING

IS THE IDEA of getting a capable notebook from a major vendor for just \$500 too good to be true? Not if your needs are modest. Although such deals involve definite catches, our tests revealed that new bargain-basement models work well if you want a machine that handles e-mail, Web surfing, word processing, and other run-of-the-mill productivity chores.

We tested laptops from Acer, Dell, and HP's Compaq line; each company sells basic models for around \$500 (after rebates). Gateway and IBM are also getting into the act: As we went to press, both were advertising units starting in the \$500 range after rebates.



ACER'S ASPIRE 3003LCi, our best-rated system, offers decent performance, a 15-inch screen, 512MB of RAM, and a 60GB hard drive for about \$500.

These ultralow-priced systems challenge the adage that even the most inexpensive laptops are costlier than the lowest-priced desktops. "Now consumers can buy the com-

puter they want, not just the desktop they can afford," says Stephen Baker, an analyst who follows the retail PC market for NPD Techworld.

Thanks to strong sales of

budget notebooks, in August 2005 more laptops than desktops sold at retail stores for the first time ever. Notebooks represented 52 percent of retail PC sales, according to NPD. The rise in sales corresponds to a fall in prices: The average cost of a notebook during August 2004 was \$1350; in August of this year, it was \$1100, NPD says.

COMPROMISES

TO GET A notebook for about \$500, however, you'll need to

jump through some hoops. The Acer Aspire 3003LCi, for instance, has a retail price of \$649. But rebates and special offers make it available for \$499 at certain stores. Like-

wise, HP's Compaq Presario M2000 retails for \$579, and rebates can give you \$50 back. The Dell Inspiron 1200 is regularly priced at \$549; with an instant rebate at purchase time, you can get it for \$499.

Living with a cheap laptop requires making some compromises. Predictably, these low-cost systems didn't set any performance records, and they

lagged well behind the mainstream laptops in our WorldBench 5 suite of tests. Acer's unit scored the highest of the three, with a mark of 68—it had the fastest chip (a 1.8-GHz AMD Mobile Sempron 3000+) and the most memory

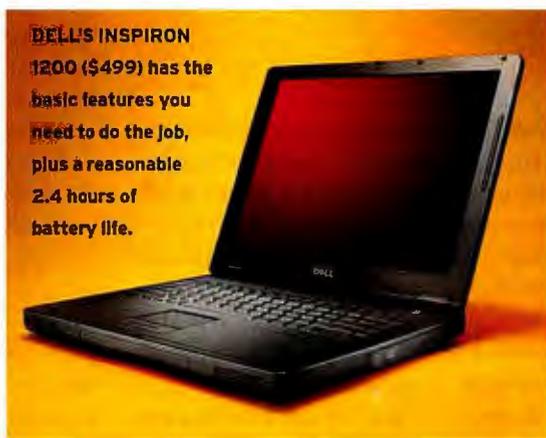
(512MB versus the others' 256MB). Still, the Acer's score was about 10 points below the average mark for mainstream notebooks in this month's *Top 10* chart (page 76). And its 1-hour, 19-minute battery life means you'll have very limited use away from power outlets.

Featuring a 1.3-GHz Intel Celeron M 350, the Dell Inspiron 1200 earned a WorldBench 5 score of 57; the Compaq Presario M2000, with a 1.4-GHz Celeron M 360, managed a score of 60. You'll want at least to upgrade to 512MB of RAM—the minimum we recommend for Windows XP—for more comfortable computing. That will tack on about \$50 to the overall cost.

All three notebooks also relied on lower-end integrated graphics that use the PC's chip set and main memory instead of a dedicated graph-

ics chip and memory. Such a graphics setup won't cut it for serious gaming or video editing, but in our tests it was fine for DVD playback.

These models scored about on a par with more mainstream systems in the portion of WorldBench 5 dealing with common productivity tasks, such as surfing the Net with the Mozilla Web browser,



DELL'S INSPIRON 1200 (\$499) has the basic features you need to do the job, plus a reasonable 2.4 hours of battery life.

using Microsoft Office 2003, and editing photos with Adobe Photoshop. If you're a buyer on a budget, a student, or a home or home-office user looking for an inexpensive second system, you should find any of these notebooks suitable. Gamers and users of more demanding graphics and audio applications, however, should stay away.

PLUSES AND MINUSES

THOUGH THESE notebooks are reasonably capable, they lack several amenities common in more mainstream models. For example, only Acer's Aspire 3003LCi included integrated Wi-Fi support; Dell's Inspiron 1200 and HP's Compaq Presario M2000 omitted wireless functionality. None of these systems came with a reader for removable flash media cards; they also

lack a rewritable DVD drive.

Storage capacity was limited in two of our models, with the Dell and the Compaq offering 30GB and 40GB hard drives, respectively. The Acer included a more mainstream 60GB drive. The Acer and Dell each had a DVD-ROM/CD-RW combination drive, while the Compaq was equipped with only a DVD-ROM drive.

On the plus side, however, each of the systems came with ports for USB 2.0, ethernet, a modem, headphones, and a microphone, as well as one PC Card slot. The Compaq even featured a fast FireWire port.

And there was something about each notebook that pleasantly surprised us. The Compaq turned out to have great sound and design. The Acer came with user-programmable shortcut keys for instantly launching your favorite applications and Web sites, and its touch pad had an extra mouse button in the middle for four-way scrolling. The Dell offered a generous three USB ports and had a good, 2.4-hour battery life.

You can also upgrade each of the notebooks, which has not always been true of budget systems we've looked at in the past. For example, each accepts memory upgrades and lets you swap the hard drive for something bigger.

You get a reasonable warranty from Acer and from HP: Their systems each come with a one-year service and telephone-support contract. ►

IN BRIEF

Product Pipeline



IPOD FOR TV JUNKIES:

Apple's latest iPod plays video on a good 2.5-inch, 320-by-240-pixel color LCD. Now, for \$2 each, iPod users can download select ABC TV shows, any of 2000 music videos, or Pixar animated shorts from Apple's iTunes store. The new models come in 30GB (\$299) and 60GB (\$399) versions. You can use Apple's \$30 QuickTime Pro 7 to transfer non-copy-protected material to the iPods. For \$19, you can get the right AV cable to show iPod content on a PC or TV.

PALM RETURNS: The Palm brand is back, in two new PDAs. The \$299 Palm TX boasts built-in Wi-Fi and Bluetooth, a 320-by-480 active-matrix color screen, a 312-MHz Intel Bulverde CPU, and 128MB of flash memory. It also has software for editing Word, Excel, and PowerPoint files; for Web browsing; and for playing MP3s.

The entry-level \$99 Z22 model gives users a 160-by-160 color display and 32MB of memory, plus a USB port that can recharge the device via an AC adapter and connect to a PC to sync data.



Dell includes no phone or hardware support beyond the skimpy 90-day warranty, but a full year of mail-in service and telephone technical support costs just \$25 extra.

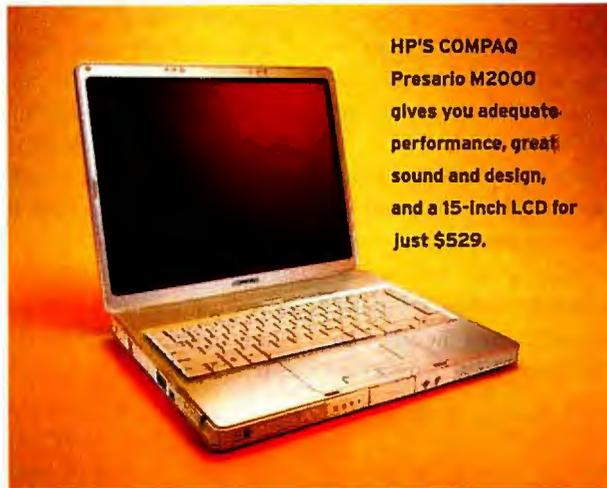
PRICES PLUMMETING

HOW LOW CAN laptop prices go? Lower than \$500, say a number of PC vendors.

The cheapest notebooks could sink to the \$400 range by the end of this year and may even drop as low as \$300 by late 2006, according to various computer vendors, chip experts, and PC industry observers. In fact, as we went to press CompUSA was selling a Compaq laptop for \$425 after \$300 in various rebates.

"It used to be notebooks would sell for close to \$600 only as a stunt," says Mark Margevicius, an analyst with Gartner Research. But now some laptops have sold for that price consistently, he says.

Due to increases in production, some expensive notebook components have dropped in price, explains Roger Kay, ana-



HP'S COMPAQ Presario M2000 gives you adequate performance, great sound and design, and a 15-inch LCD for just \$529.

lyst with Endpoint Technologies Associates. That in turn drives system prices down.

For example, the cost of a flat-panel display, which accounts for over half the total cost of a notebook, has fallen by 70 percent over the last 12 months, according to market research company iSuppli. The cost of other expensive notebook components, such as hard drives and memory, has halved over the past 12 months, says iSuppli.

Cheaper components don't mean shoddy products, say

vendors. Low-cost machines are put through the same quality-control checks as any other computer, they say.

"These entry-level models deliver a solid and basic computing experience," says Matt Jorgensen, a Dell product marketing manager.

But Dell and other vendors we spoke with admit that low-priced models often serve as bait. HP says that low-end notebooks are meant to lure prospective buyers in. "It gives sales staff an opportunity to get you in the door and then

coax you to upgrade," says Denise Dibble, product marketing manager for HP's consumer notebooks division.

KNOW WHAT YOU NEED

BEFORE YOU CLICK to buy any budget system, make sure it will be able to do what you require. Although spending more money is exactly what vendors hope you'll do, you really are better off paying up front to get as much computing power as you need. You may not have to spend too much more, however.

For example, by spending \$50 more to get the Dell Inspiron 6000, we got a one-year warranty, a 40GB hard drive, and a 15.4-inch LCD screen, compared with the Inspiron 1200's 90-day warranty, 30GB hard drive, and 14.1-inch LCD. As in our case with Dell, you may have to look at the next model up to get the features you want. Some vendors sell only fixed laptop configurations, with few or no options to upgrade before you buy.

Also, consider whether you really need a portable computer. Though prices for cheap laptops and cheap desktops are almost the same, you'll still get far more performance for your buck with a discount desktop. A \$450 HP Compaq Presario SR1420NX Minitower ships with a 2.93-GHz Intel Celeron D CPU, 512MB of RAM, an 80GB hard drive, a nine-in-one integrated media card reader, and a DVD±RW drive. You'll have to add \$100 for a 17-inch CRT display or \$200 for an equivalent-size LCD monitor, though.

PC World Contributing Editor *Carla Thornton* provided additional reporting for this story.

FEATURES COMPARISON

ACER LEADS THE VALUE PACK

THESE LAPTOPS PERFORM office or Web tasks well, but some skimp on RAM, storage, or battery life.

	NOTEBOOK	PCW Rating ¹	Price (with rebate/without) ²	Performance	Features and specifications
1	Acer Aspire 3003LCI find.pcworld.com/50006	75 Good	\$499/\$649	<ul style="list-style-type: none"> WorldBench 5 score: 68 Tested battery life: 1:19 	<ul style="list-style-type: none"> 1.8-GHz Mobile Sempron 3000+ 512MB memory 60GB hard drive 15.0-inch screen
2	Dell Inspiron 1200 find.pcworld.com/50008	73 Good	\$499/\$549	<ul style="list-style-type: none"> WorldBench 5 score: 57 Tested battery life: 2:24 	<ul style="list-style-type: none"> 1.3-GHz Celeron M 350 256MB memory 30GB hard drive 14.1-inch screen
3	HP Compaq Presario M2000 find.pcworld.com/50007	72 Good	\$529/\$579	<ul style="list-style-type: none"> WorldBench 5 score: 60 Tested battery life: 2:06 	<ul style="list-style-type: none"> 1.4-GHz Celeron M 360 256MB memory 40GB hard drive 15.0-inch screen

TEST CENTER FOOTNOTES: ¹ Ratings take into consideration the full, prereduced price. ² Rebate price includes rebates and special offers at certain retail stores. All prices are as of 10/4/05. **HOW WE TEST:** All systems came with Windows XP Home Edition. For information on our benchmark test suite, visit www.worldbench.com. A higher score is better. Tests conducted by the PC World Test Center. All rights reserved.

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DOWNLOADS

Software Surprises

WELL-KNOWN COMPANIES ADD UNRELATED APPS AND TOOLBARS TO DOWNLOADS.

IF YOU'RE INTERESTED in trying AOL's newest Instant Messenger software, you'd better make room on your hard drive. The public beta for AIM's next-generation application, code-named Triton, doesn't put just the instant messaging client on your PC. When we downloaded the beta version of Triton, we also got AOL Explorer—an Internet Explorer shell that opens, full screen, to AOL's AIM Today home page when you launch the IM client—as well as PlaxoHelper, an application that ties in with the Plaxo social-networking service. Triton also installed two programs that ran silently in the background even after we quit AIM and AOL Explorer.

QUEST FOR CLICKS

IN THE STRUGGLE to hold on to users, whose eyeballs and clicks pay the bills for ad-supported services, such well-known companies as AOL, Google, MSN, and Yahoo, among others, are increasingly bundling their free toolbars,

instant messenger apps, and utility software together—or even with totally unrelated applications. The companies don't include truly dodgy spyware or adware, but customers nonetheless object to these unannounced visitors.

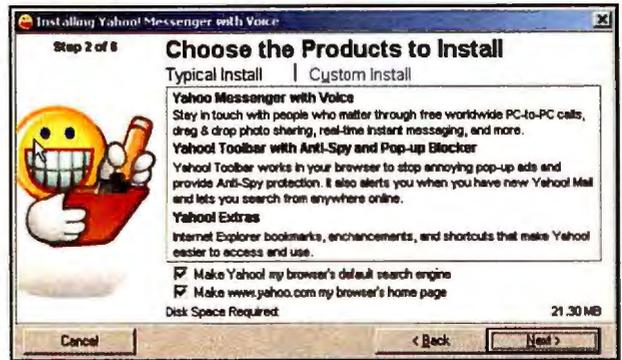
"I never said I wanted the [Yahoo] toolbar," says Miel Van Opstal, who found it on his PC after he upgraded his browser's Flash plug-in. "I feel betrayed, dirty, and used."

Bundling unrelated applications isn't new; but as companies refocus on their role as Internet portals, they are making more of an effort to get you to install their extras. "People's loyalty increases as they engage with more than one service" from the same company, says Yahoo spokesperson Terrell Karlsten.

The approach a company takes to bundling can vary greatly. Google makes it obvious when another application tries to install its toolbar. When you install the file compression utility Winzip, for example, it brings along the



TOOLBARS GET BUNDLED with all sorts of unexpected applications; Google's toolbar comes with InterVideo's WinDVD 7 movie player app.



YAHOO MESSENGER also installs the Yahoo Toolbar and changes other settings, unless you run a "Custom Install" and choose not to.

Google Toolbar—unless you tell it not to. But of the four instant messaging programs we tested, only Google Talk 1.0.0.68 didn't attempt to install anything else.

Both MSN Messenger 7.5 and Yahoo Messenger 7 with Voice install browser toolbars, change your home page, and alter Internet Explorer's default search settings. Both programs add the toolbars and make these changes when you opt for the default installation settings, but they permit you to customize your installation by deselecting some of the extraneous apps during setup.

AOL Instant Messenger's Triton Beta 0.5.21 never gave us an option to refuse the additional software. In our testing, we weren't even informed about the non-IM add-ins, such as PlaxoHelper. We saw how much extra stuff we got only *after* the software was installed and running.

Software bundling sometimes annoys even people within the companies concerned. Yahoo employee Jeremy Zawodny railed against the practice with a posting on his blog (find.pcworld.com/49976) titled "No, you may not change my f'ing home page!"

"I don't know which company started using this tactic, but

it's become the standard operating procedure for lots of software out there. And it sucks," Zawodny complains. "Leave my settings, preferences, and desktop alone!"

CUSTOM INSTALL

IF YOU WANT to avoid bundled apps, pay close attention to free software's dialog boxes during the setup process. Never click blithely through screens; if it's available, pick the "custom" installation, which lets you deselect optional extras you might not want.

Not every bundle gives you such control, though, so keep in mind that you might be able to remove the extra apps separately (AIM Triton includes the AOL Uninstaller, which can remove all non-AIM bundled apps after you install the whole Triton package). But occasionally, you can't separate the extra stuff from the main program; your only choices then are to remove everything, live with it, or switch to an alternative.

In the worst-case scenario, where you can't seem to get rid of an unwanted app, Windows XP's System Restore function (see find.pcworld.com/49977) may be able to return your computer to a cleaner state.

—Erik Larkin

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SAMSUNG

MOBILE COMPUTING

U3: Portable Programs on a USB Drive

NEW PLATFORM LETS YOU RUN APPS ON ANY PC WITHOUT LEAVING DATA ON HOST MACHINE.

PETITE USB drives, already handy for carrying data, are getting smarter: New technology from a company called U3 allows a drive to store and, when plugged into any PC, securely run applications—without leaving a trace of data on the host computer. The applications (which must be U3-compliant), data, and personal settings all reside on the portable drive, permitting you to temporarily turn any Windows 2000 or XP system into a personal workstation without threat to your privacy.

THE U3 EXPERIENCE

WE TRIED OUT one of the first U3 drives, a 256MB pre-production Memorex TravelDrive that came preloaded with Migo desktop-syncing software, the Mozilla Thun-

U3 was designed so that it could also be used on devices like CompactFlash cards.

derbird e-mail client, and a U3 version of McAfee VirusScan. When we plugged the drive into an available USB port, two new drive letters appeared in My Computer: one for a standard USB drive, and another, labeled U3 System, that functioned like a virtual CD-ROM, allowing U3 programs to launch automatically the way that apps on a CD do.

A U3 icon appeared in the system tray, as well; clicking the icon launched the U3 desktop menu, which looks vaguely reminiscent of the Windows XP Start menu, displaying a list of the available applications in one column and several utilities for exploring and managing the drive in the other. In the lower-left corner, a Download Programs icon links to the U3 Software Central site, where you can browse and download additional software.

When you're done, you click an eject button on the menu to safely remove the device (although if no apps on the drive are open and you aren't copying any data onto the drive, you should be able to simply unplug it without problems). As promised, the drive left no traces of the applications on our test PC, apart from the device number that any USB drive leaves in the Windows Registry when plugged in.

The use of USB drives for portable applications isn't brand new. M-Systems XKey drives, for example, let you carry Outlook with you and—when you plug your drive into an Internet-connected PC—synchronize data with a cor-



MEMOREX'S U3 TRAVELDRIVE looks like a standard USB drive, but can store and run apps.

porate Exchange server. But until now, such functionality was based on proprietary technology. U3, which was formed by M-Systems and SanDisk, will license its computing platform to any developer that wants to distribute an application on a U3-compliant drive. At press time, several dozen companies had either released or announced U3 versions of their software, including America Online, ArcSoft, Cerulean Studios (maker of the Trillian universal instant messaging client), McAfee, Nullsoft (developer of the WinAmp digital audio software), and Skype. In addition to M-Systems and SanDisk, about a half dozen vendors, including Kingston Technology, Memorex, and Verbatim, have announced U3 drives.

"Running applications from the USB drive means, in essence, your entire computer

productivity can be handled strictly from the thumb drive itself," says veteran technology consultant Tim Bajarin, who predicts that by the beginning of 2007 more than half of USB drives will ship with bundled software.

A drive's capacity will, of course, limit its ability to hold applications and data. Most of the first U3 devices being released are 512MB or 1GB models priced between \$42 and \$100; currently

only Memorex offers 256MB (\$30) and 2GB (\$180) drives.

Software bundles vary: In addition to Migo, Thunderbird, and VirusScan, the first U3 apps include PreClick's PhotoBack image editor, Skype's VoIP software, and the USafe password protector.

SOFTWARE WISH LIST

U3 CEO KATE Purmal says the technology was designed so that it could conceivably be used on other portable storage devices such as CompactFlash or SD cards. She says U3 is negotiating licenses with more than 30 hardware and software vendors. "From the consumers we questioned, the most frequently requested programs they would like to see are secure browsing, e-mail, and financial programs such as Quicken and QuickBooks," she says.

—Michael S. Lasky

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HP recommends Windows® XP Professional.



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NET PHONES

Moving Your Number to VoIP? Please Hold

TAKING YOUR PHONE NUMBER WITH YOU TO A VoIP SERVICE CAN TAKE MONTHS.

CHANGING CELL phone companies? You can keep your number. Changing local phone companies? Same deal. Switching over to Internet phone service? Well....

Over the last several years, consumers have become accustomed to retaining control of their phone numbers—specifically, being able to transfer them when switching cellular or local landline services. But the situation is less clear for relatively new Voice-over-IP services. The Federal Communications Commission has yet to decide whether and how number portability—be it to or from a landline service, a cell phone service, or another VoIP service—and other telecom regulations should apply to VoIP.

Meanwhile, some of those consumers who venture into the brave new world of Internet phone service are discovering that even when no one challenges their right to hold on to a phone number that they've had for years, red tape can make implementing a transfer much more time-consuming than they expected.

FOUR-MONTH WAIT

JERRY GERLACH, technology director for the town of Biddeford, Maine, says that while he's happy with his Vonage VoIP service, he was frustrated that it took more than four months for Vonage to transfer his phone number of 13 years from his previous VoIP provider, Time Warner. (Time

Warner took only a few hours to get the number from Gerlach's landline service in 2001.)

Gerlach says that he became "fairly aggressive" after two months, going so far as to track down a Vonage vice president's e-mail address and to file an online complaint

must also possess an interconnection agreement, which spells out how a transfer will be handled, with the phone company that has been servicing the number. Then the VoIP company's landline partner can arrange the transfer.

The customer is usually not

sary to transfer cell phone numbers, Morgenstern says.

The good news is that if the agreements are already in place, transferring your phone number to VoIP service can be speedy and smooth. For instance, two other Vonage customers, Dan Bahr of Bellport, New York, and John Painter of Lewiston, Maine, both say that their transfers took less than the 20 days Vonage estimated for the process. However, both men transferred their phone numbers from Verizon, which has an agreement with Vonage.

If you're thinking of taking the Internet-phone plunge and you want to retain your current number, you can do a few things to help smooth the transition. For starters, contact your prospective VoIP service (see our September review, "Net Phones Grow Up," at find.pcworld.com/49904 for suggestions) and ask whether it has an agreement with your current phone company. If it doesn't, you might want to wait until it does—or shop around for a different company that has an agreement.

Also, be very careful when filling out any forms: Even making a simple mistake like transposing two letters in the name of your street could stop the whole process and force you to start from scratch. For more on what to expect when you try to transfer your number to a VoIP service, see find.pcworld.com/49905.

—Erik Larkin



JERRY GERLACH HAD TO WAIT more than four months for Vonage to transfer his number from his previous VoIP service, Time Warner.

with the FCC. He says a Vonage official finally told him the problem was the company's lack of a number-transfer agreement with Time Warner. (A Vonage spokesperson said the company doesn't comment on these agreements.)

Why are transfers so problematic? Stand-alone VoIP firms such as Vonage must partner with traditional landline carriers to give customers any phone number—new or existing. To transfer an existing number, a VoIP company

even aware of these arrangements, but they can seriously prolong the transfer process.

A NUMBERS GAME

SOUND COMPLICATED? It is. "It's a complex industry," says AT&T CallVantage spokesperson Gary Morgenstern. Even AT&T, which can offer its VoIP customers phone numbers from its own huge pool, is limited in its ability to provide number portability. The company still lacks the interconnection agreements neces-

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YAHOO, MICROSOFT UPDATE E-MAIL

The Buzz: Viewing e-mail through a Web service like Hotmail has always been convenient but clunky—messages sometimes take a long time to open, and sorting through a large inbox is painfully slow. But new Web mail services from Microsoft and Yahoo promise to bring the power and speed of



desktop e-mail applications to your browser. Yahoo started an invitation-only beta test of its new Web mail interface in September. The new Yahoo Mail service lets you file messages by dragging and dropping them, opens new messages in Firefox-like tabs, and



scrolls quickly through the most jam-packed inboxes (no more clicking through multiple pages of e-mail). Microsoft's service, code-named Kahuna, uses a similar drag-and-drop, desktop-friendly style, but isn't quite as far along as Yahoo's offering.

Bottom Line: As slick as the new mail services are, there's still one good reason to keep your desktop mail program around: offline e-mail reading and composition.

THE NON-PALM TREO

The Buzz: The Cubs didn't even make the playoffs this year, so hell can't

have frozen over, but Palm's latest smart-phone announcement has to have dropped the temperature down there a few degrees. The upcoming Treo 700w will be the company's first device to run the Windows Mobile operating system. Early next year Verizon Wireless will be the first carrier to offer the new Treo—on its EvDO network, which sup-



ports data download speeds of 400 to 700 kbps. The 700w will run version 5 of Microsoft's handheld OS and will come with 64MB of memory, a 1-megapixel camera, Bluetooth support, and a 240-by-240-pixel screen.

Bottom Line: Most of the Treo users I know are pretty happy with the Palm OS-based version of the device, so the Windows Mobile flavor will appeal primarily to business users whose picky IT departments won't support

HERE\NOW

1 MEEBO.COM: Web-based IM client lets you chat with buddies using Ajax (Asynchronous JavaScript and XML) technology.

2 GOOGLE READER: Receive RSS news feeds and alerts Google-style. google.com/reader

3 MILLIONSOFGAMES.COM: Diversions rise to the top of this browser-based game aggregator.

4 ROLLYO: Search a customized subset of the Web consisting of up to 25 sites. rollyo.com

5 ANTEC P150: A quiet-PC case for the do-it-yourself masses. \$179 with 430-watt power supply. find.pcworld.com/49907

Palm PDAs—as well as to addicts of Windows Mobile's Jawbreaker puzzle game.

MUSIC GOES WIRELESS

The Buzz: Who needs ring tones, when you can download whole tracks or even albums to your wireless phone? Wireless providers are ready to enter the music business: Cingular will launch a music store (with Apple) early next year, Sprint is working with Rhapsody and Sirius, and Verizon says it's planning its own music service, too.

Bottom Line: Ring tones, SMS messages, picture mail, roaming charges, and now music stores? Soon parents will be starting mobile phone funds at the same time they begin saving for college. ■

You can contact PC World Senior Editor Eric Dahl at eric_dahl@pcworld.com; visit find.pcworld.com/31643 to read additional Plugged In columns.

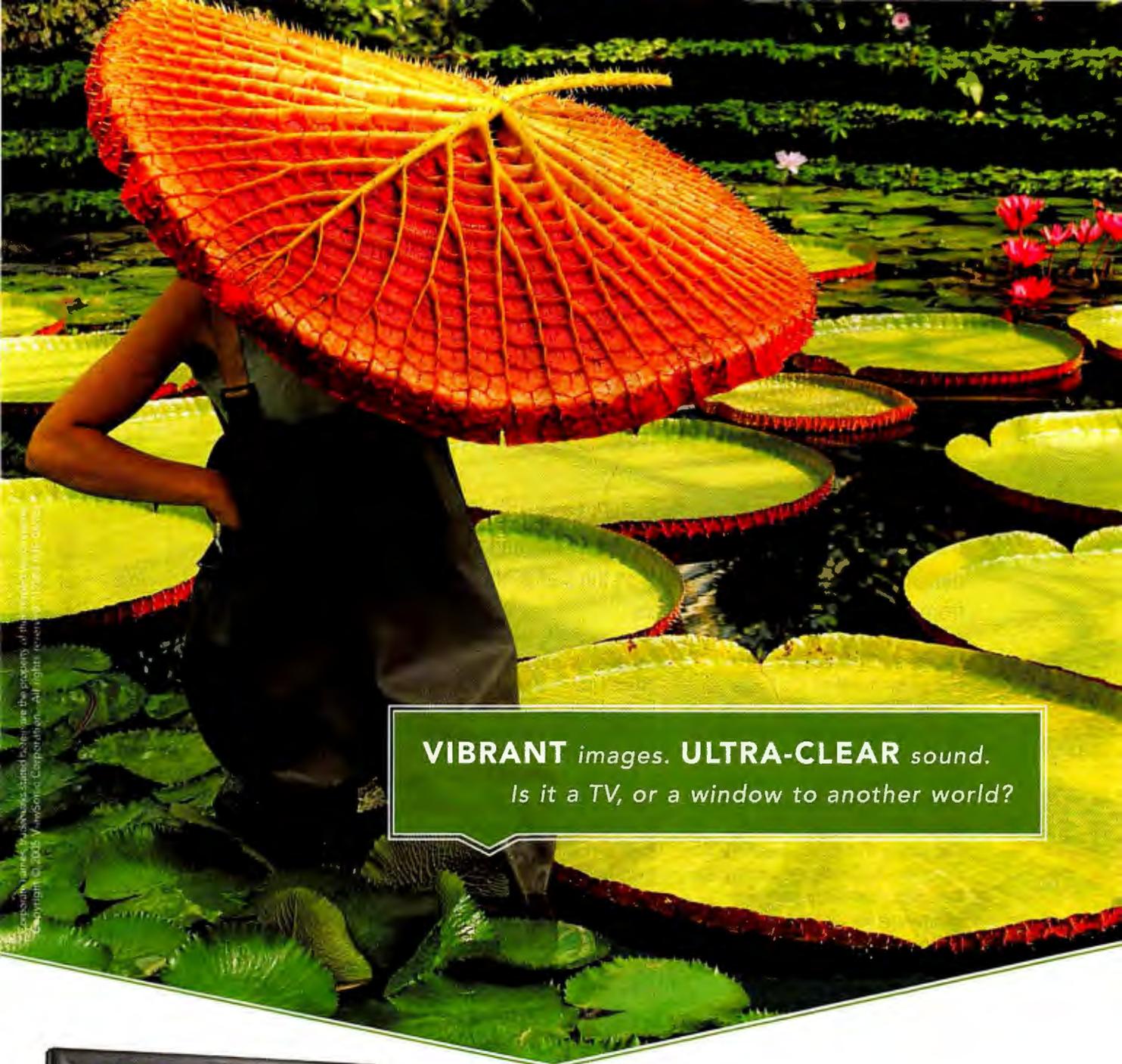
FUTURE TECH

Holographic Storage

IMAGINE STORING 300GB on a piece of plastic not much larger than a DVD. That is the premise behind InPhase Technologies' new holographic storage technology, which uses a pair of lasers to create three-dimensional interference patterns that can represent up to a million bits

at once. InPhase hopes to bring a product to market sometime during 2006. Toshiba has invested in a competing firm called Optware that is developing a 1.6-terabyte holographic disc format. Rumor has it Hollywood is already working on ways to make these discs a huge pain to use.





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PRODUCTIVITY BOOSTER ROCKET

FileMaker Pro 8 accelerates work and drives business benefits all the way to the bottom line.

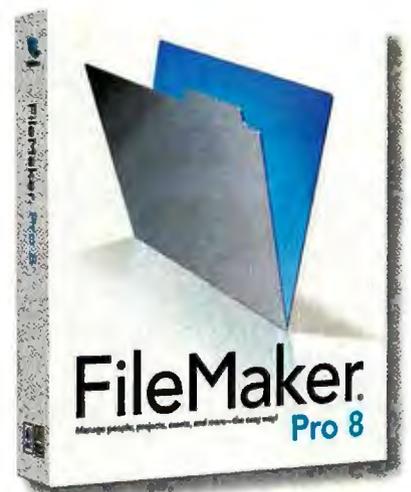
THE CUSTOMERS OF TRUE NORTH PRINTED PLASTICS ARE AMONG THE most sophisticated manufacturers in the world, and they often demand virtually real-time updates on the status of orders from True North and other suppliers.

Thanks to FileMaker Pro, that is no problem for True North and its customers. That's because True North's employees regularly log the status of all ongoing work into FileMaker Pro: information like job completion percentage, estimated ship date of finished work, arrival date of the order, and so on. With simple Web access, True North's customers log directly and securely into these status updates, gaining vital information that helps them better plan their own manufacturing schedules. That's customer service, FileMaker style.

"It's been a godsend," says Andrew

Struthers regarding FileMaker Pro. "There's just no other solution on the market that can provide the functionality, power, and ease of use of FileMaker Pro."

Struthers ought to know. As IT manager at Mississauga, Ontario-based True North, Struthers and his small IT team use FileMaker Pro to "run the entire facility." That means everything from sales quote requests to time and work management, barcoded inventory control, purchasing, contact management, contact event history, and the entire accounting system. And now True North is rapidly cutting over from



FileMaker Pro 7 to the new FileMaker Pro 8 during a transition that Struthers says has been "seamless."

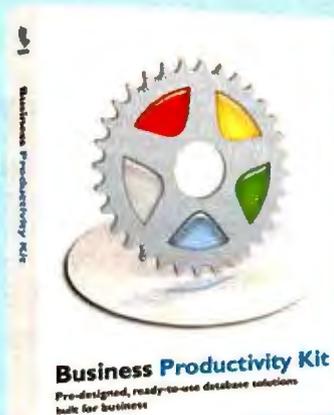
Real solutions, real competitive advantage

True North is among literally thousands of businesses that are leveraging the productivity-boosting power and customer-pleasing functionality of FileMaker Pro to gain that extra yard of competitive edge. Like a genie in a bottle, FileMaker Pro 8 is a high-performance solution to the most common and pressing information management challenges facing small businesses in virtually any market.

FileMaker Pro 8 has been built on the simple but powerful premise that information drives business success, and the easier information can be created, stored, and distributed, the more successful will be the business.

Try it free for 30 days

You can experience the real business benefits of FileMaker Pro 8 for yourself at absolutely no cost or obligation by downloading FileMaker's 30-day free trial offer at www.filemakertrial.com/smb. This trial offer comes fully loaded with the Business Productivity Kit, which is a set of ready-to-use essential business database solutions designed to immediately boost small businesses' productivity and profits.



For example, True North's FileMaker Pro-based inventory control system gives employees up and down the organization accurate, real-time information not only on stocks of raw goods, but also on the status of current and pending shipments. "FileMaker Pro takes scanned barcode information on raw goods as we receive them," says Struthers. "Then as products are ready for shipment, FileMaker Pro confirms the shipments are correct and headed to the right customers, and they are correctly packaged. This has saved us tens of thousands of dollars."

Struthers says the biggest selling point of FileMaker Pro for True North is its ability to perform seamlessly in a mixed PC and Macintosh environment, something vital in a company like True North that operates engineering and design on Macs and everything else on PCs. FileMaker Pro 8 had one other immediate benefit for True North, namely the ability to reduce a package of some 57 databases containing virtually all mission-critical operational data to just two database files. The savings, says Struthers, "have been tremendous."

Sharing info = satisfied customers

One of the best demonstrations of the productivity-boosting personality of FileMaker Pro is its ability to fit into just about any type of business where organizing, storing, and then distributing information is vital. It is this power that helps the seven-person staff at Business Printers of San Diego function like a world-class company many times its size.

Company president J.E. de Sequera says he places very high premiums on keeping his customers completely informed and up-to-date on order status as well as project approvals, both of which FileMaker Pro 8 accomplishes. Business Printers used to generate reams of fax proofs of print projects for review, as part of a once-cumbersome and time-consuming process. Using PDF Maker in FileMaker Pro 8, the company "has taken an eight-step process and reduced it to two," de Sequera says.



How FileMaker Pro 8 will help your business realize greater productivity and profits

- ✓ **Manage** customer contact information by giving employees instant access to all contact details, exploiting FileMaker Pro 8's *Fast Match* feature that lets users quickly search data without the time-consuming burden of typing.
- ✓ **Archive** virtually any kind of data in any type of format in a virtually limitless data store for efficient retrieval of information.
- ✓ **Automate** the creation of client proposals filled with rich data and then quickly and easily publish these proposals for easy and instant review by the client.
- ✓ **Eliminate** cumbersome, expensive, and fragile paper forms once and for all.
- ✓ **Control** your inventory and downstream manufacturing processes with startling ease of use.
- ✓ **Store** and quickly access product and project details, replete with part numbers and digital pictures, then link this information to your sales order database, thus eliminating duplicate data entry.
- ✓ **Create** newsletters, catalogs, and any other customer information and distribute them electronically at super-low cost and ultra-high speed.
- ✓ **Generate** regular job status reports and develop job schedule files.
- ✓ **Leverage** FileMaker Pro 8's new scripting parameters to radically reduce the number of different databases you need to manage, immediately "creating" developer time that can be better spent on strategic development projects.
- ✓ **Use** the new *Tab Control* to save hours building layouts; now it's a single step using multiple tabs.
- ✓ **Boost** productivity for employees and customers alike who view FileMaker Pro information by creating easy-viewing Adobe PDF files with the new *PDF Maker*.
- ✓ **Produce** Excel files for data analysts in-house or at your suppliers' or customers' locations with the new *Excel Maker*.
- ✓ **Perform** email merge to send personalized messages to one customer or one thousand customers.
- ✓ **Save** even more time by instantly emailing the contents of any field in a FileMaker Pro database with the new *FastSend* feature.

First employees generate a PDF of the proof. FileMaker Pro 8 then searches for the customer contact information and sends out an email with the PDF as an attachment.

Business Printers also exploits the Tab Windows feature of FileMaker Pro 8 in some ingenious ways. As de Sequera's office assistant is visually impaired, FileMaker Pro 8 allows her to display all vital information she seeks on one screen, tabbing easily to a new screen for more information instead of having to slowly scroll from place to place to find what she needs. Of course, FileMaker Pro 8 does the other heavy lifting in the business as well, such as job entry, work tracking, order tracking,

job ticket printing, generating proof sheets, and many other operational tasks. What's more, de Sequera, who is not an IT professional, handles all the FileMaker Pro development and programming work himself.

The bottom line for de Sequera and Business Printers when using FileMaker Pro 8 is just that—the bottom line. "Costs are reduced due to instant access to information. We look like a big, organized company when we're really just seven people doing all the work."

Seven people, plus FileMaker Pro 8.

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AMD VS. INTEL: READERS RAP SUIT'S CRITICS

CARLA THORNTON'S *News and Trends* piece ("Does Intel's Dominance Hurt Consumers?" October) read as though the author had just been briefed by Intel's legal team. One analyst claims that if Intel were to lose a large chunk of business to AMD, its per-chip costs would rise, with its fixed costs spread over fewer chips. True, but AMD's fixed costs would then be spread over more chips, reducing its costs. Another analyst claims that if Intel were to lose the lawsuit and be forced to pay damages, the consumer would end up paying for it. Theoretically true, but only because the consumer always pays for all of a (profitable) corporation's costs.

Tom Knox, Wiesloch, Germany

THORNTON'S ARTICLE made for bizarre reading, especially in light of recent revelations that it may cost Intel only \$40 to manufacture a chip [find.pcworld.com/49886]. If that figure is accurate, it cuts the legs out from under any claim that potential damage awards to AMD, or idled production capacity resulting from

a loss of market share, would necessitate any kind of price increase by Intel.

It's interesting that when Intel allegedly engages in the same practices for which Microsoft is reviled, the response is more blasé: "Eh, well, maybe it helps keep prices down." This is probably because Windows is the "face" of the PC, while Intel is "inside." Out of sight, out of mind.

Andrew Heffron, Yokosuka, Japan

RIGHT NOW AMD is designing chips that outperform Intel's in most areas, provide a better cost/performance value, run cooler, and usually have better and less expensive upgrade paths. It is free-market forces, not a sustained monopoly, that will result in cheaper PCs.

Charles R. Bowles, via the Internet

THE NET: WHERE IT'S FAST, FASTER, FASTEST

I WAS SHOCKED to see how gullible people (including your editors) are about the speeds users can get online ["The Fastest Net Yet," *News and Trends*, October]. The whole concept of the Web is that packets of information travel from one end to the other in hops. These hops are independent of each other and can include any number of telecom carriers. For consumers to come even close to the speeds advertised as possible, they would have to be using the same carrier all the way through, which is very unlikely.

Telecom companies can tell you whatever they want about the speeds they are providing, just to bring in customers. The fact

is, they have no control over these speeds, so anyone paying more than \$50 a month for 3 to 5 mbps is paying too much.

Ariel Worrell, co-owner, Wireless Web Access Inc., Pembroke Pines, Florida

YOUR ARTICLE failed to mention the vast improvements in satellite broadband service in recent months. Wild Blue (www.wildblue.com), for example, now offers three separate speed choices, the fastest of which is 1.5-mbps service, with vastly improved stability and reliability over other providers, and increased upload speeds.

Bill McClelland, Livermore, Colorado

CURRENT RATES FOR most consumers across Japan are about 50 mbps (download) at \$30 or less per month. By comparison, Cox Cable (with 15 mbps at \$55 a month), Verizon Fios, and other supposed ultrahigh-speed offerings in the United States are a joke.

Yes, these "wide pipes" are new to America, but VDSL (very-high-bit-rate DSL) technology has been around for a while. U.S. consumers should be angry at their poor standing in the broadband market compared to the rest of the developed world, and your reporting should at least nod toward these facts to help turn around this situation. The nations that can best deploy and utilize broadband will gain economically and in productivity.

James Gibbons

*WAN deployment technician
Computer Science Corporation*

INSIDE INFORMATION

ERIC DAHL'S RECENT article "20 Things They Don't Want You to Know" [October] included a tip on what to do if you've forgotten your Windows XP administrator password—namely, consult a Microsoft knowledge base entry to reset it. ▶

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PIXMA iP6600D



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PIXMA THERE IS NO SUBSTITUTE.

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image*ANYWARE*

Printer output images simulated.

LETTERS

I think a better solution is to use a bootable CD that will reset the administrator password without your having to know what it is; you can get such a CD from find.pcworld.com/49888.

It's not the most user-friendly tool I've seen, but it's free and it gets the job done.

Josh Harding, via the Internet

THANKS TO YOUR article I saved \$954 on a very nicely equipped Dell Inspiron 9300. I had been searching without success for a good laptop under \$2000 that could act as a desktop replacement. Four days after reading the article, I found a 35-percent-off coupon for Dell laptops at Techbargains.com. I used it to buy a system worth \$2725 for \$1771. My only problem now is that my girlfriend is angry because she got the same laptop a few months ago for the same price, but with fewer features.

Luis Ortiz, via the Internet

THE SECTION TITLED "Extended Warranties Aren't Worth It" suggests (and I agree) that "If you still want the extended service plan, read the fine print carefully"; but this is rarely possible before buying.

When asked, sellers usually tell you that an advance copy of the fine print is *not* available—you must buy the policy to see all the disclaimers and escape clauses. Of course they promise that you can get your money back if you don't like what you see, but good luck with the refund process—you'll probably end up in *On Your Side!*

Matt Metz, Scottsdale, Arizona

FILE SEARCHING TOOLS

YOUR ARTICLE ON desktop search tools ["Deep File Divers," October] discusses the Mac Spotlight in a sidebar. I can understand Narasu Rebbapragada's frustration that Spotlight—which is built into Mac OS (Tiger)—fails on some search techniques compared with other apps.

But I think that Spotlight is excellent—far superior to anything for the Windows OS to date. On my Mac with Tiger, I can access all files containing a single keyword and find what I'm looking for in the blink of an eye. I can't do the same on my PC that's running Windows XP Pro.

Susan B. Tree, via the Internet

CHECK OUT SuperCat (find.pcworld.com/49890). It does not search the Web, but if you need to find anything at all on any storage device, on any part of your system, on CDs, or on DVDs, this is the program to buy. It catalogs your devices, can automatically update them, and is very fast. If anything, it finds too much if your wording isn't specific enough. It works on Windows 98 through XP. Cost is \$29; you can download a trial version.

Sheila Foss, via the Internet

PC World welcomes letters to the editor. We reserve the right to edit for length and clarity. Send e-mail to letters@pcworld.com. ■

CORRECTIONS

IN "CHEAP PHOTO FIXERS" (*New Products*, November), we should have said that the spot healing brush included in Adobe Photoshop Elements 4 was introduced in Photoshop Elements 3.

In November's "Is the Net Doomed?" Richard M. Stallman's quote in a sidebar should have read, "Eliminate spyware and Digital Restrictions Management by eliminating the practice of distributing software that the users aren't free and enabled to change (non-free, non-freedom-respecting software)."

In November's "10-Step Security," the ninth tip, "Close the preview pane," should have said Outlook 2003 users must click *View>Reading Pane>Off*.

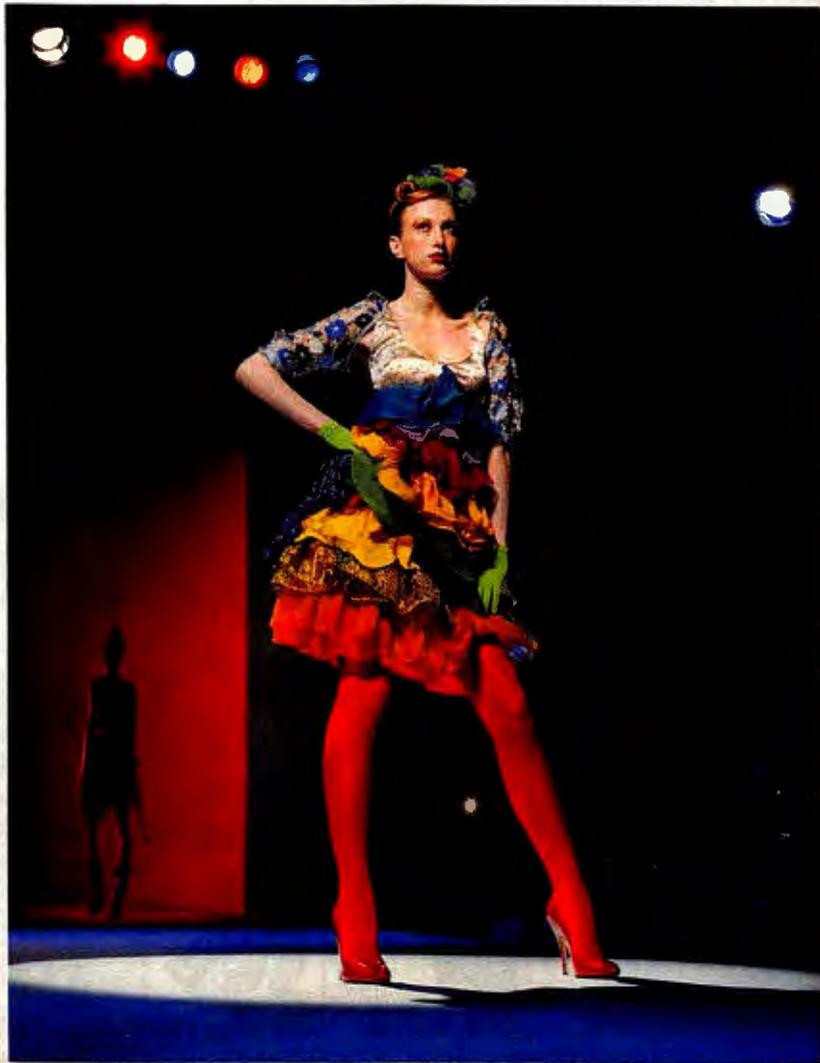
October's *New Products* review of AMD Turion-based notebooks should have said that the MT version of the Turion 64 consumes less power, while the ML version favors performance over power savings.

October's *In the Charts* should have said that the Dell Inspiron 9300 notebook earned a WorldBench 5 score of 83.

In September's *New Products* review of Silex's Pricom SX-2000U2 networking device, we should have said that while a user must manually connect and disconnect most USB devices shared via this unit, many printers can be set to auto-disconnect from one machine upon request from another.

PC World regrets the errors.

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CONSUMER WATCH

ANNE KANDRA

TIPS AND RESOURCES FOR ONLINE DONATIONS

PRIVACY WATCH: YOUR PC'S SECRET CHAT LIFE

ON YOUR SIDE: UPDATE MYSTERY SOLVED

Charity Starts at Your Home PC

Watchdog Web sites can help you make the most of your charitable donations.

WHEN HURRICANES Katrina and Rita churned through the central Gulf Coast states this past fall, people responded quickly and generously: Within days, the Red Cross and other relief agencies had received millions of dollars in donations, many of them made through the charities' Web sites.

But disasters like Katrina, last winter's tsunami in Asia, and the 9/11 terrorist attacks attract pernicious and opportunistic criminals who exploit tragedy to harvest cash and identities by creating Web sites that look like legitimate charities and sending emotional e-mail messages as they phish for victims.

If you exercise some caution, though, these crooks shouldn't scare you away from using the Internet to donate funds when disaster strikes or to contribute regularly to an ongoing cause that you support. Here are some online resources and tips to help you find legitimate and effective charities, and avoid getting scammed.

CHOOSING A CHARITY

SUPPOSE YOU'RE interested in supporting a specific cause, such as helping hurricane victims build new homes. Or maybe you want to contribute in the name of a friend or relative—to the local animal shelter, say, on behalf of your aunt who takes in stray cats. How do you home in on which nonprofits best fit the bill?

A good place to start your research is at Charity Navigator (www.charitynavigator.org), an easy-to-use site with detailed information on more than 4200 nonprofit charitable organizations in the United States. Charity Navigator gives charities star ratings based on how well their finan-

lar disaster, check to see whether you can target your contribution to that cause.

If you find a star rating too general an assessment, Charity Navigator also offers detailed figures on each charity's revenue, expenses, and operating efficiencies, as well as peer comparisons (matching the organization against similar nonprofit agencies), the charity's size as measured by its total expenses, and even the CEO's salary.

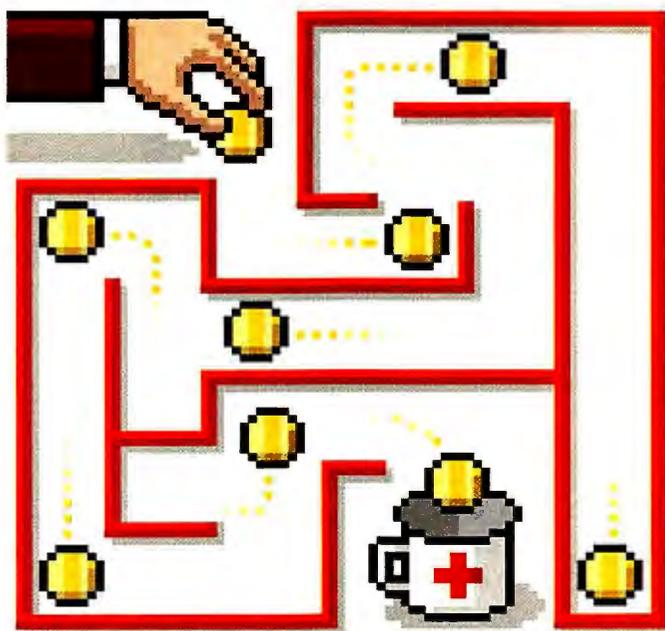
Interested in delving even more deeply into a charity's financials? Guidestar (www.guidestar.com) maintains lists of all nonprofit charities currently registered in the United States, together with PDFs of their annual IRS 990 tax returns (required of all nonreligious nonprofit organizations in the United States). You'll need to register (it's free) to see some of Guidestar's data.

Before donating, spend some time at a charity's Web

site and learn as much as you can about it, just as you would at an online store.

BAD GUYS IN DISGUISE

START BY DOUBLE-CHECKING the charity's name: Fraudsters are known to create copycat sites with names that closely mirror legitimate ones, such as Heart Association of America instead of American Heart Association. Phishing is a problem for legitimate charities: Scammers set up sites to look like those of legitimate charities, and then steal visitors' ▶



cial performance compares to ideal practices, as determined by philanthropy experts (four stars is best). You can search for charities by name, location, category (for example, animals or human services), scope (local, national, or international), or star rating, among other criteria.

Depending on the cause, your search could turn up dozens of candidates. But not all charities play by the same rules. Some spend more on overhead and administration than on actually helping the needy. If you're responding to a particu-

ILLUSTRATION: CRISTOPH NEIMANN

personal data and credit card numbers.

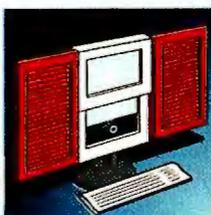
The best defense against these crooks is to recognize their tactics. Beware of e-mail messages from charities you've never heard of, especially if they contain urgent-sounding pleas for money. Don't enter a site via an e-mail link; instead, type the URL yourself, or link to it from a trusted site like Charity Navigator. Don't share any personal information, much less a credit card number, with any group until

you've checked it out at Guidestar or another watchdog site. If you suspect a scam attempt, you can file a report at the FTC's Web site (www.ftc.gov/charityfraud).

While you're exploring a charity's site, look for a concise mission statement describing the organization's goals and principles, as well as for specific information on how it strives to meet those goals. You should also be able to find regular updates about work the group has done,

PRIVACY WATCH

Who's Your Software Talking To?



MY PC'S software is as chatty as a teenager armed with a cell phone—and yours probably is, too.

I'm referring to applications that send short data bursts, called *heartbeats*, to their company's servers. Heartbeats can enable software updates, help troubleshoot problems, and locate compatible apps on other PCs. But they can also leak—to people who have no business knowing it—information about your PC, your network, and what you do on your computer.

Most software that makes a network connection sends heartbeats: IM programs let the network know you're online; Windows XP goes online to reset your PC's clock; and both Windows and Adobe's Acrobat Reader check periodically for updates or patches. But spyware, adware, and Trojan horse malware that can turn a PC into a botnet zombie send heartbeats, too.

Users rarely know when an app sends a heartbeat. Firewalls can block heartbeats, but this can cause problems if you want to use the app. And once you allow a program to connect to the Net, you may not be able to tell what it does when it reconnects.

I first noticed heartbeats on my PC while running a diagnostic tool's packet sniffer—software that monitors all communication with the outside world. I was trying to detect a specific kind of data transfer, and the heartbeats were an infuriating distraction.

Even when I wasn't using the Net, the diagnostic tool recorded one connection an hour to a Web server at a URL that looked like a jumble of random letters and numbers. As in Edgar Allan Poe's story "The Tell-Tale Heart," the thumping was driving me nuts—especially since, unlike Poe's narrator, I didn't know its cause.

It turns out that the heartbeat's source was my firewall, Zone Labs' ZoneAlarm Pro 6, checking for updates and new anti-virus and antispyware definition files. A feature called DefenseNet also sends Zone Labs encrypted info on apps you run and whether you let them connect to the Net.

But before I identified it, I feared that the heartbeat's source might be a key-stroke logger sending my passwords to a hacker, or spyware informing an advertising company about my Web surfing habits. I just wanted to turn off the heartbeat as quickly as I could. (To disable the DefenseNet heartbeat, clear the check box labeled *Share my security settings anonymously with Zone Labs* on the Preferences tab of ZoneAlarm's Overview section.)

I recently tried out Lojack for Laptops, software that uses heartbeats to help a security center track down a notebook if it is stolen. Some might accept the privacy-for-security trade-off, but Lojack's constant tracking made me feel as though my notebook were under house arrest, with a big radio tag around its ankle. Heartbeats can serve useful functions, but sometimes I wish my software would remain silent.

—Andrew Brandt

Wirelessly,
from shutter click



demonstrating to donors that their contributions are being put to worthwhile use.

Make sure that the site lists contact information, including a physical address, a phone number, and an e-mail address. It's a good idea to contact the organization directly, if only to confirm that the addresses aren't bogus. Any organization that accepts donations, financial or otherwise, should be responsive to questions or requests for more information. If the site accepts online donations, make sure it uses encryption (look for the closed-lock icon or for "https" in the site's URL).

CHECK PRIVACY POLICY

FINALLY, LOOK FOR a privacy statement posted on the site. If you don't find one, call or e-mail to ask who's collecting your personal information and how it will be used. Though most charities share their donor lists with other nonprofits, they should offer you the chance to opt out.

Any charity listed in Guidestar is likely to be legitimate. For confirmation, check the Better Business Bureau's Wise Giving Alliance site (www.give.org), which posts reports on individual charities, news and alerts of reported scams, complaint forms, and a wealth of tips and advice for donors.

Of course, if you really want to play it safe—and take advantage of some convenient features while you're at it—you can donate to a specific charity through a third-party site such as Network for Good (www.networkforgood.org). This site has

data on hundreds of charities, helps direct you to the most reputable ones in areas of interest to you, and lets you donate securely in just a few clicks.

Network for Good offers a vast collection of tips and resources, too, including tax information, calculators for figuring out appropriate donation amounts, personal profiles for setting up lists of your favorite charities and sharing them with friends and family, plus donation histories to keep track of your contributions, recurring donations, and more. (Charity Navigator has a similar set of features.)

You can use the site to find volunteer opportunities in your area, send gift baskets with contributions, and link to additional resources such as Mycause.com and Greatergood.com—shopping sites that contribute a percentage of each transaction to the charity of your choice.

Giving online is a quick, efficient way to help others in need. Follow our guidelines to ensure that your contribution gets to its intended destination properly. ■

Anne Kandra is a contributing editor, Andrew Brandt is a senior associate editor, and Amber Bouman is an editorial assistant for PC World. E-mail them at consumerwatch@pcworld.com, privacywatch@pcworld.com, or onyourside@pcworld.com. To read previously published Consumer Watch, Privacy Watch, or On Your Side columns, visit find.pcworld.com/31703, find.pcworld.com/31706, or find.pcworld.com/31709, respectively.

ON YOUR SIDE

Microsoft Update Snafu Solved

I RECENTLY installed Microsoft Update (a program that includes Windows Update). It worked once, but after a reboot, I got an error code.

A Microsoft tech support rep told me to reregister some XML components of Microsoft Update, but the fix didn't work. After several days, the rep gave me further instructions, which also didn't work. I wrote back that same day, but a week later I still haven't heard from Microsoft.

Stuart Borman, Bethesda, Maryland

On Your Side responds: Microsoft says its investigation revealed that Mr. Borman's problem occurred on a computer at his workplace, whose IT department controls the Windows Update process. Borman says that henceforth he'll let his IT department handle updates. Moral of the story? Check with your IT department before trying to perform system maintenance or updates. (For more on Windows Update problems, see *Bugs and Fixes*, page 57.)

—Amber Bouman



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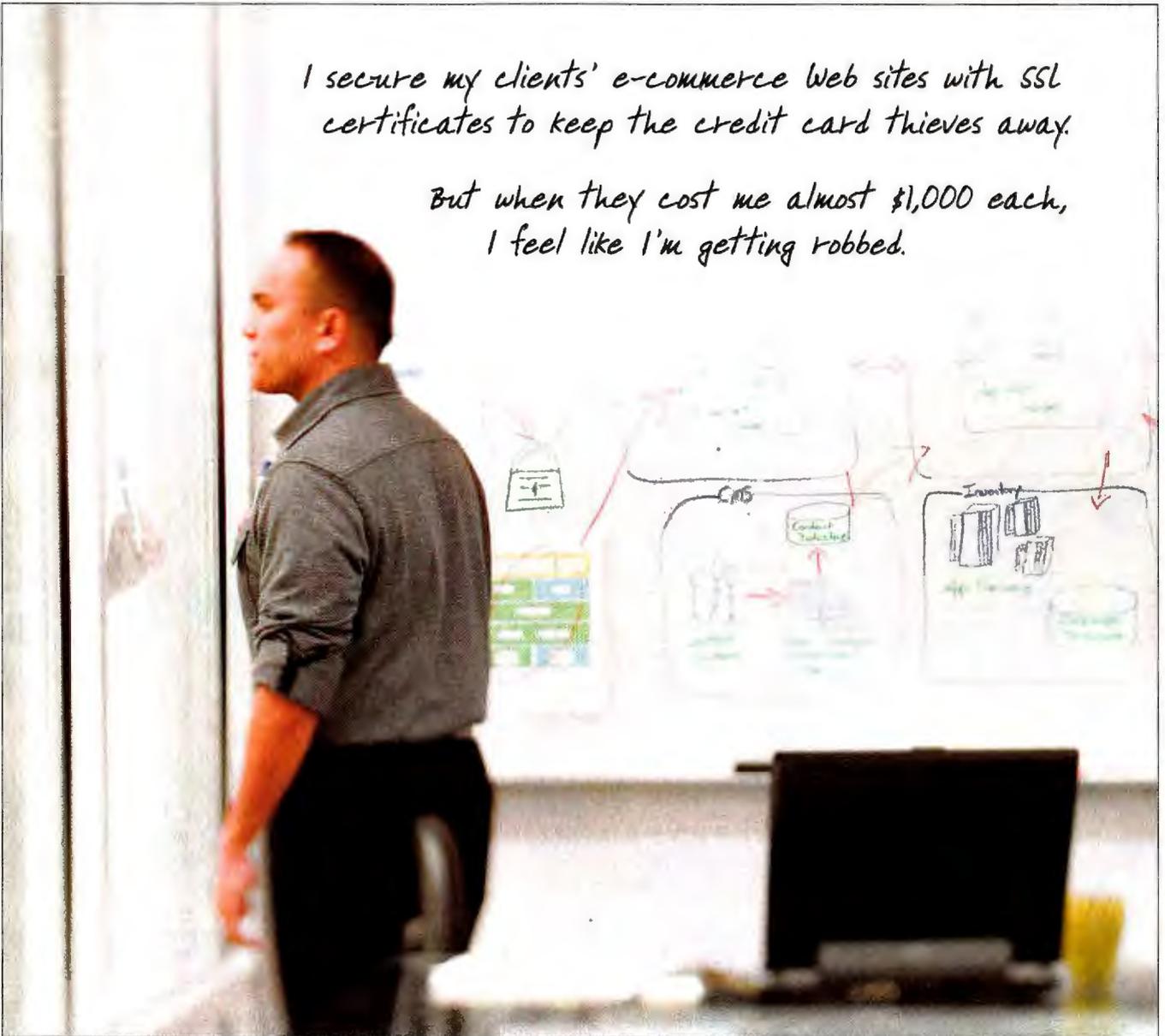
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HASSLE-FREE PC

STEVE BASS

Fix Stubborn Windows Install Errors

Plus: Enlarge tiny fonts in Internet Explorer, and improve Outlook scheduling.

ANNOYED ENOUGH by Windows that you're thinking of switching to Linux or a Mac? Stick with your PC—I have solutions to four more hassles sent in by *PC World* readers.

STOP INSTALLATION IDIOCY

The Hassle: *Windows Installer comes up at the oddest times—often when I'm starting Word or Outlook. If I uninstall the program Windows is trying to install, the installer will choose another program to attempt to reinstall the next time I open Word. Any fixes?*

The Fix: I suspect that a previous installation went kablooey. Running Microsoft's Windows Installer CleanUp Utility (find.pcworld.com/49480) clears the litter from the previous app's installation while leaving intact all data files created with the app. To remove unnecessary uninstall folders after loading Windows service packs, see Lincoln Spector's *March Answer Line* (find.pcworld.com/49481).

MAGNIFY WEB PAGE FONTS

The Hassle: *I recently installed a new program, and now when I browse the Web with Internet Explorer, I can't read the characters*

TOOL OF THE MONTH

Send That File Anywhere

I USE THE CONVENIENT Send To function in Windows Explorer a few times a day. (To access it, right-click a file.) But the Send To menu collects file-link clutter because programs often add links to it without asking. To manage your Send To menu, give SendTo 1.6 (find.pcworld.com/49487) a try.

This freebie lets you add or remove links

on some pages. They're so small, they appear as tiny rectangles, not letters. I have tried everything, but the font size doesn't change.

The Fix: In IE, choose *Tools>Internet Options*. On the General tab, click the *Accessibility* button and confirm that *Ignore font styles specified on Web pages* is checked. Another quick trick: Hold down the <Ctrl> key and use your mouse scroll wheel to enlarge or shrink fonts (and images); use the <Shift> key to move IE ahead or back a page. Scott Dunn's November 2004 *Windows Tips* (find.pcworld.com/49482) describes these and more mouse wheelies.



FIX WEAKLY OUTLOOK

The Hassle: *To add a weeklong event to Outlook's Calendar, I have to click the pull-down 'Start time' and 'End time' menus in New Appointment and find the right dates. Is there an easier way?*

The Fix: I think the Microsoft developers were dozing at the wheel when they designed the Calendar entry dialog box. When I enter a vacation [Note to editor: not nearly often enough], I use a little-known Outlook shortcut. In the Calendar view, select the first day of the weekly event you want to add.

Then hold down the <Shift> key and click the last day of the event. Right-click any portion of the highlighted area and choose *New Appointment*. Voilà! The start and end dates are automatically entered.

OUTWIT FANCY KEYBOARDS

The Hassle: *I upgraded to a fancy Microsoft keyboard because I liked its extra buttons. But the dual-function function keys default to special use. Also, I have to click a keyboard button to get regular function keys every time I restart the PC. Any solutions?*

The Fix: This annoyance has plagued my wife, too, but the fix is easy. Download, unzip, and run the F Lock Key utility that matches your keyboard model. The utility (find.pcworld.com/49486) makes a Registry change that remaps your keyboard; the next time you boot, your function keys will act properly. And don't worry about making matters worse: F Lock Key also comes with an undo function. ■

Contributing Editor Steve Bass is the author of PC Annoyances, published by O'Reilly (see find.pcworld.com/43818). Contact him at hasslefreepc@pcworld.com.

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STUART J. JOHNSTON

Windows Bug Allows Repeat Invasions

Plus: Fix Windows Update glitches, avoid a fake Google site, and close router holes.

SAY YOU'VE just recovered from a serious worm attack. You've run your antivirus and adware/malware removal utilities, installed the latest patches, even double-checked to make sure your security and privacy settings are set at high. You're good, right? Maybe not.

Microsoft recently released a Security Advisory (along with an update to Windows XP Service Pack 2 containing the fix) warning about an "unexpected behavior" in Windows Firewall that could let a clever attacker who had broken into your PC leave a back door to the Web unlocked for next time. Only PCs running either XP with SP2 or Windows Server 2003 are susceptible.

Hackers sometimes get into a PC by taking advantage of the ports that Windows uses to talk with the world. Literally thousands of ports are avail-

able, but Windows Firewall automatically blocks most of them to protect you.

You can let programs connect to your PC through spe-



cific ports by entering those ports as exceptions in the firewall's user interface (found in Windows' Control Panel). The user interface also lists these exceptions so that you can see what ports are enabled on your system. Information

about the ports is stored within the Windows Registry.

Recently, someone figured out that if you insert port exceptions directly into the Registry and give them "malformed" names, the firewall's user interface won't be able to display them and you'd never know the port was open. Fortunately, no exploits of this vulnerability have been reported yet.

The Security Advisory (find.pcworld.com/49776) also explains how you can determine if any sneaky exceptions already lurk on your PC. To get the update, which makes invisible entries visible in Windows Firewall, go to find.pcworld.com/49777.

AVOID FAKE GOOGLE

PANDA SOFTWARE identified a new worm that redirects your search requests to a phony Google site. The P2load.A worm masquerades as a free *Star Wars* game. After you run the file, your attempts to point your browser to Google actually take you to a fake site with different paid advertisers.

The worm alters your start page, changes your Internet Explorer search options, and infects your PC with various adware programs. It spreads through peer-to-peer file sharing apps, such as Imesh and

IN BRIEF

Fix Wi-Fi Router Problems

LINKSYS HAS issued a firmware update for its popular WRT54G wireless routers that patches several security flaws. Someone exploiting the bugs could target you with a simple denial-of-service attack intended to crash your router, or they could change the configuration of the router, including the password. This could allow the attacker to change your firewall's rules and install new firmware on the router. Get Linksys's update at find.pcworld.com/49786. IDefense, the research firm that found the bugs, has five advisories with more details (find.pcworld.com/49788).

Shareaza. See find.pcworld.com/49778 for directions on identifying whether your PC's been infected and wiping the imposter off your system. ■

Stuart J. Johnston is a contributing editor for PC World. Visit find.pcworld.com/31580 to see more Bugs and Fixes columns.

BUGGED?

FOUND A hardware or software bug? Send us an e-mail on it to bugs@pcworld.com.

WHEN WINDOWS UPDATE DOESN'T

HAVE YOU BEEN THWARTED in your quest to get updates from the Microsoft Update or the Windows Update site? Instead of receiving a reassuring patch install confirmation, you may have been left staring at a screen filled with the geekiest sort of cryptic error messages (for instance, "Error 0x80072EE2"). Possible causes include conflicts with third-party firewalls and problems with the update sites' addresses hard-coded into Windows' Hosts file.

Hop over to find.pcworld.com/49782 to get Microsoft's step-by-step workaround for users without a proxy server. For those using a proxy server, see the workaround at find.pcworld.com/49784.

ThinkPad recommends Windows® XP Professional.

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REVIEWS & RANKINGS

EDITED BY KALPANA ETTENSON AND TOM MAINELLI

- 66 **MOTOROLA ROKR E1,**
SONY ERICSSON W800I
- 70 **EPSON STYLUS PHOTO**
RX700
- 70 **NETGEAR STORAGE**
CENTRAL SC101
- 75 **ATI RADEON X850 XT**
CROSSFIRE EDITION



92

Nero and Roxio Put New Spin on Traditional Disc-Burning Suites

Advanced features in both updates, but one targets power users while the other goes for ease of use.

MEDIA SUITES

IF OUR HANDS-ON experience with Roxio's new **Easy Media Creator 8** and Nero's latest, **Nero 7 Ultra Edition**, is any indication, the match between the two leading disc-burning software suites remains hotly contested. At \$100 apiece, each of the suites targets users who want to do more with

their DVD writer than simply burn data discs. Instead, the suites embrace a wide range of media production tasks.

Both suites are composed of multiple individual modules—Nero counts 18, Roxio has 25—most of which are accessible via a launcher or individually through Windows' Programs menu. Each suite has its assets, and each makes strides with features on the periphery of disc burning; which suite you'll prefer depends on which capabilities you value most.

In spite of the packages' similarities, the two vendors' approaches to software design couldn't be more different. Nero has a tradition—continued in version 7—of adding cool features without much concern about how simple they are to access or master. Roxio not only adds features, but it also expends more effort making its suite

easier to use—a daunting task given the sheer number of components involved.

Nero 7 Ultra Edition's new advanced features include high-definition video editing, 7.1-channel surround-sound editing, a musical beat editor and dance synthesizer that



exports files to the sound editor, and a living-room interface (for more on the two packages' living-room-centric aspects, see "Beyond Burning" on page 64). But I found little improvement in the program's interface from version 6.6—in fact, the Nero suite's often downright unfriendly

design and workflow could use a complete rethinking.

By contrast, Roxio has made significant progress toward improving its product's ease of use in version 8, as well as adding features such as a DVD music disc function and high-resolution video editing. Simple data and disc-maintenance chores are now easily accessible, and virtually every component has been imbued with the attractive look and logical workflow that version 7 introduced. The result is a much more cohesive feel, though the overlapping capabilities of many modules can still get confusing.

Here's how the two suites and their various modules—all of which have their own monikers—stack up on the fundamental tasks. Neither product has received a *PC World* rating; I looked at pre-production software from Roxio, and early production-

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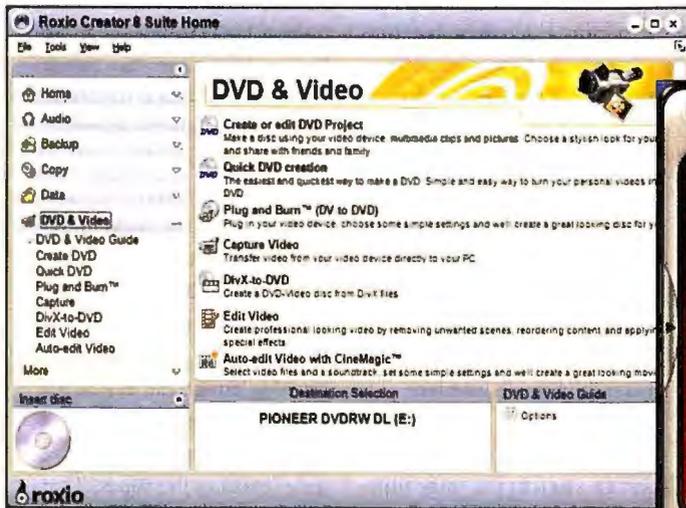
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THE ROXIO LAUNCH MODULE includes task-specific shortcuts, as well as clearly defined options to help jump-start your project.

level software from Nero. Unfortunately, I encountered numerous sloppy glitches in Nero's interface, such as a reference to a previous version of one Nero module; we expect most of these glitches to be corrected when Nero issues its first patch. To see our ratings of the final shipping versions of both packages, visit find.pcworld.com/49756.

Data: Between Nero Burning ROM and Roxio Creator Classic, Nero remains our choice of the two old-school data-burning applications—even though it retains an interface that is poorly organized in spots. Roxio's Creator

Classic program may be prettier and easier to use, but it simply can't match the wide variety of CD and DVD disc projects, the disc image handling, and the integrated audio ripping and encoding that Nero Burning ROM offers.

If you want friendly, direct access to your burning functions, however, go with Roxio: It now integrates the most common disc tasks—such as simple data CD/DVD burning, as well as disc copying, erasing, and finalizing—into its Roxio Home launch module, making those functions simpler to access. Nero's equivalent launch module,

NERO'S STARTSMART LAUNCHER has bold color, but not-so-bold type; it also lacks shortcuts into specific functions.



StartSmart, is not nearly as direct, but it is configurable.

Audio: Both packages are amped up with new audio features that extend far beyond basic ripping, encoding, and burning. Power users will appreciate the 7.1-channel surround-sound editing and individual-track special effects in Nero's SoundTrax editing component. Nero also wins this review's award for the most fun new feature: Its SoundBox rhythm box/sample synthesizer allows you to create cool dance grooves.

As fun as Nero's sound mixing may be, I found Roxio's new, brilliantly simple DVD

music disc function far more useful. In this mode, Roxio creates a DVD movie disc, ditches the video to produce more space for an audio track (created from imported MP3s and other audio files), and uses the DVD menu to sort and provide access to the tunes. You can fit far more music on a 4.7GB DVD than on an audio CD—and you can play it in any DVD drive or player.

DVD authoring: Though I consider Nero's DVD authoring (creating DVD movies or slide shows with menus from your own clips, photos, and video) good, Roxio has the distinct edge. The beauty of ▶

its templates and the way the new, integrated versions of MyDVD Express and MyDVD guide you in turn through the DVD authoring process make the task easy. Plus, the suite adds some nice image editing, organizing, and secure Web sharing capabilities (via its PhotoSuite and LiveShare components, respectively).

By comparison, Nero Vision 4's restrictive workflow and arcane language make the otherwise powerful app seem crude. Nero's suite also has no answer for Roxio's CineMagic, which deftly automates the production of video discs with professional-looking menus, fades, and musical tracks.

Video: Each suite offers extensive and capable video capture and editing. For editing, I preferred Roxio's more traditional stand-alone VideoWave 8 component, which is easier to learn and supplies more on-screen storyboard space than Nero Vision 4 does.

When it comes to the high-resolution video handling new to both suites, though, Nero

BURNING SOFTWARE

Nero and Roxio Square Off

THESE VENERABLE SUITES EACH have their strengths, but Roxio's interface is easier to use.

MEDIA SUITE	Features	Bottom line
Nero 7 Ultra Edition Preproduction, not rated List: \$100 find.pcworld.com/49733	<ul style="list-style-type: none"> • Audio disc creation: Very Good • CD/DVD mastering: Outstanding • DVD authoring: Good • Video editing: Very Good 	<ul style="list-style-type: none"> • Photo discs/editing: Very Good • Backup: Very Good • Disc copying: Very Good • Playback: Outstanding
Roxio Easy Media Creator 8 Preproduction, not rated List: \$100 find.pcworld.com/49732	<ul style="list-style-type: none"> • Audio disc creation: Outstanding • CD/DVD mastering: Very Good • DVD authoring: Outstanding • Video editing: Outstanding 	<ul style="list-style-type: none"> • Photo discs/editing: Outstanding • Backup: Outstanding • Disc copying: Outstanding • Playback: Very Good

has the advantage. VideoWave 8 and Nero Vision 4 can now edit and export high-definition video (up to 1920 by 1080 resolution, also known as 1080i). However, Roxio exports to DivX HD or Windows Media 9 HD, which may cause compatibility issues down the road. Nero's export format (Nero Digital) is completely compatible with H.264, one of the codecs included in both the Blu-ray and HD-DVD specs. Many experts believe that H.264 is the heir apparent to MPEG-2—which means you would be able to play your

video five years from now. Exporting video in high definition can be time-consuming, though: It took more than 2 hours to reencode my 5-minute 1440 by 1080 clip created by a Sony DV camcorder.

Both suites can compress dual-layer content to fit on a single 4.7GB DVD. For this task Nero's Recode offers more options by far, but has a nearly unfathomable interface.

THE WINNER IS...

AFTER SPENDING some time with these packages, I can't help but feel that Nero and

Roxio prove the adage that the more things change, the more they stay the same. As a power user, I'll still reach for Nero, as it offers a slightly superior set of features—but only if you have the patience to master the package's maddeningly complex interface. However, Roxio is still much easier to learn and use, and it's the clear choice here for disc-burning novices as well as for experienced people who aren't interested in spending a lot of time learning the ropes. That said, both products are worth the upgrade. —Jon L. Jacobi

IN THE LIVING ROOM

Beyond Burning

CD/DVD SUITES ARE rapidly expanding not only into the realm of media production, but also into media display and management.

For example, both Nero and Roxio have added a media-server component. Nero 7's MediaHome and Easy Media Creator 8's MediaSpace sit in your system tray and stream selected audio, video, and photo files from your PC to UPnP-AV 1.0-compliant devices that in turn route the content to your living room's TV or stereo. Among such devices are Pinnacle's \$300 Show Streamer and D-Link's \$220 DSM-520 Wireless Media Player (which supports 720p or 1080i HD content when connected via an HDMI output).

Nero dives even further into multimedia waters with its new Nero Home interface, which is designed to be viewed and navigated from a comfy position on your couch, from about 10 feet away, using a third-party remote control. The view is similar to what you find on TVs, TiVo DVRs, and PCs running Microsoft's Windows XP Media



NERO 7 ULTRA EDITION'S Nero Home provides a graphical, Media Center-like view for playing and viewing audio, video, and photos.

Center Edition operating system. And just like XP MCE, Nero Home allows you to browse and display photos, video, music, and TV (if you have the appropriate hardware); however, it's not quite as easy to use as MCE and lacks some features (my preproduction software could pause, resume, and fast-forward TV, but not record it).

How many users actually want or require such features is questionable. What is clear, however, is that CD/DVD suites are looking toward a future that goes well beyond simply burning discs.

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Rokr vs. Walkman: No Clear Winner

MOBILE PHONES

THE CONCEPT OF a music phone holds delicious promise: If you had one, you could talk and rock out without lugging around both a cell phone and an MP3 player. Unfortunately, neither Motorola's **Rokr E1** (the first Apple iTunes-compatible phone) nor Sony Ericsson's **W800i Walkman** phone wowed me.

The Rokr is available exclusively from Cingular Wireless for \$250 with a two-year service contract. The W800i costs \$499 without a carrier agreement, and as yet there are no carrier subsidies for it.

EASY MUSIC TRANSFERS

I FOUND IT simpler to transfer music from my computer to either shipping unit than to other current handsets (like Nokia's 6682 and Sanyo's MM

5600) that can upload music. Some phones do allow you to download music over the air, which is convenient, but you have to pay for each song even if you own the CD or have already downloaded the tune to your PC. Both the Rokr E1 and the W800i Walkman come with software (Apple's iTunes and Sony's Disc2Phone, respectively) to help you rip music from your own CDs and transfer music over to the phones' memory.

To transfer tunes, you just connect the phone via a USB cable and then drag and drop songs. But the process is slow, taking anywhere from 45 seconds to 1.5 minutes per track. Filling the Rokr's 512MB of



MOTOROLA'S ROKR E1 (left) and Sony's W800i Walkman combine phone and music capabilities, but neither model is a standout.

storage completely took more than an hour, while filling the W800i took half an hour. Motorola says the Rokr can carry up to 100 songs, and Sony Ericsson claims the W800i can accommodate up to 150 songs (its PC software permits you to shrink your existing audio tracks). I managed to squeeze in 83 and 77 songs, respectively, onto the two devices.

Each phone sports a clean, simple playback interface—and each suffered from a noticeable performance lag every time I made a selection. It took about a second to go from a menu item to the list of choices. If you receive a call while you are listening to music, either phone will automatically pause the song; to resume playback, just select Play.

BEYOND MUSIC

BOTH THE ROKR E1 and the W800i Walkman are triband GSM/GPRS handsets. Aes-

thetically, the W800i (white with orange trim) has the advantage. The Rokr is a bit larger and heavier, and has a pearly white finish with light-gray edges. The Walkman works somewhat better as a camera phone, too—it comes with a 2-megapixel camera and flash—and when you take a picture, you can hold the phone horizontally, as you would a standard dig-

ital camera. The Motorola's low-power VGA camera took noticeably poorer photos.

As music players, both devices performed well. The Rokr's Apple iTunes compatibility is a nice bonus, especially for current iTunes users. But despite the Rokr's advantage in music software, I preferred the W800i Walkman phone's winning combination of nice-sounding music, good looks, and high-quality photos. Too bad it's so expensive.

—Grace Aquino

ASK OUR EXPERTS

Are Drive Backups Safe?

IF I'M WORRIED ABOUT MY PC's hard drive crashing, why would I want to buy an external hard drive to back it up?

Brian Zadlkow, Astoria, New York

Senior Writer Alan Stafford responds: An external backup hard drive is at least as susceptible as an internal drive to failure, but the two drives are unlikely to fail at the same time. If you use the external device solely as a backup drive, you won't stress it nearly as often as you will the drive that your system constantly accesses. Therefore, it shouldn't fail as quickly. But to protect your PC against a non-computer-related catastrophe—such as fire or theft—you should supplement the drive with some other form of backup media that can be stored off-site, such as rewritable DVD or an online backup service.



Need information or advice about a buying decision? Drop us a line at askourexperts@pcworld.com.

Rokr E1
Motorola
PCW Rating **75 Good**
 Integration with Apple's iTunes is this phone's standout feature.
 List: \$350 (\$250 with new activation)
find.pcworld.com/49862

W800i Walkman
Sony Ericsson
PCW Rating **78 Good**
 Pricey phone's features include an easy-to-use music interface and a nice 2-megapixel camera.
 List: \$499
find.pcworld.com/49864

PHOTOGRAPHS: MARC SIMON (TOP), RICK RIZNER (BOTTOM)

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—Rick Dempsey, Chief Information Officer, **RAYOVAC**

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TOP 10 DESKTOP PCs

CyberPower, Micro Express Tie for Value Lead

TEST CENTER THIS MONTH three new systems reach our *Top 10 Desktops PCs* chart. In the power section, Alienware's Aurora 7500 and Gateway's FX400XL climb aboard. The Alienware received top marks among power PCs in design and specs, and has the third-highest WorldBench 5 score we've seen. The Gateway includes a pair of optical drives and 7.1-channel surround sound. New among the low-cost systems is Lenovo's petite ThinkCentre A51, in an ultrasmall desktop design.

In the value section, CyberPower's Gamer Ultra 7500 SE



THE SLIM ThinkCentre A51 Ultra Small will save desk space.

and Micro Express's MicroFlex 35B finished neck and neck. The Gamer Ultra captures first place by a minuscule three-tenths of a point. Both PCs earn Best Buys because of their shared PCW Rating.

—Dan Sommer

ONLINE

FOR MORE information on the desktop PCs reviewed in this chart, including details of how we tested them, go to find.pcworld.com/49748.

	POWER SYSTEM	PCW Rating	Performance	Features and specifications
1	Xi Computer MTower 64 AGE-SLI Best Buy \$3699 find.pcworld.com/48972	85 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 130 Superior Overall design: Good Graphics: Superior 	<ul style="list-style-type: none"> 2.4-GHz Athlon 64 X2 4800+ 600GB (RAID) drive space 19-inch ViewSonic VP191b LCD 256MB EVGA e-GeForce 6800 Ultra graphics
▶ Bottom line: The top performer in our tests, this MTower is a great choice for anyone who gives priority to performance.				
2	Velocity Micro Vision 64 \$3954 find.pcworld.com/49392	84 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 115 Very Good Overall design: Very Good Graphics: Superior 	<ul style="list-style-type: none"> 2.4-GHz Athlon 64 X2 4800+ 500GB drive space 19-inch NEC MultiSync LCD1970GX LCD 256MB EVGA e-GeForce 6800 GT graphics
▶ Bottom line: Fast, SLI-ready dual-core system suits advanced gamers and graphics enthusiasts.				
3	Micro Express MicroFlex 3464 \$2199 find.pcworld.com/48136	83 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 111 Very Good Overall design: Fair Graphics: Very Good 	<ul style="list-style-type: none"> 3.4-GHz Pentium 4 650 400GB (RAID) drive space 19-inch ViewSonic VP912b LCD 256MB ATI Radeon X850 graphics
▶ Bottom line: This PC offers plenty of pep for video editing and gaming, but overclocked 3.67-GHz CPU may cause problems down the line.				
4	Alienware Aurora 7500 \$4835 find.pcworld.com/49690	82 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 114 Very Good Overall design: Very Good Graphics: Superior 	<ul style="list-style-type: none"> 2.8-GHz Athlon 64 FX-57 500GB drive space 19-inch Samsung SyncMaster 930BF LCD 256MB EVGA e-GeForce 7800 GTX graphics
▶ Bottom line: Very fast, expensive PC with two graphics cards targets hard-core gamers and graphics enthusiasts with deep pockets.				
5	Gateway FX400XL \$2200 find.pcworld.com/49694	81 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 89 Fair Overall design: Very Good Graphics: Good 	<ul style="list-style-type: none"> 3-GHz Pentium D 830 500GB drive space 19-inch Gateway FPD1960 LCD 256MB nVidia GeForce 6800 Ultra graphics
▶ Bottom line: Low-cost power system with lots of storage and an Audigy 2 ZS sound card will please multimedia buffs.				
VALUE SYSTEM				
1	CyberPower Gamer Ultra 7500 SE Best Buy \$1075 find.pcworld.com/48576	85 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 90 Very Good Overall design: Good Graphics: Very Good 	<ul style="list-style-type: none"> 2-GHz Athlon 64 3200+ 160GB drive space 17-inch ViewSonic VA712b LCD 256MB EVGA e-GeForce 6600 graphics
▶ Bottom line: Jazzy, neon-fit unit has an adjustable fan controller, a dual-layer optical writer, and a stellar LCD.				
2	Micro Express MicroFlex 35B Best Buy \$1299 find.pcworld.com/48580	85 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 101 Superior Overall design: Good Graphics: Superior 	<ul style="list-style-type: none"> 2.2-GHz Athlon 64 3500+ 250GB drive space 17-inch LG Flatron L1710B LCD 128MB Sapphire Radeon 9800 graphics
▶ Bottom line: Strong value and performance; midsize tower includes a dual-layer burner and top-mounted USB and audio ports.				
3	HP Pavilion a1130n Desktop PC \$1060 find.pcworld.com/49394	84 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 93 Superior Overall design: Good Graphics: Fair 	<ul style="list-style-type: none"> 2.2-GHz Athlon 64 3500+ 250GB drive space 17-inch HP vs17 LCD 128MB integrated ATI Radeon Xpress graphics
▶ Bottom line: A great low-cost, entry-level PC for the budget-conscious student or multimedia enthusiast.				
4	Lenovo ThinkCentre A51 Ultra Small \$1148 find.pcworld.com/49696	78 Good	<ul style="list-style-type: none"> WorldBench 5 score: 79 Good Overall design: Good Graphics: Fair 	<ul style="list-style-type: none"> 3-GHz Pentium 4 531 80GB drive space 15-inch Lenovo ThinkVision L150p LCD Integrated Intel GMA 900 graphics
▶ Bottom line: Well-designed office PC takes up little space and permits easy—though limited—upgrades to extend its useful life.				
5	Velocity Micro Vector PCX \$1297 find.pcworld.com/48142	77 Good	<ul style="list-style-type: none"> WorldBench 5 score: 89 Very Good Overall design: Good Graphics: Superior 	<ul style="list-style-type: none"> 3.2-GHz Pentium 4 540 120GB drive space 17-inch CTX EX701F CRT 128MB EVGA e-GeForce 6600 GT graphics
▶ Bottom line: This affordable system supplies plenty of power for the money; its CRT monitor keeps the price down.				

CHART NOTES: Ratings are as of 10/26/05. Drive space (hard-drive capacity) may represent multiple drives.

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Blood and Gore
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Strong Language

Inkjet MFP Helps Photos Go Digital

MULTIFUNCTION PRINTER

TEST CENTER THE LATEST Epson multifunction printer, the **Stylus Photo RX700**, is made for photography. This \$399 model comes equipped with a light in its lid for scanning film, and it uses six inks to print high-quality images.

The RX700 comes equipped with a plastic holder in which you can place a strip of negatives or individual slides; you can scan film images to your

PC or make prints right away. In addition, you can print directly from a digital camera via the RX700's PictBridge port.

This scan-and-print ability in stand-alone mode isn't terribly fast. Making a copy of a color photo on our shipping unit took about 2 minutes, 40 seconds in Best Photo mode. However, the RX700 printed photos from a PC faster than other recently tested inkjet MFPs, doing so in 48 seconds. The unit also earned the best score for scan quality.

Text documents didn't print sharply or darkly enough for business use. But the RX700 excelled on photos, receiving our highest score for photo print quality on glossy paper. Prints made from film nega-



AS A BONUS, the Epson Stylus Photo RX700 also lets you print photos via integrated media slots.

tives looked impressive, too, though not quite as good as the output from lab prints. Prints generated from positive color film appeared as nice as well-made lab prints, though some blue patches in church frescoes seemed too vivid and

flattened the illusion of depth.

I'd recommend the RX700 for anyone seeking a photo printer and scanner in one. Regrettably, its mediocre text output makes it less suitable as a general-purpose MFP.

—Eric Butterfield

Stylus Photo RX700

Epson America

PCW Rating **71** Good

The RX700 earns top marks for scan and photo print quality, but plain-paper text output is weak.

Street: \$399

find.pcworld.com/49758

Flexible, Cheap Network Storage

BACKUP HARDWARE

MANY PRODUCTS let you add hard-drive storage to a network, but few are as flexible and as affordable as Netgear's \$130 **Storage Central SC101**.

I tried a shipping version of the compact unit, which has slots inside for two parallel ATA drives (not included). Outside, its integrated heat sink pulls heat away from the drives. Installing my two hard drives was a snap: I used a coin to release the front cover; then I popped the drives in, connected the power and IDE cables, closed the SC101, and linked it to my network's rout-

er with the bundled RJ-45 cable (regrettably, the unit supports only 10/100 ethernet).

The wizard accompanying the friendly, easy-to-use Stor-



THE NETGEAR Storage Central SC101's clean, minimalist design makes installing drives easy.

age Central Manager software assigned an IP address to each drive in the device. I could then make up a name for the selected drive and set aside part of that physical drive's capacity for storage. For example, you can effectively split a single 300GB drive into two 150GB volumes, each of which receives its own drive letter.

The software allowed me to share the SC101 with other systems on the network, but I first had to install the Storage Central Manager on those PCs. As the SC101 finished its installation, Windows XP found the drive automatically and assigned it a drive letter. Windows Explorer shows the drive

as just another hard drive, so you can drag and drop files to it or use it with your favorite backup package (the unit ships with SmartSync Software's SmartSync Pro 2.1).

You can repurpose a drive from an older system to serve with the SC101 as a bring-your-own-drive device; or purchase two 300GB hard drives for about \$200 and get 600GB of storage for a total of only \$330—well under the \$500 you'd pay for a single 500GB network-connected drive.

—Melissa J. Perenson

Storage Central SC101

Netgear

PCW Rating **85** Very Good

Low-cost hard-drive enclosure provides painless, highly flexible network storage.

Street: \$130

find.pcworld.com/49867

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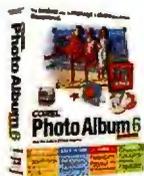
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ATI Misfires With First CrossFire

GRAPHICS BOARD

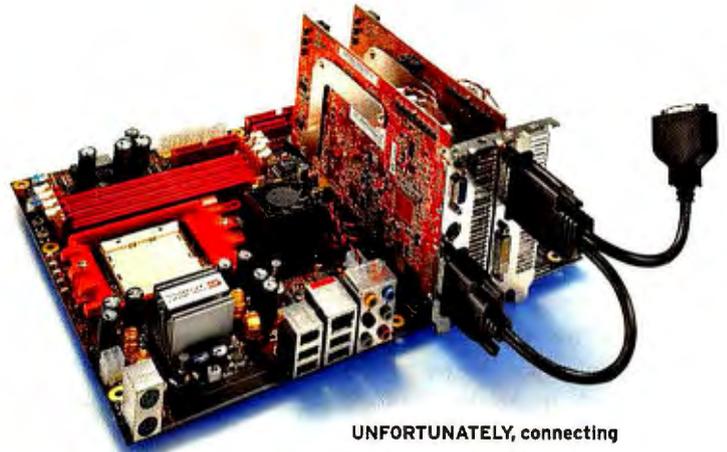
TEST CENTER NEARLY A YEAR after nVidia won graphics enthusiasts over with its SLI dual-graphics-card technology, ATI is rolling out its own high-end dual-card platform. Our tests of preproduction boards show that the new technology, dubbed CrossFire, has promise but is plagued by design limitations and—so far—lackluster performance.

Like nVidia's SLI, CrossFire requires a special dual-slot motherboard. ATI advises buyers to use as-yet-unreleased motherboards based on its own Xpress 200 chip set (we ran our tests on a reference motherboard supplied by ATI). But ATI says motherboards based on Intel's 955X chip set

with two x16 PCIe slots should also work satisfactorily.

To make ATI's dual-card scenario fly, you'll need one of its existing 850- or 800-series Radeon graphics cards (to act as a slave) and a new CrossFire Edition card (to function as a master). We tested a preproduction, high-end **ATI Radeon X850 XT CrossFire Edition**, in tandem with a Radeon X850 XT. The master card includes a compositing chip and a special DVI input for connecting the two cards via an external cable. This approach is inferior to nVidia's, which uses an internal SLI bridge clip to connect the two cards.

Even though both Radeon X850 XT graphics cards support 2048 by 1536 resolution



UNFORTUNATELY, connecting the two cards in ATI's Radeon X850 XT CrossFire Edition requires using an external cable.

when running solo, their maximum resolution in the dual-card setup was just 1600 by 1200. And the refresh rate sank to an eyestrain-inducing 60Hz; that's fine for an LCD but entails considerable flicker in a CRT. ATI says that these limitations shouldn't affect the vast majority of users, and anticipates that the issues will vanish in the next generation of CrossFire Edition cards.

We also found CrossFire's performance numbers wanting, especially compared with results from a solo version of nVidia's top-of-the-line card. Our PC World Test Center evaluation found that the dual-card Radeon X850 XT setup generally outperformed the single X850 XT, but usually trailed our speedy GeForce 7800 GTX reference board.

For example, in our Far Cry test at 1600 by 1200 resolution with antialiasing turned off, the ATI dual cards posted 81 frames per second. That beat the single X850 XT's peak of 75 fps; both lagged behind the GeForce 7800 GTX's 84 fps.

With antialiasing turned on, the nVidia card's lead in Far Cry grew significantly, reaching 51 fps, versus the single Radeon X850 XT's mark of 22 fps and the dual cards' 27 fps.

The GeForce 7800 GTX also

bested both ATI models in our Doom 3 test run at 1600 by 1200 without antialiasing. But with antialiasing on, the dual X850 XT setup posted 64 fps versus 49 fps for the GeForce 7800 GTX and 35 fps for the solo Radeon X850 XT.

POSTPONE UPGRADES

YOU MAY BE eager to salvage your investment in a high-end ATI Radeon 800-series card, but we can't recommend moving to CrossFire at this point. For top graphics performance and resolution, a board based on the nVidia GeForce 7800 GTX chip is your best bet. Still, we aren't ready to cross out CrossFire altogether: It could be more exciting when paired with ATI's next-generation cards, which should ship by the time you read this.

—Danny Allen

ATI Radeon X850 XT CrossFire Edition

ATI Technologies

Preproduction product, not rated
ATI's dual-graphics technology has promise, but first-generation model has design limitations and less-than-stellar performance.

Street: \$449

find.pcworld.com/49866

TECH TREND

Mix and Match Graphics

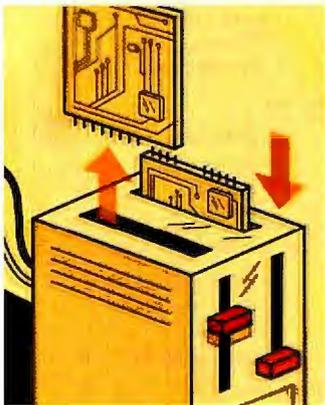
WHEN YOU PUT TOGETHER A PC that uses two graphics boards in tandem, your first buying decision involves choosing between

ATI's CrossFire and nVidia's SLI, since existing motherboards don't support both technologies. Intel is about to change all that.

Intel's as-yet-unannounced 975X chip set (expected in early 2006) reportedly will be the first to support both CrossFire and SLI, so you won't have to use one brand of graphics for the life of your PC. Both ATI and nVidia should benefit, but the less-established CrossFire has more

to gain, says Jim McGregor, editor of *Microprocessor Report*.

"Intel is the largest chip set vendor out there, and they can really level the playing field," says McGregor. Still, he expects dual graphics to remain largely an enthusiast-level feature. "I really don't see it coming down into the mainstream." —Tom Mainelli



TOP 10 NOTEBOOK PCs

Media-Savvy Laptops Are Becoming Affordable

TEST CENTER DON'T SPEND thousands on an entertainment notebook before checking out the Sys Technology Freestyle M7500, our new number three desktop replacement. Its bright 15.4-inch wide screen, matched with CyberLink's PowerCinema—an alternative to Windows



MEDIA MOGUL: The Sys Technology Freestyle M7500.

Media Center Edition—makes it a budget-friendly way to view movies on the go.

Our new first-place notebook in the all-purpose category, the business-minded HP Compaq nx6125, is attractively priced, too. It includes a fingerprint reader for extra security. The Toshiba Tecra A5-S416, another business portable, sets itself apart with a 14-inch wide screen.

Toshiba's Satellite M55-S325, also new, doubles as a stand-alone DVD player.

—Carla Thornton

ONLINE

FOR MORE information about the notebooks reviewed in this chart, including details on how we tested them, please go to find.pcworld.com/49908.

	DESKTOP REPLACEMENT	PCW Rating	Performance	Features and specifications
1	Acer TravelMate 8100 Best BUY \$1999 find.pcworld.com/48221	86 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 94 Superior Overall design: Very Good Tested battery life: 4:04 	<ul style="list-style-type: none"> 2-GHz Pentium M 760 15.4-inch wide screen 6.4 pounds DVD+R DL/DVD±RW
▶ Bottom line: Chic and pricey wide-screen model has a DVI port and a five-in-one media card reader.				
2	Dell Inspiron 6000 \$1964 find.pcworld.com/47230	83 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 89 Superior Overall design: Very Good Tested battery life: 5:07 	<ul style="list-style-type: none"> 2-GHz Pentium M 760 15.4-inch wide screen 7.5 pounds DVD±RW
▶ Bottom line: Big laptop combines strong performance, a superhigh resolution (1920 by 1200), and great speakers.				
3	Sys Technology Freestyle M7500 \$1395 find.pcworld.com/49658	82 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 85 Superior Overall design: Good Tested battery life: 2:37 	<ul style="list-style-type: none"> 1.86-GHz Pentium M 750 15.4-inch wide screen 6.8 pounds DVD+R DL/DVD±RW
▶ Bottom line: Budget entertainment notebook includes a Windows Media Center lookalike application and a remote control.				
4	HP Pavilion dv4000 \$1363 find.pcworld.com/47827	81 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 77 Very Good Overall design: Very Good Tested battery life: 3:23 	<ul style="list-style-type: none"> 1.86-GHz Pentium M 750 15.4-inch wide screen 6.7 pounds DVD+R DL/DVD±RW
▶ Bottom line: Elegant 15.4-inch wide screen features an ExpressCard slot and comes with a six-in-one media reader.				
5	Dell Inspiron XPS Gen2 \$3522 find.pcworld.com/48974	81 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 93 Superior Overall design: Very Good Tested battery life: 2:18 	<ul style="list-style-type: none"> 2.13-GHz Pentium M 770 17.0-inch wide screen 8.7 pounds DVD±RW
▶ Bottom line: Burly gaming notebook does a good job with media, thanks to its high-resolution screen, but its battery life is poor.				
ALL-PURPOSE NOTEBOOK				
1	HP Compaq nx6125 Best BUY \$1249 find.pcworld.com/49660	82 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 81 Very Good Overall design: Very Good Tested battery life: 3:25 	<ul style="list-style-type: none"> 2.2-GHz Turion 64 ML-4D 15.0-inch screen 6.3 pounds DVD±RW
▶ Bottom line: Business unit overcomes slightly dull screen by doing everything else right. A six-in-one card reader sits up front.				
2	IBM ThinkPad R52 \$1149 find.pcworld.com/47828	79 Good	<ul style="list-style-type: none"> WorldBench 5 score: 77 Good Overall design: Very Good Tested battery life: 3:30 	<ul style="list-style-type: none"> 1.73-GHz Pentium M 740 14.1-inch screen 6.1 pounds DVD-ROM/CD-RW
▶ Bottom line: The R52 has a comfortable keyboard, and its modular bay accepts many optional drives.				
3	Compaq Presario M2000Z \$1278 find.pcworld.com/49497	79 Good	<ul style="list-style-type: none"> WorldBench 5 score: 73 Good Overall design: Good Tested battery life: 4:48 	<ul style="list-style-type: none"> 1.8-GHz Turion 64 ML-34 15.0-inch screen 7.2 pounds DVD±RW
▶ Bottom line: Nicely priced, boxy laptop has great sound and impressive battery life, but it's on the heavy side.				
4	Toshiba Satellite M55-S325 \$1349 find.pcworld.com/49652	78 Good	<ul style="list-style-type: none"> WorldBench 5 score: 78 Good Overall design: Good Tested battery life: 3:08 	<ul style="list-style-type: none"> 1.73-GHz Pentium M 740 14.0-inch wide screen 5.2 pounds DVD±R DL/DVD±RW
▶ Bottom line: Sleek 14-inch wide-screen notebook boasts a peacock blue lid but has cramped mouse buttons.				
5	Toshiba Tecra A5-S416 \$1049 find.pcworld.com/49700	76 Good	<ul style="list-style-type: none"> WorldBench 5 score: 74 Good Overall design: Fair Tested battery life: 3:05 	<ul style="list-style-type: none"> 1.6-GHz Pentium M 730 14.0-inch wide screen 5.1 pounds DVD-ROM/CD-RW
▶ Bottom line: This plain-looking business portable is rich in features but suffers from uncomfortable touchpad buttons.				

CHART NOTES: Ratings are as of 10/26/05. Weight is of the notebook on its own, not including the AC adapter, power cord, and optical drive.

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NEC
NEC Display Solutions

GPS Gets a Voice

GPS SOFTWARE

MAPPING SOFTWARE and a GPS device go together like marshmallows and a campfire. But the predecessor of Microsoft's *Streets & Trips 2006 With GPS Locator* lacked voice driving directions. The 2006 version corrects this egregious oversight by providing voice instructions that drivers can rely on without having to turn

their attention from the road.

In testing the \$129 package (which includes a USB-based GPS tracking device), I found the voice directions clear and timely. Once you get used to the hassles of keeping a Windows XP laptop powered in the car, it's a pleasure having your driving route narrated—and being able to see your route and GPS information on a notebook screen.

The program isn't perfect: If you drive off course and want to recalculate your route, you have to click a button in the GPS pane. But the software can show the location of 1.8 million points of interest, including gas stations, hotels,



MICROSOFT'S STREETS & TRIPS 2006 With GPS Locator provides step-by-step directions and also shows a map of your route.

Streets & Trips 2006 With GPS Locator

Microsoft

PCW Rating **B1** Very Good

With a laptop, this package offers easy GPS car-navigation.

List: \$129

find.pcworld.com/49868

and banks, and a Night Map view simplifies tracking your route after the sun sets.

My favorite feature—after the voice directions—is the Locate Me button that uses Wi-Fi to find your location.

If you're looking for a low-

cost GPS navigation system, and you have a notebook computer loaded with 1.1GB of hard-drive space to spare, Streets & Trips 2006 With GPS Locator can certainly help keep you on the right track.

—Dennis O'Reilly

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These ultra-cool wireless headphones deliver high-caliber sound to make even the most particular audiophile smile. And best of all, there's no cord to trip over or keep you tied to your stereo. Enjoy audio from your home entertainment center or TV. Dig the tunes on your iPod or other MP3 player.

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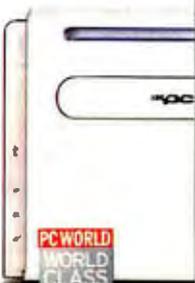


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Pocket PC Phone May Leave You Squinting

PDA PHONE

I WANT A MOBILE phone that thinks it's a tiny PC—so I was intrigued by Sprint's **PCS Vision Smart Device PPC-6700**, the first phone equipped with Windows Mobile 5.0.

The PDA phone, which runs on Sprint's CDMA network,

PCS Vision Smart Device PPC-6700

Sprint Nextel

PCW Rating **69 Fair**

First Windows Mobile 5.0 Pocket PC phone packs notebooklike features but is hobbled by a hard-to-read keyboard.

List: \$630 (\$480 with two-year service contract)

find.pcworld.com/49869

includes a landscape-oriented keyboard that's far wider and more notebooklike than BlackBerry-style microkeyboards. When you slide the keyboard out, the screen automatically flips to landscape mode, and the bundled mobile editions of Word, Excel, and PowerPoint gracefully accommodate documents of desktop origin.

The PPC-6700's bricklike design looks bulky, but it's about the same pocketable size as a Palm Treo 650. And my shipping unit packed lots of features, including a 1.3-megapixel camera that takes passable photos, a MiniSD



SPRINT NEXTEL'S PCS Vision Smart Device PPC-6700 has a notebooklike design.

slot for extra memory, Bluetooth, and support for Sprint's EvDO wireless broadband. (Sprint is just rolling out EvDO; for now, you're likelier to get online by using Sprint's 1XRTT network or the unit's built-in Wi-Fi connection.)

The keyboard supported quick and accurate typing some of the time—but backlighting was a problem. In theory, light shining through the characters makes typing easier in dim light. In reality, the see-through characters were usually hard to read, and almost illegible in some cases.

Bottom line: The PPC-6700 gets a guarded recommendation, but a successor model that fixed the keyboard flaw would be a winner.

—Harry McCracken

PHOTOGRAPH: MARC SIMON

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True Image 9 Edges Past Norton Ghost 10

BACKUP SOFTWARE

DISK-IMAGING software lets you create sector-by-sector copies of hard-drive partitions, including boot information—so when disaster strikes, system recovery is a snap. Symantec and Acronis take different approaches to this crucial task in the latest updates of their disk-imaging applications. While Symantec's \$70 **Norton Ghost 10** focuses on improved usability, Acronis's \$50 **True Image 9** contains several new, must-have features.

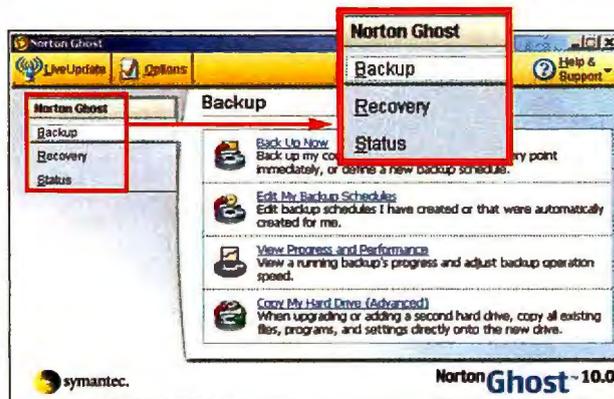
Both programs perform the same basic functions of creating and restoring full and incremental images to hard drives, CDs, or DVDs. And the two apps simplify automating and scheduling those processes. But the shipping version of True Image 9 that I tested permits differential images, which Norton Ghost 10 does not. Whereas incremental backups include only the data that has changed since your last backup, differentials allow you to

create a single file containing all of the changes that have occurred since your initial full backup. That way, you never have to restore a large number of small incremental images.

Equally useful is the new option to back up selected files and folders, which eliminates the need for a separate file-level backup program. Acronis has also added a Snap Restore function so you can work in Windows before you finish restoring an image—great if you're on deadline.

The biggest change in Norton Ghost 10 is the program's new interface, which does a nice job of guiding beginners through tasks while keeping various advanced options out of sight—but not out of reach.

However, Ghost 10 cannot create an image while operating from its extremely slow-booting installation/recovery CD. So if your system goes down, the utility can't create an image to help you recover any un-backed-up data stored



SYMANTEC'S Norton Ghost 10 has a basic, easy-to-use interface.



TRUE IMAGE 9 from Acronis offers users more features up front.

on a crashed partition. Symantec does bundle the older Norton Ghost 2003 (included mainly for Windows 98 users), which can create an image while running from its CD. But True Image 9's recovery CD handles everything that its

Windows application can, and that's a far better approach.

When it comes to features and price, you can't beat True Image 9. But I give credit to Ghost 10 for making an esoteric task easier for new users.

—Jon L. Jacobi

GOTCHA!

Music That Plays for Sure, Mostly

YOUR PORTABLE MUSIC player may bear Microsoft's PlaysForSure Audio logo, but don't assume that it will always work with each and every Windows-compatible music service.

Microsoft's PlaysForSure (find.pcworld.com/49882) is designed to ensure compatibility between products and services that support not only Windows Media digital rights management but also Windows Media Player 10. Right now some services (such as



Rhapsody To Go) support Windows Media DRM, but not the player. If you pay for any subscription service, make sure that the Download and Subscription portions of your portable player's PlaysForSure logo are checked. Finally, note that some products, such as Dell's DJ 20, aren't PlaysForSure-compatible without a firmware upgrade.

Consult individual vendors' Web sites to confirm that their products work together.

—Danny Allen

Norton Ghost 10

Symantec

PCW Rating **83** Very Good

A simple and effective way for less-tech-savvy users to back up all the data on their PCs. List: \$70, upgrade \$50 find.pcworld.com/49871

True Image 9

Acronis

PCW Rating **89** Very Good

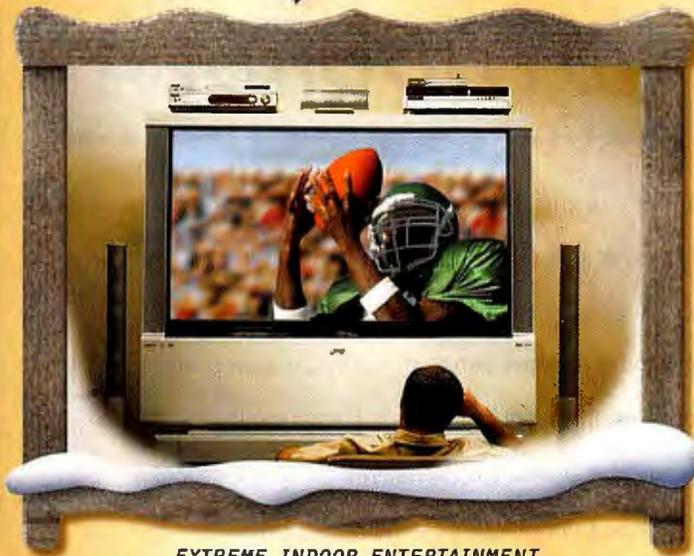
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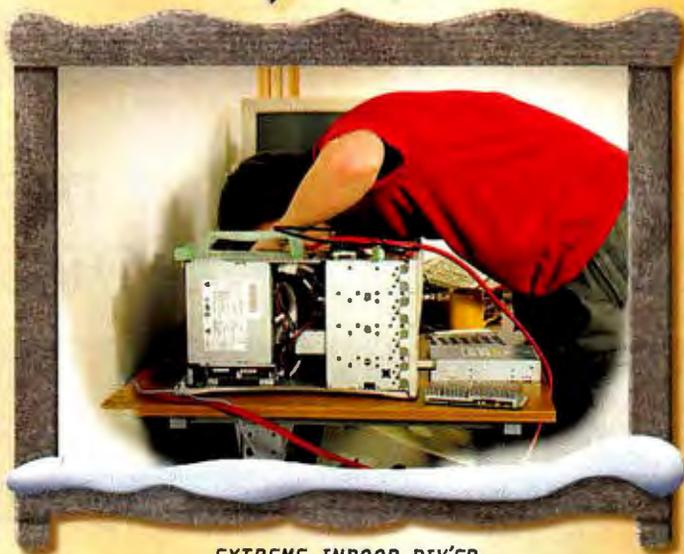
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TOP 10 DIGITAL CAMERAS

New Advanced Digicam Hits 9 Megapixels

TEST CENTER GREAT PRICES ON returning favorites allowed only two of the four newcomers we tested to make this month's chart. The new 9-megapixel Fujifilm FinePix S9000 took the last spot on our Advanced list. We also tested the Panasonic Lumix DMC-FZ20; while it and the fourth-place Canon PowerShot S2IS are two of the few cameras with optical image stabilizers, the Lumix's modest controls kept it from ranking.

We also evaluated two new SLR models, the Fujifilm FinePix S3 Pro and the Konica Minolta Maxxum 5D; only the latter had the wherewithal to



THE FINEPIX S9000 has a long lens and 9-megapixel resolution.

earn a position on the chart. Though the Maxxum 5D's body won't impress people who have laid their hands on a Canon EOS 20D, it costs just a little over half as much.

—Alan Stafford

ONLINE

PRODUCTS IN this chart are ordered by overall score. Browse to find.pcworld.com/50004 for reviews of all products tested this month and ranked in this chart.

	ADVANCED CAMERA	PCW Rating	Performance	Features and specifications
1	Canon PowerShot G6 Best BUY \$579 find.pcworld.com/44872	86 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Superior Overall design: Superior 	<ul style="list-style-type: none"> 7.1 megapixels 35mm to 140mm zoom 4 scene modes 21.7 ounces
<p>▶ Bottom line: The chunky G6 won best in show by performing well in our image-quality tests and providing many useful controls.</p>				
2	Olympus C-7070 Wide Zoom Best BUY \$450 find.pcworld.com/48091	86 Very Good	<ul style="list-style-type: none"> Image quality: Superior Battery life: Superior Overall design: Good 	<ul style="list-style-type: none"> 7.1 megapixels 27mm to 110mm zoom 7 scene modes 13.5 ounces
<p>▶ Bottom line: The C-7070 has been around a while, but it has winning image quality and a bargain price. Olympus will soon phase it out.</p>				
3	Canon PowerShot Pro1 \$699 find.pcworld.com/43164	81 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Good Overall design: Good 	<ul style="list-style-type: none"> 8.0 megapixels 28mm to 200mm zoom 7 scene modes 22.0 ounces
<p>▶ Bottom line: The Pro1's compact case makes it a pleasant camera to tote. Its battery life could be better, however.</p>				
4	Canon PowerShot S2IS \$499 find.pcworld.com/48088	79 Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Fair Overall design: Good 	<ul style="list-style-type: none"> 5.0 megapixels 36mm to 432mm zoom 14 scene modes 18.0 ounces
<p>▶ Bottom line: This is Canon's only model with an optical image stabilizer—rare on a still camera—but its battery life rates at the bottom.</p>				
5	Fujifilm FinePix S9000 \$699 find.pcworld.com/49892	76 Good	<ul style="list-style-type: none"> Image quality: Superior Battery life: Fair Overall design: Fair 	<ul style="list-style-type: none"> 9.0 megapixels 28mm to 300mm zoom 5 scene modes 26.7 ounces
<p>▶ Bottom line: This camera has a beautiful, rugged body and a long manual zoom, but it lacks some of the controls of other models.</p>				
SINGLE-LENS REFLEX CAMERA				
1	Olympus EVolt E-300 Best BUY \$799 find.pcworld.com/48478	88 Very Good	<ul style="list-style-type: none"> Image quality: Superior Battery life: Superior Overall design: Very Good 	<ul style="list-style-type: none"> 8.0 megapixels 28mm to 90mm zoom 14 scene modes 22.1 ounces
<p>▶ Bottom line: The E-300's lens selection is limited, but its features are well suited to photographers of all skill levels.</p>				
2	Canon EOS Digital Rebel XT \$999 find.pcworld.com/48088	85 Very Good	<ul style="list-style-type: none"> Image quality: Superior Battery life: Superior Overall design: Good 	<ul style="list-style-type: none"> 8.0 megapixels 28.8mm to 88mm zoom 6 scene modes 17.1 ounces
<p>▶ Bottom line: Fast action, compact size, and great imaging make the Digital Rebel XT a top pick among inexpensive digital SLRs.</p>				
3	Konica Minolta Maxxum 5D \$899 find.pcworld.com/49898	83 Very Good	<ul style="list-style-type: none"> Image quality: Very Good Battery life: Superior Overall design: Fair 	<ul style="list-style-type: none"> 6.1 megapixels 18mm to 70mm zoom 5 scene modes 33.0 ounces
<p>▶ Bottom line: Its body looks a little plasticky, but it has several useful advanced controls and did well in our image-quality tests.</p>				
4	Canon EOS 20D \$1599 find.pcworld.com/44874	82 Very Good	<ul style="list-style-type: none"> Image quality: Good Battery life: Superior Overall design: Superior 	<ul style="list-style-type: none"> 8.2 megapixels 44.8mm to 168mm zoom 6 scene modes 26.7 ounces
<p>▶ Bottom line: This professional model offers better construction and more features than most consumer-level SLRs have.</p>				
5	Nikon D70s \$1199 find.pcworld.com/48518	82 Very Good	<ul style="list-style-type: none"> Image quality: Good Battery life: Superior Overall design: Very Good 	<ul style="list-style-type: none"> 6.1 megapixels 27mm to 105mm zoom 6 scene modes 21.0 ounces
<p>▶ Bottom line: Small and relatively lightweight, the D70s has conveniences you won't find on other models, but image quality lags a bit.</p>				

CHART NOTES: Ratings are as of 10/26/2005. Features listings are not exhaustive. We test SLRs with lenses included in kits or provided by vendor.

Worthy Update for Photographer Fave ACDSee

IMAGE EDITING

ASK A DOZEN digital photographers what the most daunting task they face is, and nearly all will give you the same answer: managing the hundreds of photos that are sitting on their computer. One of my favorite tools for handling this chore is ACDSee, a lean yet comprehensive application that combines powerful batch-processing functions and adequate image editing tools.

The latest update, **ACDSee 8 Photo Manager**, builds on those strengths and adds others. In fact, two things clearly stood out in the \$50 shipping version I tested: its faster interface and its pumped-up photo-archiving capabilities. The

QUICK TAKE



Sony's Heavyweight Digicam

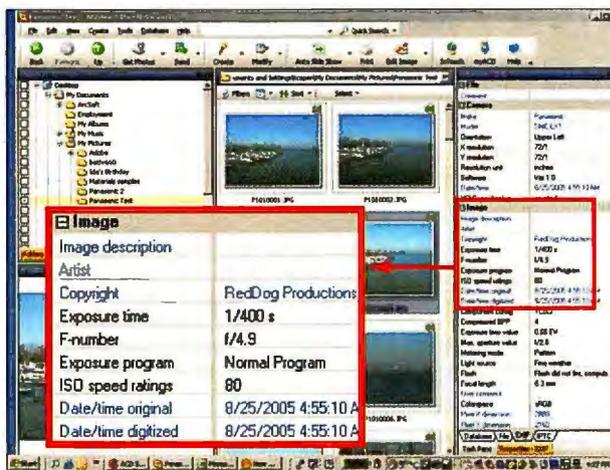
SONY'S PLEASINGLY PLUMP **Cyber-shot DSC-R1**—with its fixed Carl Zeiss 24mm-120mm zoom lens and its 10.3-megapixel image sensor—is a cross between a point-and-shoot and an SLR. But unlike current digital SLRs, this \$999 unit has a CMOS sensor that provides a real-time preview of the image you're capturing. You can frame shots through the unit's electronic viewfinder or use its fully adjustable 2-inch LCD, which pops up from the top of the camera, right behind the flash. I took a preproduction DSC-R1 for a spin; and despite experiencing occasional frustration at its oversize design, I liked the way the unit handled overall. More important, I was repeatedly impressed by the quality of the images it produced. find.pcworld.com/49874 —Melissa J. Perenson

latter offers the most compelling reason for current ACDSee users to upgrade.

BURN AND SYNC

ACDSEE 8'S NEW Burn Basket archiving feature works well. Besides letting you drag and drop files that you want to archive, it enables you to create new folders and to quickly reorganize the photos you are burning to disc.

Another added feature is Sync, which provides an alternate way to back up photos. You define the source and the destination of your files (a network server, an external hard drive, or another connected PC), and specify what the application should do in the



ACDSEE 8 STORES A WEALTH of details about each digital photo.

event of a file conflict (replace the old file, skip the transfer, or prompt you). Though primarily an archiving tool, Sync also helps you avoid storing duplicate files if you use two PCs for photo editing.

A new quick-search bar lets you speedily hunt through keywords, file names, and other fields. To search a photo's metadata, however, you have to use the full-search pane. Meanwhile, the Task Pane provides faster access to key tools such as rotate and resize. You can swiftly tab between the Task Pane and Properties, and drop-down menus permit you to expand or contract the extensive list of tasks. Unfortunately, the Task Pane is not customizable.

EDITING CHOPS

THE APP'S NEW cloning and healing tools did not impress me. Instead of utilizing visible crosshairs to mark the cloning source, as Adobe Photoshop does, ACDSee's tool employs a scarcely visible dot. This makes repeated cloning ardu-

ous at best. The same goes for the program's healing feature.

As a horizon-challenged photographer, I am constantly using a rotation tool to correct my off-kilter photos. But then comes the tedious task of cropping each image back to a proper rectangle. Click a check box, and version 8 does this automatically. Another handy new feature is the software's ability to add text to photos.

ACDSee 7 users should get enough improvements in this edition to make the upgrade worthwhile. And anyone grappling with a rapidly growing photo collection will benefit from ACDSee's streamlined image-processing tools. Even Photoshop users will find this package a useful complement to their favorite photo editor.

—Tracey Capen

ACDSee 8 Photo Manager

ACD Systems

PCW Rating **86** Very Good

Latest update is a bargain, given the breadth of its image-management and editing tools.

Street: \$50

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Adobe's New Moviemaking Powerhouse

VIDEO EDITING

STRAIGHT OUT OF the camcorder, my videos are pretty boring—just clips of my kid staring at the dangling lens cap and drooling. But with the help of Adobe's new **Premiere Elements 2** video editing software, I can prevail upon even the most jaded houseguests to watch my latest home movies.

IMPORTED GOODS

VIRTUALLY ALL mini-DV camcorders employ FireWire to transfer video to a computer, but Premiere Elements 2 can also import video from certain compatible units over a USB 2.0 connection. Transfers using a Canon Optura 60



THE NEW WORKSPACE of Premiere Elements 2 automatically resizes windows and has new shortcuts for effects, including your favorites.

camcorder worked perfectly through either connection.

DVD camcorders write your video to discs as MPEG files,

which most video editing applications can't handle. But Premiere Elements 2 has a new built-in MPEG encoder/decoder. Though the application took a few minutes to get a 5-minute MPEG clip ready for editing, that's a small price to pay for the capability.

The addition of MPEG handling raises the system requirements for running Elements 2, however. Adobe specifies 256MB of RAM as the minimum, though it acknowledges that the comfort margin at that amount of memory is now far smaller. Running a shipping copy of the software on a 2.4-GHz Pentium 4 system with 1GB of RAM, I frequently saw memory usage of 500MB, at which point some of the operations slowed a tad. The application never crashed, though, as I've seen happen with other video editing packages.

EDITING ELEMENTS

ALTHOUGH IT SEEMS like a small thing, Elements 2's new self-adjusting workspace is really nice. When you resize a window—say you enlarge the

monitor window to get a better view of a clip—all of the other windows and palettes on screen shrink or expand at the same time. I wish that Adobe's other assorted applications could do that.

Other interface improvements really add up. You can fade in or fade out a video or audio track by clicking a button in the new Properties window. Previously you had to add a transition or manually adjust the timeline. To delete part of a clip in Elements 2, you simply navigate to a spot in the timeline, click the new Split Clip button (which is located at the top of the timeline), click on the excess footage, and then press the Delete key on your keyboard.

The program comes with 71 DVD menu templates, and now you can add motion to buttons. You can also modify menu backgrounds by dragging in your own images—or even videos. The nice thing is, the application maintains the button assignments and text styles (and it even allows you to adjust them later).

Premiere Elements 2 is an elegant, powerful video editor that will make you look like you know what you're doing. Want proof? Next time you're at my house, I'll show you one of my home DVDs.

—Alan Stafford

QUICK TAKE

Share Your Video Online

WHAT'S THE POINT OF home videos if you can't inflict them on friends and family? **MediaMax**, a new offering from online backup service Streamload, allows you to easily upload videos (as well as photos, music, and other files) and share them with other broadband users. You merely send Aunt Ethel an e-mail link to the video of Junior eating a bug; she can either download the file or view a streamed version right through a player on the service's site. The cost is \$15 a month (or \$120 for a full year). Storage space is unlimited, but you and yours must abide by a 25GB-per-month download limit. find.pcworld.com/49790 —Tom Mainelli



STREAMLOAD'S MediaMax online service lets you upload videos (and other types of files) for easy sharing with friends and family.

Premiere Elements 2

Adobe Systems

PCW Rating **90 Superior**

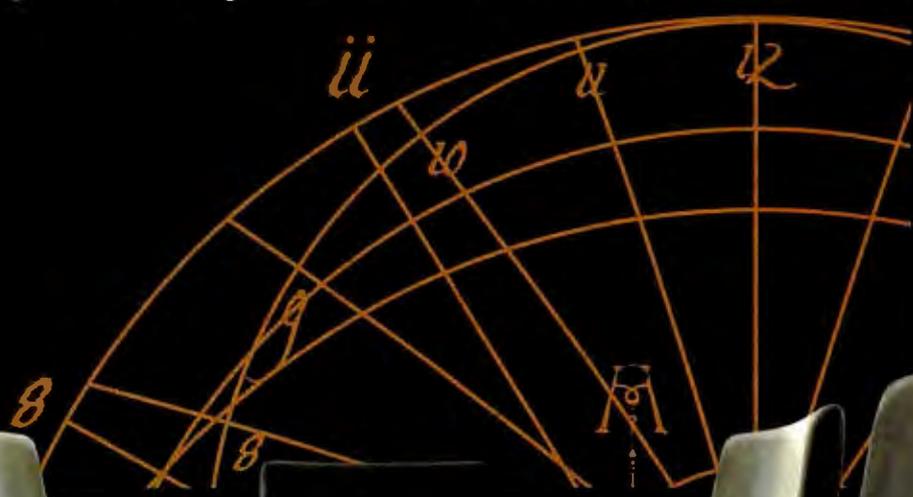
An affordable, easy-to-use video editor with features you won't find anywhere else.

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PROJECTOR

CONTRAST OR COLOR—when it comes to portable projectors, you commonly have to sacrifice one for the other. Models that emphasize high contrast and brightness are best suited to business use, while projectors that deliver saturated color are ideal for

viewing movies at home.

The \$1995 **Plus Vision V-339** doesn't force you to compromise. This 2.8-pound XGA (1024 by 768 resolution) projector combines Plus's new Dual Color Mode and Texas Instruments' Digital Light Processing technologies to deliver both high-contrast images and pure, vivid color.

The shipping version of the V-339 I tested performed well. I used the device's Dynamic color mode to display presentations and spreadsheets; then I switched to Vivid mode to screen DVDs, cable TV, and slide shows. Business docu-



THE PLUS VISION V-339 provides high-quality projection for work and play.

ments appeared crystal clear and bright, while movies and graphics looked realistic.

With an output rating of 1300 ANSI lumens (the ANSI lumen is an industry standard for measuring brightness), the V-339 had no difficulty displaying bright images in a room with low ambient light. Its manual zoom lens allowed me to achieve a large image without having to position the

projector far away from the viewing surface. For example, when positioned just over 11 feet from the screen, the V-339 displayed a sizable picture with a 7-foot diagonal, making it perfect for presentations in small conference rooms.

The V-339 is a compelling choice for road warriors who want a business projector that can also hold its own at home.

—Richard Jantz

V-339

Plus Vision

PCW Rating **93 Superior**

This compact projector is an excellent choice for use in the office and at home.

Street: \$1995

find.pcworld.com/49878

PHOTOGRAPH: MARC SIMON

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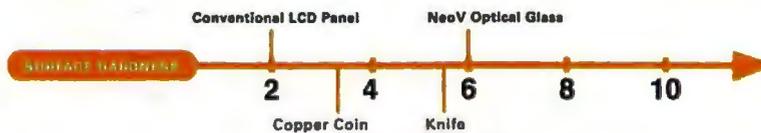
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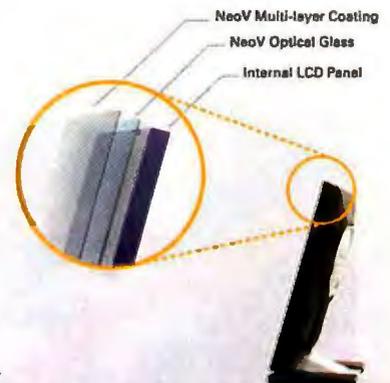
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A Different Class of Display

Microsoft's Comfy, Ultra-Ergonomic Keyboard

INPUT DEVICE

POOR TYPING POSTURE can wreak havoc on your wrists, but few people take the time to correct such hazardous habits. Enter Microsoft's **Natural Ergonomic Keyboard 4000**. Although it took me a while to get used to the keyboard's unconventional design, the results were worth the effort.

Natural Ergonomic Keyboard 4000

Microsoft

PCW Rating **B+** Very Good

The comfort and relief provided by this ergonomic keyboard justify the fairly high price.

List: \$65

find.pcworld.com/49880

The 4000 attempts to correct your hand positioning in several ways. First, its keys are laid out in a curve similar to the shape of a seagull's wings, with center keys that are proportionately oversize to compensate for how often you use them. Its gable design lets you position your forefingers higher than your little fingers, so your wrists adopt a more natural position. The keys on each side sit in a concave configuration, which helps you reduce repetitive motions.

As a touch typist, I initially found positioning my hands comfortably on this shipping unit difficult. But after about a day, I got accustomed to the



THE FEATURE-RICH Natural Ergonomic Keyboard 4000 emphasizes comfort.

way it felt. The well-padded palm rest made everything feel even more comfy.

There are keys for launching applications, a convenient zoom button, and an array of customizable buttons. While these extras enhance productivity, the unique ergonomic

features are what distinguish this keyboard. Unfortunately, the 4000 is USB-only—and you can't use a PS/2 adapter. Plus, at \$65 it seems just a tad pricey for a wired keyboard. But I'm willing to pay a little extra for the sake of comfort.

—Michael S. Lasky

PHOTOGRAPH: MARC SIMON

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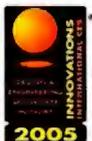
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More Reviews at PCWorld.com

SHORT LIST: MUSIC

Home Audio Gear



IF YOU'RE GOING to listen to digital music at all, make it high-quality uncompressed audio and make it available all over the house. Here are a service and two products that can help.

—Ramon G. McLeod, Editor, PCWorld.com



MUSIC SERVICE

MusicGiants, street: \$1.29 per song, average

find.pcworld.com/49743

The download service offers excellent high-bit-rate WMA files—an audiophile's dream, though the collection could be stronger.



HEADPHONES

Sennheiser PXC250, street: \$150

find.pcworld.com/49773

I got these noise-canceling headphones for my son, but the sound was so sweet that I bought another pair for myself.



MUSIC STREAMING DEVICE

Squeezebox2, street: \$179 (\$249 with Wi-Fi)

find.pcworld.com/49774

This device streams music via wire or wirelessly from your PC to your stereo. Sound quality on the wired setup was excellent.

SHORT LIST: TRAVEL

Portable PCs and Peripherals

THESE THREE PORTABLE devices fit in a backpack and let you work, communicate, and transport files from the comfort of a white, sandy beach—well, provided the beach has Wi-Fi.

—Kalpana Ettenson, Senior Editor



ULTRAPORTABLE NOTEBOOK

Lenovo ThinkPad X41, street: \$1899

find.pcworld.com/49798

A comfortable keyboard, biometric security, and superb battery life make this 3-pound ultraportable a great travel companion.



WINDOWS MOBILE PDA

Dell Axim X51v, street: \$401

find.pcworld.com/49800

This workhorse has a fast processor and graphics accelerator, 256MB of RAM, Wi-Fi connectivity, and a good-looking LCD.



PORTABLE HARD DRIVE

Seagate Pocket Hard Drive, street: \$147

find.pcworld.com/49746

Despite its hockey-puck shape, we gave this 5GB USB 2.0 drive a World Class award as one of the 100 best products of 2005.

ONLINE EXTRAS

A Hot-Rod PC and More

POINT YOUR BROWSER TOWARD PC World's Web site for the very latest reviews, including looks at these notable products.

Alienware Aurora 7500

Street: \$4835

find.pcworld.com/49690

Alienware's latest desktop offers blistering performance, 500GB of RAID 0 hard-drive storage, and two top-of-the-line EVGA nVidia GeForce 7800 GTX graphics cards inside.



Asus W3V

Street: \$1899

find.pcworld.com/49654

This lightweight notebook provides a 15-inch wide screen, good performance, and plenty of buttons for your media-playing convenience.



SanDisk Sansa m200

Street: \$160 (2GB), \$200 (4GB)

find.pcworld.com/49752

Could this be the iPod Nano killer? Priced below the Nano and due out in November, the Sansa is supposed to play music from the Napster To Go, Rhapsody To Go, and Yahoo Music To Go subscription services.

BEHIND THE RATINGS



PC World Ratings are based on a 0-100 scale that represents our overall assessment of a product's or service's performance, design, features, and price. Ratings fall into five categories. **Superior (90-100):** The product is innovative, easy to use, useful, and fairly priced. It is among the very best in its category. **Very Good (80-89):** The product is better than most others of its type and is highly recommended. **Good (70-79):** The product is solid and does what it's supposed to do, but it doesn't go beyond the typical characteristics of its category. **Fair (60-69):** The product performs adequately but is somewhat flawed. **Poor (59 and lower):** The product is seriously flawed and we cannot recommend it. For more details, visit find.pcworld.com/49902.

Best Buy Best Buy awards go to hardware, software, and services in our ranked charts and other product comparisons that deliver an outstanding overall combination of quality and value.

TEST Center The PC World Test Center performs formal tests on all products designated with this icon. For more on our testing of specific products, visit find.pcworld.com/49974.

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- Official Xbox Magazine

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ACTIVISION

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activision.com

CUTTING-EDGE BUSINESS TOOLS

Businesses embracing the value-rich color MFPs from OKI® Printing Solutions

THE RESEARCH TELLS A COMPELLING STORY. According to Lyra Research, North American shipments of color laser multifunction products (MFPs) targeting small businesses and workgroups will soar an astonishing 650% from 2005 to 2009, to nearly 600,000 units. And IDC data shows growth approaching nearly 400,000 units for midsize to large businesses by the end of 2005.

What's driving this stunning growth is the recognition by businesses—of virtually all sizes and types—of the irresistible value proposition that color MFPs pack. From a single machine, users can harness the benefits of high-speed color printing; high-resolution scanning; versatile copying capabilities; fax services; the efficiency of networked MFP solutions; and software that allows an MFP to function as an integrated digital color imaging system.

What's more, according to IDC the prices of MFPs continue to decline year after year while features and functionality increase, making MFPs among the most value-laden office machines. Color MFPs can improve productivity and increase cost savings by allowing businesses to consolidate several machines into one multifunction product.

A HERITAGE OF QUALITY PERFORMANCE

When it comes to the best mix of value, cost, and performance, the digital color MFP lineup from OKI Printing Solutions (www.okiprintingsolutions.com) offers business users unparalleled innovation through the company's seventh-generation Digital LED print engine and Single Pass Color™ technology.

This leadership and innovation was recently recognized by BERTL®, a renowned independent source of imaging technology evaluation. BERTL praised both the ES3640e MFP and the ES1624n MFP from OKI Printing Solutions for their versatile features, superior print quality, and productivity, giving each color MFP the coveted BERTL 4-Star Award. BERTL also praised the ability for users to network scan-to-email

ES3640e is also available in a Graphic Arts edition that provides unparalleled color results when businesses require near commercial print quality.

For offices where space is limited but high performance and color quality are still a must, OKI Printing Solutions offers the ES1624n MFP. It is the ideal choice for users looking to replace a raft of existing printers, scanners, and copiers with a single, feature-rich machine. This small

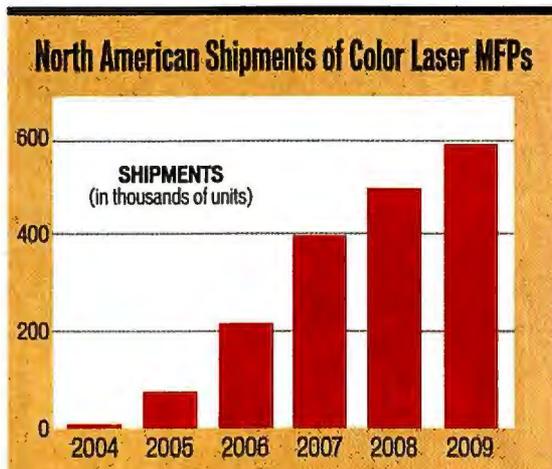
office dynamo can hammer out up to 16 pages per minute of color output and 24 pages per minute of monochrome output, and comes network-ready for efficient sharing of all the MFP services.*

The C5510n MFP from OKI Printing Solutions is another network-enabled workhorse that fits nicely into tight spaces—perfect for the small office environment—but still delivers world-class results. It offers the advantages of printer-based MFPs over their copier-based competitors, including ease of use, installation

of printing software utilities and applications, and more-complete integration of network printing and scanning capabilities. The C5510n MFP is readily available through Oki Data Americas' COMDEX reseller channel.

The bottom line is that color MFPs from OKI Printing Solutions deliver significant business value. One machine replaces the expense of several to get vital office work done efficiently, boosting productivity. And communicating with color output burnishes a corporate image to deliver that extra measure of competitive advantage. ■

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*Published performance results are based on laboratory testing; individual results may vary.
Single Pass Color technology, T.M., Oki Data Corporation.
BERTL certification applies to the ES3640e MFP and ES1624n MFP OKI Printing Solutions color multifunction products.



Source: Lyra Research, Inc., Hard Copy Industry Advisory Service, First-Half 2005 Forecast

from the control panel, a feature that comes standard on all color MFPs from OKI Printing Solutions.

The ES3640e MFP is designed for midsize to large workgroups and equipped to print and copy up to 36 pages per minute in color or 40 pages in monochrome.* BERTL said the ES3640e MFP "comes with an enviable range of features out of the box" as well as impressive "image quality across the spectrum of test samples."

BEST VALUE FOR BUSINESS COLOR

The ES3640e, the flagship color MFP from OKI Printing Solutions, offers super-crisp resolution and is ruggedly durable for large workgroups. Further demonstrating its versatility, the



OKI Printing Solutions offers cutting-edge versatility in a color multifunctional system

A complete range of tools that lets you print, copy and scan faster and easier than ever before.

Now you can do it all—more colorfully and more productively—with the new full line of color multifunctional systems from OKI Printing Solutions. Versatile and reliable, these high-performance multifunctional systems excel in small offices and large corporate workgroups alike. The new network-ready color multifunctional systems are one of the most cost-effective digital LED color solutions on the market, offering:

- Print and copy speeds up to 36 ppm color/40 ppm mono*
- Up to 1200 x 1200 dpi print and copy resolution
- Low cost printing per color and mono page
- Standard scan-to-email/network/FTP capability
- Toll-free technical support 24/7, 365 days a year with agents based in North America

Bottom line: OKI Printing Solutions offers the best value for business color.



ES3640e MFP
July 2005
&
ES1624n MFP
August 2005

To learn more about our **NEW** line of color MFPs, call us at:
1-866-OKI-COLOR or visit www.okiprintingsolutions.com/us

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OKI
PRINTING SOLUTIONS

What's New for 2006

From a major Windows upgrade to powerful Web services to high-definition DVD, there's a lot to look forward to in the coming year.

BY ERIC HELLWEG

THE APPROACHING new year looks to be full of change for the way you work and play with technology. Among the exciting developments heralded for 2006: Advanced Web apps and tools will further blur the line between the desktop and the Internet. The next generation of DVD will arrive at long last, ushering in high-definition recording. Wide-screen LCD monitors

will continue to become less expensive and more attractive, while new technologies will begin to boost display quality dramatically. And Microsoft will finally ship its long-awaited Windows Vista operating system.

But the road to these anticipated developments won't be without its share of jolting bumps and potholes. A standards battle is raging between next-generation DVD camps. Vista will require a pretty beefed-up system to run properly. And most of the new monitor models will be priced (at least initially) beyond the means of all but the most well-heeled users. Treat this article as your one-stop guide to some of the hottest new technologies, so you can decide whether they'll be right for your tech needs in 2006. ►



Vista View

Microsoft's next major operating system looks a lot different from the Windows you're used to seeing. But the parts of it you can't see might be even more important.

IT HAS BEEN JUST OVER ten years since Microsoft launched Windows 95 to great fanfare and hype (and the Rolling Stones' song "Start Me Up"). Now, as Microsoft prepares its next major operating system launch, scheduled roughly for the end of 2006, an appropriate theme song might be "Security" by blues siren Etta James.

"The key to Vista is security, security, security," says Laura DiDio, an analyst with The Yankee Group. And Microsoft is focusing a lot of effort on securing users from the legion of viruses, worms, and

other malicious attacks that have become such a serious problem in the last decade.

But security isn't the only focal point of Windows Vista. Also included are additional gaming features, a stronger desktop search function, a reworking of the graphical user interface, compatibility with high-definition TV, and other multimedia tie-ins. What's more, Vista is the first mainstream operating system from Microsoft built to handle 64-bit applications. The new OS should combine with the latest CPUs to improve gaming, system performance, and security.

GET IT NOW

THE VISTA-READY PC

VISTA'S TRUE SYSTEM requirements are still in flux, but if you aim for a machine with these specs, you should be in great shape when the operating system does roll out.

- 1 2GB of RAM
- 2 64-bit CPU
- 3 PCI Express graphics board with 128MB of RAM
- 4 SATA hard drive with NCO
- 5 Monitor that supports the HDCP copy protection standard required for playback of high-def content



VISTA'S REPLACEMENT for Windows Explorer provides graphical previews of the contents of folders and files.

Of course, exactly what Vista will include remains in flux. Among the rumors that Microsoft won't comment on: Vista may ship in seven different forms, ranging from an ultra-stripped-down version for third-world countries to a full-featured "ultimate" edition with all business and multimedia components included. Not everyone sees such an arrangement as a good idea. "If Microsoft releases Vista in seven flavors, they're going to have a lot of confused consumers on their hands," says Rob Enderle, principal analyst with The Enderle Group.

Right now, Microsoft has lots of concerned customers, primarily because Windows is a favorite target for malicious code writers. Vista aims to thwart attacks in a number of innovative ways. One is by making it easier to create "limited user" accounts, which can be set to allow a user only the most basic rights (the ability to download a graphics driver, say, but not to install an application). In previous versions of Windows, only network administrators could control this.

Another way is by having the OS encrypt all the data on your hard drive by default—the first time Microsoft has offered this level of security, according to DiDio. Vista also will isolate various applications and components, so if a virus comes in through Internet Explorer, the amount of damage it can wreak throughout the OS is limited. "That will basically,

if not totally, eliminate the threat [from] IE," says DiDio. "At the very least, it certainly cuts down on the vulnerabilities."

One area where Microsoft is lagging is in desktop search: Google beat the Redmond crew to market with its desktop

search application. "Desktop search has been a black hole in Windows for years," says Enderle. So look for Microsoft to provide an improved desktop search function in Vista, along with a new (and better) graphical interface for finding files.

If Windows Vista delivers on most of what Microsoft has promised, what the beta release suggests, and what the rumor mongers predict, it will be a dramatic upgrade. From what we know so far, the outlook for Vista is pretty promising.

Blu-Ray vs. HD-DVD

Get ready for the next generation of DVD. Unfortunately, a nasty format war will make purchasing a new player rather complicated.

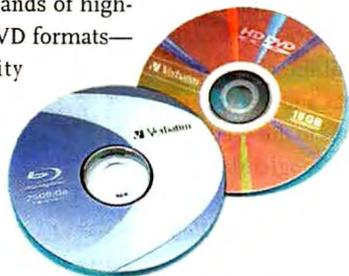
JUST WHEN THE WHOLE DVD thing seemed too good to be true—\$30 players, \$10 movies—the industry decided to up and change everything. You shouldn't be surprised: The music industry essentially did the same when it introduced CDs in 1981. But think about it: Would you really want to listen to a cassette audiotape today? Probably not, and by this time next year you may start to feel the same way about your current DVD collection.

Why the change? The next generation of DVD technology will hit the United States in 2006 to handle the demands of high-definition TV. Two new DVD formats—Blu-ray and High-Density DVD (HD-DVD)—will deliver unparalleled picture clarity for home-recorded content, since they are designed to record high-definition television (HDTV) with no quality loss.

What's more, the formats will permit far more data storage than is possible on today's DVDs. Blu-ray discs will hold either 25GB or 50GB of data, depending on whether you use single- or dual-layer discs. HD-DVDs will be 15GB and 30GB. With 25GB of storage, you can record 2 hours of HDTV content or 13 hours of standard-definition television fare. These new discs will allow moviemakers to store high-def films with more room for extras.

But as is the case with so many new technologies, there are some issues. First and foremost, the two next-generation DVD

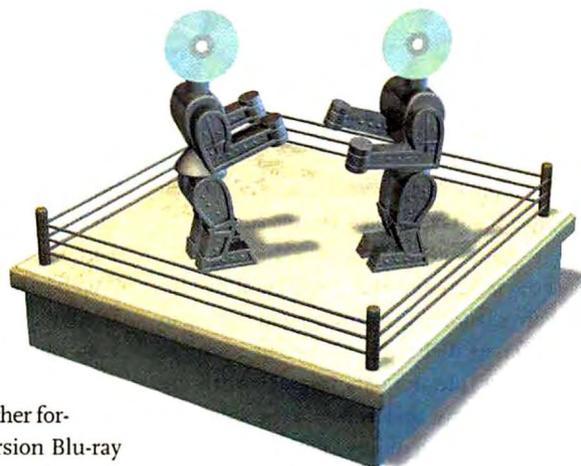
formats jostling for market supremacy are incompatible. If you put on your early adopter hat here, you may find some rough times ahead. For starters, the major movie studios and the consumer electronics manufacturers have divided, aligning with one or the other format. So if you buy a first-version Blu-ray player, you'll be able to watch movies such as *The Chronicles of Narnia: The Lion, The Witch, and The Wardrobe*, from Walt Disney Studios, but not *The Bourne Supremacy* or *Chronicles of Riddick*, which are property of Universal Studios, a company aligned with HD-DVD.



RECORDABLE
Blu-ray and HD-DVD discs will store hours of HD video.

slipped to early 2006, eroding much of the format's first-to-market advantage. One plus for HD-DVD: Its discs are the same physical size as current DVDs (Blu-ray discs are slightly thinner), meaning that creating blank discs and players will be easier and cheaper, which may endear the technology to manufacturers a bit more.

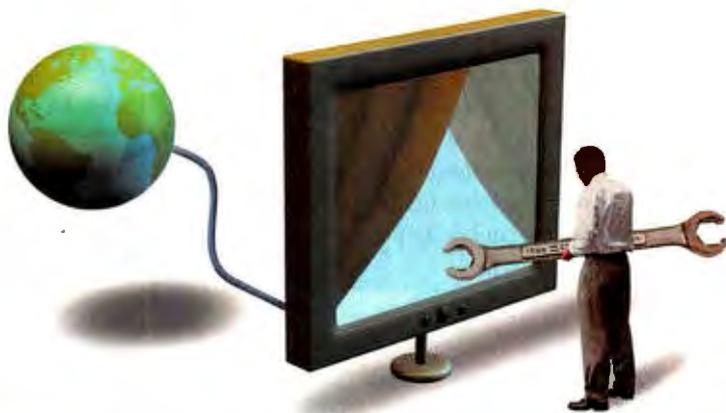
Don't get too upset about the format war, however. Few studios have signed



exclusive pacts with either side. And if one format jumps out to a commanding lead, most studios will surely begin offering movies that play in it.

A final thing to watch: Though both Blu-ray and HD-DVD will incorporate the AACS content protection scheme, their policies may differ on a portion of AACS called "managed copy," which would allow consumers to make a limited number of copies of their discs for personal use or backup. Both formats will support managed copy, but at press time the HD-DVD camp had committed to making managed copy mandatory on its discs, while the Blu-ray contingent had not.

No manufacturer we contacted would disclose pricing for its next-generation players, but analysts expect the first versions to sell for about \$1000. That price is likely to drop significantly by the end of 2006, due in part to Sony's launch of the PlayStation 3 (see page 110). This gaming unit, which will use Blu-ray technology, is expected to cost less than \$500. Its predecessor, the PlayStation 2, helped force a DVD player price drop when it debuted with DVD functionality, and the PS3 will probably have a similar effect. ▶



The Web's New Generation

Soon you'll enjoy amazing, lightweight Web sites that respond like desktop apps.

FOR MOST PEOPLE, "going online" involves launching a browser and surfing to different Web sites. But recent advances in how Internet data interacts with the desktop have already begun to change our idea of "going online" radically, and the metamorphosis will continue in 2006.

As with any revolutionary technology, the advance has garnered a slew of names. Some call it Web 2.0. Others call it "Open API," alluding to the sharing of key programming code known as the application program interface. And many are calling it Ajax (for Asynchronous JavaScript and XML), after the coding technology that is changing the way browsers interact with Web data. But regardless of the name used, 2006 will see an outpouring of new Web applications that take advantage of it.

You may be familiar with some of them already. The popular site Widgetgallery.com (formerly known as Konfabulator) hosts more than 1000 small, downloadable apps that run on your desktop but are built with JavaScript and XML like many Web pages. Many of them rely on Web-supplied data to function. Some examples: A small dictionary applet that presents search results

from leading dictionary and thesaurus sites. Another operates as a constantly updating traffic cam for your area of choice.

Web-based e-mail lends itself nicely to an Ajax approach, too. When a user clicks a link on a standard Web mail interface or on a Web page, the server must send the user a whole new page. Ajax apps can request specific bits of data and update them on the fly, so a Web mail client can pull down new message headers while you're scrolling through a list, for example. Google's Gmail uses Ajax to present threaded conversations and to drive the alerts that pop up on your desktop to show the first couple of lines of a new message. Both Microsoft and Yahoo are beta-testing Ajax-powered Web mail interfaces that bring the responsiveness and features of desktop mail applications to the Web.



YAHOO WIDGETS can bring weather info, stock quotes, and more to your desktop.

API to the public, allowing programmers to add their own functionality. HousingMaps.com employs that API to overlay Google's mapping service with Craigslist apartment rental listings, giving users a visual idea of where a rental sits in a city.

Google Maps is another popular variant of the Web 2.0 concept. It relies on Ajax to enable users to move the map seamlessly in any direction by clicking it and dragging it. Google has also gone a step farther, opening the mapping

TRY IT NOW

STAY ORGANIZED WITH WEB 2.0 TOOLS

ARE YOU CONSTANTLY jotting down random ideas or to-do lists? If so, check out Backpack (www.backpackit.com), a tremendous Web site that uses Ajax to make entering and retrieving data seamless and easy. Backpack allows you to jot something down wherever and however you want in a variety of simple and helpful formats. Say you suddenly remember that in 20 minutes you have to call your broker. Jot a note down in Backpack and add '(+20)'. Based on your preferences, Backpack will send you an e-mail reminder or call your cell phone 20 minutes later.

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BACKPACK'S flexible Ajax interface lets you easily create functional lists.

But don't plan on counting out desktop apps yet. Not everyone can stay connected all the time. According to David Feldman, an analyst with IDC, "That's where the hype over Web applications leaves reality, with what people do with their computers." What's more, he says, "when you move to serious number crunching or graphics rendering, [a Web-based application] won't work." But network-based and desktop programs aren't an either/or proposition. The wealth of connected applications that will appear in 2006 will simply give all of us more options. ▶

Multitasking At Its Best



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Displays: Fast, Bright, and Wide

High-end displays get brighter, while wide screens get cheaper and displays get faster.

THE FUTURE LOOKS bright for the display market in 2006. Exactly how bright depends on how much you're willing to spend. If you don't mind forking over \$7000, you can pick up a SpectraView LCD2180WG, NEC's first LED-backlit monitor, with incredible contrast, brightness, and color capabilities. If that's a zero or so more than you want to spend, however, fear not: Cheaper wide screens and faster displays are on tap as well.

When the display industry reached its tipping point toward LCDs in 2003—the year liquid-crystal displays first outsold models with cathode-ray tubes—the prevailing argument for buying a flat screen was that it saved desktop space. But because of how LCD monitors display color, they lack the brightness of CRTs; so at the behest of users, companies are scrambling to boost the brightness of new displays. "People really liked the high-end CRTs because of their color brightness and color purity," says Rhoda Alexander, director of monitor research at iSuppli.

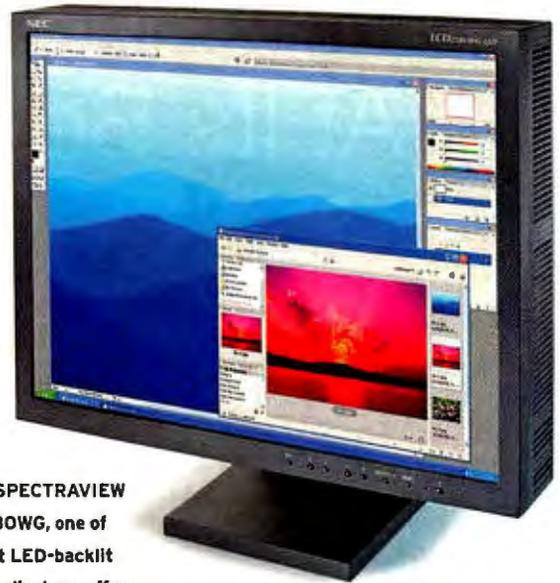
Besides providing increased brightness, LED-backlit LCDs will give users truer color representation on their screens. This is because LEDs can generate a richer color spectrum, thanks to the quality of the backlighting. "Current LCDs can show only 70 percent of the color standards," says Bob O'Donnell, an analyst with IDC. "With LED you can surpass the standard and get to the high-definition color levels." This means that when you take a digital camera picture, your LED-backlit monitor will display the same colors that were in your original shot, not a facsimile missing 30 percent of the color spectrum. According to iSuppli's Alexander, the difference can be striking: LED-backlit LCDs have "a significant wow factor," he says.

Don't expect the nosebleed prices of LCD-backlit LCDs to drop significantly in

2006, however. Pricing typically decreases only with competition, and in a nascent market you won't see a host of aggressive new competitors pushing prices south. "There are also a lot of research and development costs that need to get recouped," Alexander points out. "Maybe in 2007 we'll see some significant price drops here."

For buyers who are still on budgets, wide-screen monitors hold more immediate promise. Wide screens will finally make a big splash in the desktop computer market in 2006, and if you work with spreadsheets quite a bit, those displays will make it easier to view lots of columns at once. Many vendors claim that it's possible to view two Word documents side by side with a wide-screen display, but according to iSuppli's Alexander

NEC'S SPECTRAVIEW LCD2180WG, one of the first LED-backlit desktop displays, offers stunning color accuracy for imaging pros. For the rest of us, it's a bit pricey (\$7000).

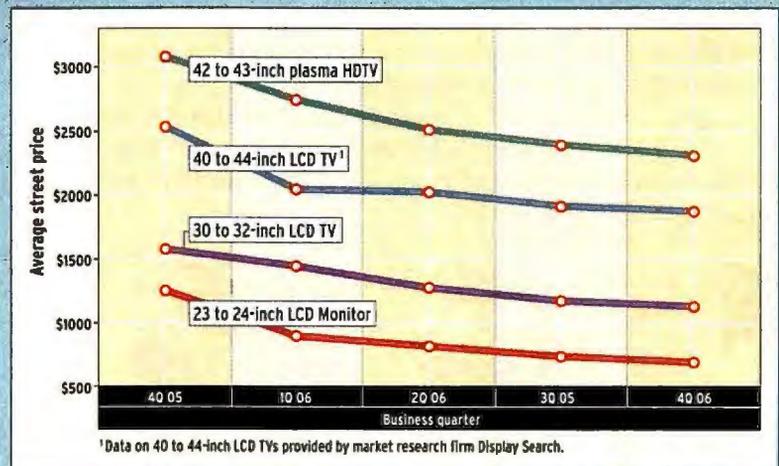


you'll need at least a 23- or 24-inch wide screen for that to work well. Wide-screen buyers will be glad to know that monitor response time, which affects how fluidly a fast-moving object appears on your display, will improve significantly. In 2004, response times of 25 milliseconds were common. Now you're more likely to find a 12ms or even 8ms model. Those numbers will continue to drop in 2006. You'll notice the change most when viewing movies or playing games. Motion should be smoother, with less ghosting. ▶

PRICE CHECK

WATCH FOR FALLING WIDE-SCREEN PRICES

THE WIDE-SCREEN TV OR MONITOR you've been coveting should get much more affordable next year. Here are market research firm iSuppli's projections of the dropping prices.



PHOTOGRAPH: RICK RIZNER

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Wireless Connectivity Everywhere

Long-distance wireless is coming, but notebook-based WiMax is still some way off.

DESPITE ALL THE HYPE surrounding wireless networking, the fact remains that finding a public Wi-Fi connection still takes some work. Next year, finding a wireless connection should start to get easier, thanks to a long-range broadband wireless technology from Intel called WiMax. According to an Intel spokesperson a WiMax signal "can carry 50 miles in tests, but in reality about half that."

The first WiMax version to arrive will be "fixed WiMax," in which a tower beams the WiMax signal and a WiMax router receives it. A Wi-Fi access point then broadcasts the signal its normal 150 feet. So the first versions will obviate only the need to run a cable into your home. The first WiMax-compatible routers have already appeared, with more expected to follow early next year. When "mobile WiMax"

arrives in late 2007, WiMax-compatible notebooks will be able to pick up signals directly from the tower, which means that if you're within a tower's extensive range, you'll have a broadband connection.

Look for more municipalities, which

may be experimenting with citywide public wireless programs already, to consider fixed WiMax as another option.

GET IT NOW

LONG-RANGE WIRELESS TODAY

IF YOU CAN'T WAIT wait until 2007 for pervasive wireless Net access, offerings from cellular providers Cingular, Sprint, and Verizon can bridge the gap. All are rolling out their high-speed (400 or 700 kbps, depending on the technology) networks at a rapid clip, with service already available in many metropolitan areas. The programs require a special PC Card modem (Sprint sells a \$250 Sierra Wireless AirCard for access to its EvDO network, for example), and the monthly plan doesn't come cheap (usually around \$60, depending on service level). Also, keep an eye out for notebooks like Lenovo's ThinkPad Z Series, which you can order with high-speed wireless access built-in.



Apple: Intel Inside

Two worlds will collide in 2006, producing the first systems capable of running both Windows and Mac OS. (Maybe.)

FOR YEARS, computer users have sought a hybrid. Not a half-electric, half-gasoline motor vehicle, but a computer that combines the elegance of Apple's software design with the raw horsepower of an Intel CPU. In 2006, that dream will come true.

When Apple announced in June 2005 that it was abandoning IBM PowerPC processors in favor of an Intel engine, the blogosphere lit up at the possibility of buying brand-name PCs loaded with Apple's Mac OS X. That won't happen, at least not in a form that Apple will officially sanction. Apple will probably key

the final release of its Mac OS for Intel processors to a specific piece of hardware included in the new Intel-based Macs.

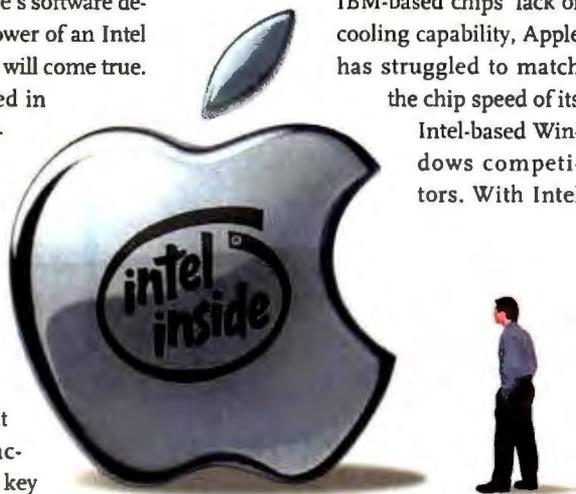
That means that the Apple family of computers will suddenly get a much needed power boost, initially in the notebook line. Held back primarily by the

IBM-based chips' lack of cooling capability, Apple has struggled to match the chip speed of its Intel-based Windows competitors. With Intel

powering its products, Apple will no longer have to cope with this issue.

Don't look for Apple to start marketing Windows-loaded computers anytime soon, though. That hybrid isn't coming. But Apple's next revision of its OS X operating system, code-named Leopard, is likely to arrive in late 2006, which is right around the time Windows Vista hits the shelves. With both platforms running on some of the same processors, the Apple-versus-Microsoft war could heat up.

Also, look for some hacked-together systems (not released by Apple) in which an Apple computer runs Windows or dual-boots both OSs. Asked about that possibility when he made the Intel announcement, Apple CEO Steve Jobs seemed resigned to it. Apple will neither sell nor support such a thing, but "that doesn't preclude someone from running [Windows] on a Mac," he said. "They probably will." ▶





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Next-Generation Game Consoles

Gamers, get your thumb muscles in shape—2006 will be a great year for consoles.

FASTEN YOUR SEAT BELTS. Next year is looking to be one of the most exciting since 2001 for console video games, as major releases from Sony (PlayStation 3) and Nintendo (Revolution) follow the November 2005 launch of Microsoft's Xbox 360. It's like an election: Every four years or so, gamers get to choose which platform they'll support for the next cycle.

Many experts give the early nod to the Sony PlayStation 3, which is due to arrive



BETHESDA SOFTWARE'S Elder Scrolls IV: Oblivion highlights the Xbox 360's graphical capabilities.

in the spring. But Sony will have a hard time fending off the Xbox 360, in part because that console debuts roughly four months before Sony's PS3, and in part because Microsoft has lined up an impressive slate of games for this release.

Nintendo looks certain to continue bringing up the rear, but not necessarily for lack of innovation. Nintendo is rethinking one of the gaming world's longest-lasting components: the controller. The company's Revolution controller looks like a television remote, and you hold it the same way. What sets it apart is its array of sensors for detecting its own physical motion. If you're playing a fly-fishing game, for example, you might have to make the fly-fishing motion with your hand and wrist, not sim-

ply push buttons. Another cool Nintendo feature: Revolution owners will be able to download and play any game from the Nintendo catalog, including games designed for the original Nintendo Entertainment System from 1985. Microsoft and Sony will feature backward compatibility in their devices, too, but only going back to the last console they released.

As you'd expect, the processing and graphics hardware powering these consoles is quite impressive, bringing at least two of the units closer to the specs of a PC.

Both the PS3 and the Xbox 360 will support gaming at HDTV resolutions, and all three consoles will offer high-speed Internet connectivity. At press time, however, Nintendo had not yet announced support for HDTV gaming.

Microsoft has specified two pricing tiers for the Xbox 360. The Xbox

360 model will cost \$399; along with nonessential hardware add-ons (faceplates and the like), it will include a 20GB detachable hard drive and a "Silver" subscription to the Xbox Live online gaming service, which allows users to chat with other gamers, transmit voice and text messages, and access content from Xbox Live Arcade. The Xbox 360 Core System, debuting at \$299, will consist exclusively



ANOTHER XBOX 360 title, Infinity Ward's Call of Duty 2 features stunning re-creations of World War 2 battles.

GET IT NOW

XBOX 360

IF YOU'RE looking for a next-generation console this holiday season, your only choice is the Xbox 360. But do yourself a favor and opt for the full \$399 pack-



age rather than the \$299 Core System. Most gamers will want the \$100 hard drive, the \$50 wireless controller, and the \$40 HD video cable—all of which come with the full system—eventually anyway, so paying the extra \$100 up front is worth it.

of the basic hardware setup, with no Xbox Live component or detachable hard drive. At

press time, neither Sony nor Nintendo had announced pricing plans.

Here's how the units compare on one key spec: Sony and Microsoft will have 3.2-GHz multicore processors in their respective devices. And Nintendo will pack IBM's "Broadway" processor into its device's slim, black frame. The processing power in the new consoles is 35 times and 15 times as strong as that of each machine's predecessor, respectively. Those numbers translate into cleaner, sharper graphics and faster game play when more objects are on the screen.

Impressive stuff. If you have delayed buying a gaming unit or have long resisted the urge to revisit your teenage gaming years, the arrival of this potent group of consoles will soon make that temptation a whole lot harder to fight off. ■

Eric Hellweg is a freelance technology writer living in Cambridge, Massachusetts.

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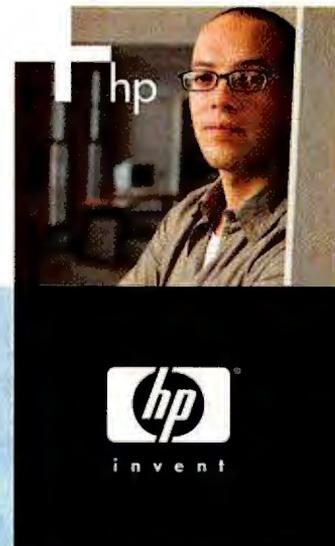
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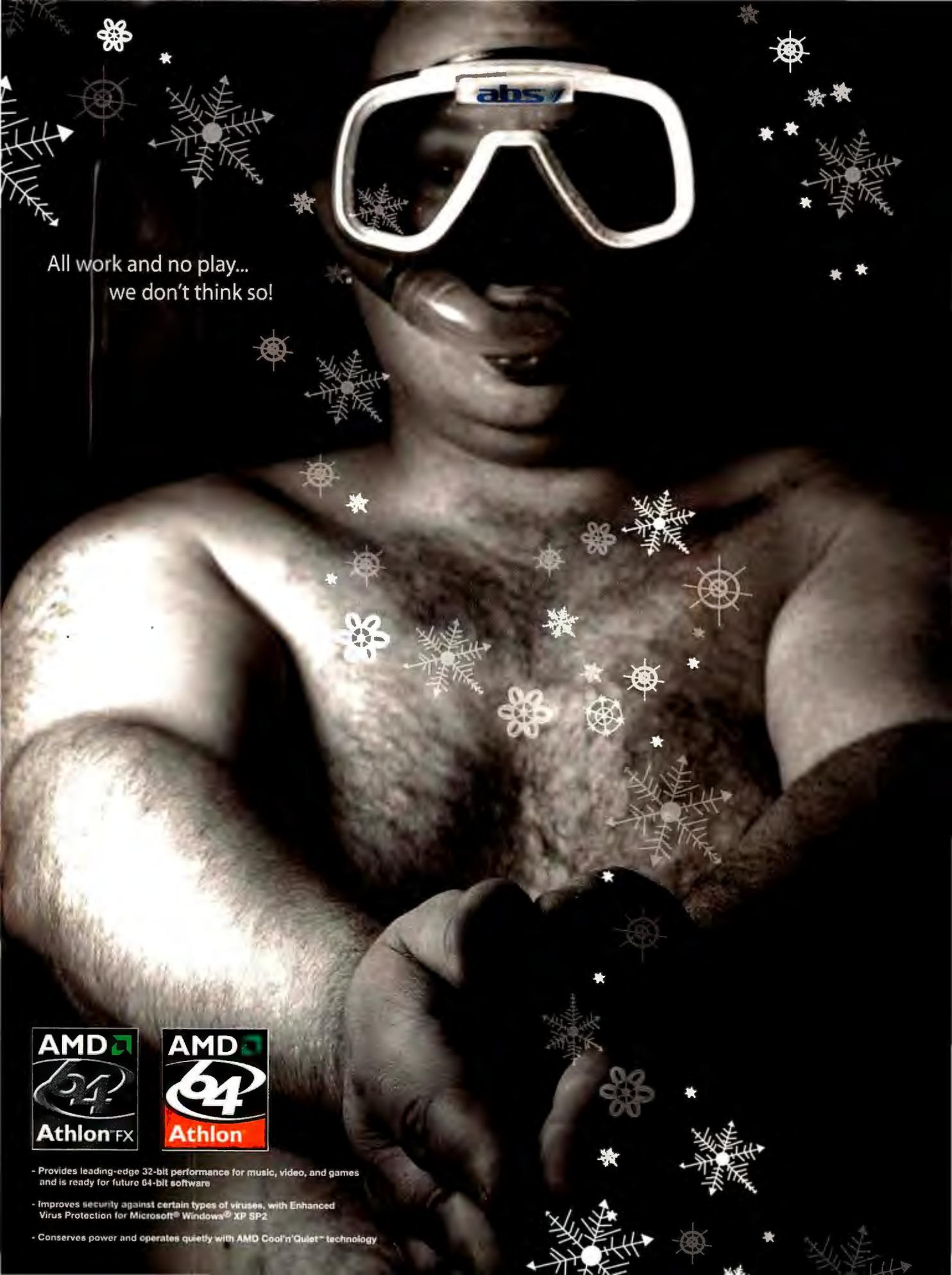
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Software Giant Killers

Think you need to cough up large sums of money for an office suite, security tools, and other essential programs? **These free and low-cost alternatives** provide power without the high price.

"Free software" used to conjure up visions of a half-baked program with an ugly interface that someone cooked up in a garage—usable, but only for limited functions. Today you can find plenty of top-notch programs that look good and work quite well, for little or no cost. But can such software challengers hold their own against the market leaders—and save you a ton of money in the process?

We put some to the test and found that, yes, you really can replace many of your expensive, big-name packages with powerful free or low-cost alternatives. You may have to get multiple programs to accomplish what a single suite would otherwise do. If you don't mind a few rough edges, however, you'll find that the software challengers presented here can hold their own quite well. So read on to see what these packages can do for you.

EDITED BY LAURIANNE McLAUGHLIN ♦ ILLUSTRATIONS BY RICHARD DOWNS

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Move to a New Office

Ready to ditch Microsoft Office and Outlook? OpenOffice and Thunderbird have plenty to offer.

◆ **OpenOffice.org 2.0 (public beta):** Free, www.openoffice.org

Bottom line: This software package is a money-saver if you work mostly with text documents and spreadsheets.

◆ **Thunderbird:** Free, www.getthunderbird.com

Bottom line: Fast searching through your inbox and folders, plus thorough spam protection, make this a great e-mail program.

IF YOU NEED AN OFFICE SUITE mainly to edit text documents and to crunch numbers in spreadsheets, OpenOffice.org is a great alternative to Microsoft. It seamlessly handles Word and Excel files, so colleagues will know you're using it only if you buy a new suit with the money you save. Version 2.0 is still in beta, with the final edition due by the time you read this.

You're better off with Microsoft Office (\$350) and PowerPoint, though, if you frequently create or view complex presentations. In my tests, OpenOffice had difficulties displaying PowerPoint files that contained complex animations.

OpenOffice mirrors the structure—and in many instances, the look—of today's Office. (The changes Microsoft has in store for the next Office, due in the second half of 2006, will make it look radically different; see find.pcworld.com/49706.) In addition to the word processor, spreadsheet, and presentation apps you expect, OpenOffice also includes a database app, a basic Visio-like drawing and diagramming program, and a tool that puts together mathematical formulas.

OpenOffice provides a seemingly infinite array of tweaks, too. For instance,

Calc, the spreadsheet application, supplies 33 different toolbars to add to your document window, each with at least a handful of buttons. That many choices can be either wonderful or overwhelming, depending on your perspective.

Sometimes the suite's eagerness to give you plenty of information gets in the way. If your document has many revisions from colleagues, for instance, processing those changes can be a chore. In Microsoft Word, you can right-click a specific revision and choose to accept or reject it. In Writer, the OpenOffice equivalent, you get a pop-up box that lists every change in your document, along with who made it and when. To accept a change, you have to squint and locate it in that long list.

But you'll find some refreshing benefits to escaping Microsoft hegemony. OpenOffice seldom tries to guess what you want it to do, a sometimes annoying habit of Microsoft programs. And you gain security through obscurity: While Office needs regular patching to prevent hacker attacks, OpenOffice—at least for now—seems to be off the bad guys' radar. If more people decide they'd rather spend \$350 on something other than Microsoft Office, however, that may change.

NO-NONSENSE E-MAIL

THE THUNDERBIRD e-mail program comes from the same open-source developers who brought you Firefox, and the common lineage shows. Like that popular Web browser, Thunderbird is a simple, no-nonsense application that does its job without getting in your way.

Thunderbird has a three-pane layout that will look

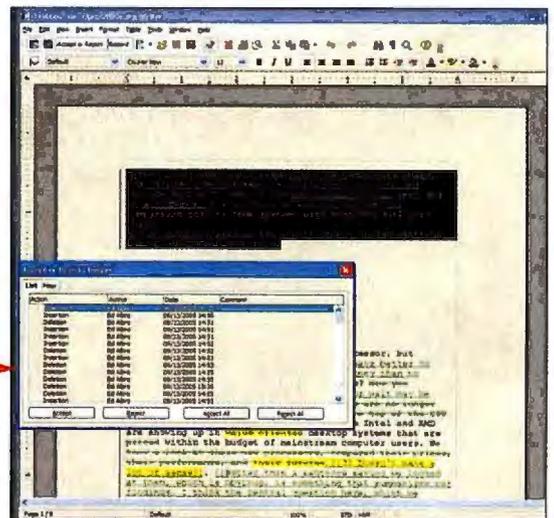
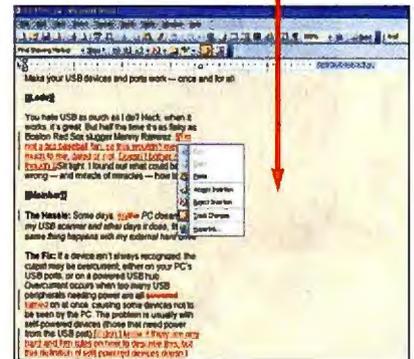
ONE OPENOFFICE QUIRK: In a document that contains multiple edits, you must wade through an unwieldy list of comments.

familiar to users of Outlook (\$109) and other major e-mail programs. We do have a minor nit to pick: Thunderbird crams all the information about a message—title, sender, date, and the like—on one line, making that text a little harder to read than in Outlook, which presents the information on two lines.

Searches in Thunderbird really fly. And you can choose to search just about any part of your message in virtually any way you like. The program imports messages from Communicator 4.x, Eudora, Outlook, and Outlook Express.

Our latest testing found that Thunderbird does a top-notch job filtering spam. Without any training, it caught 72 percent

MICROSOFT WORD makes it easier to deal with group editing work, including accepting or rejecting changes.



of spam messages. The figure rose to 95 percent after we took some time and trained the application by weeding out the spam among 100 messages.

What's missing compared with market champ Outlook? Thunderbird isn't a collaboration tool. The program offers you neither a calendar nor a task manager. But if you're in the market for a solid, speedy e-mail application, Thunderbird shows that there's no need to pull out your wallet to get one. —Edward N. Albro



Security Showdown

Can you skip paying for a hefty Internet security suite like Norton? You betcha.

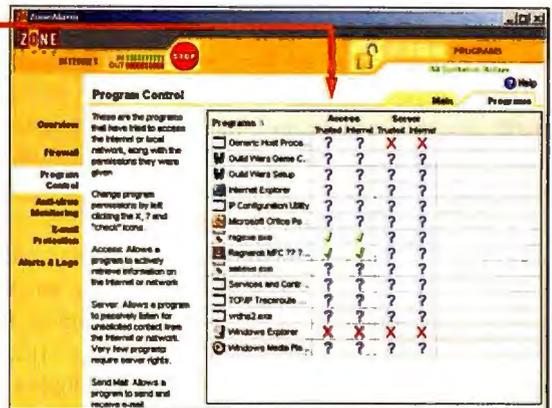
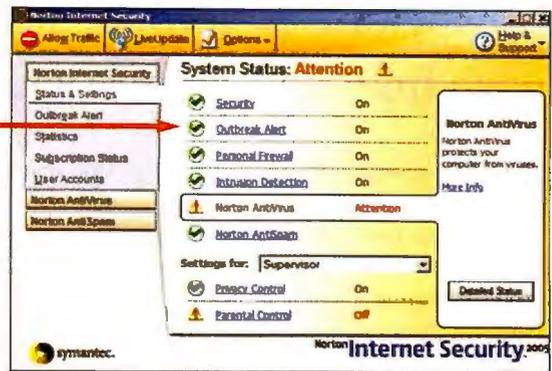
- ◆ **AVG Anti-Virus:** Free, free.grisoft.com
Bottom line: Capable protector has frequent updates, but no tech support.
- ◆ **ZoneAlarm:** Free, www.zonelabs.com
Bottom line: App has more flexibility and power than most for-pay firewall products.
- ◆ **Microsoft Windows AntiSpyware (beta):** Free, find.pcworld.com/49942
Bottom line: Best free choice we tried still falls far short of Webroot SpySweeper (\$30).

SAFE COMPUTING requires an arsenal of protection—antivirus, firewall, and anti-spyware tools at a minimum. Internet security suites offer the convenience of managing everything in a single product, and dealing with a single vendor for tech support. But suites don't come cheap: Most cost \$70 to \$80. You won't find a free, all-in-one suite that compares to market leader Symantec's \$70 Norton Internet Security 2005, but you can build your own collection of free products.

And you can save some time, as well as money, with freeware. It took me several minutes more to install and update Norton Internet Security than to add all

NORTON INTERNET SECURITY SUITE packs antivirus, firewall, and related apps into one easy-to-use interface.

ZONEALARM lets you customize access for individual programs. The apps you trust can be granted automatic access; others can be blocked or made to ask for permission.



three of the stand-alone free products combined. Furthermore, the Norton package requires more reboots during installation and demands a total of nearly 300MB more hard-drive space than the free apps do.

On the other hand, learning to use a suite is often easier than tackling several disparate applications. Maintaining separate tools and keeping each of them up-to-date is typically more difficult as well.

STRONG SECURITY PIECES

WITH ANTIVIRUS applications, nobody should be penny-wise and pest-foolish. That isn't a concern with AVG—it's both free and secure. In comparing AVG's effectiveness at protecting your computer with that of the Symantec suite's antivirus utility, the principal difference lies in the frequency of virus definition updates, with the advantage going to AVG.

Symantec updates weekly, unless the company deems a new threat to be medium to widespread. In contrast, AVG updates as often as new viruses are found. For example, when several new Bagle worms were discovered during my testing period, AVG updated my protection within hours, but several days later Symantec still had not provided detection. In my

tests, I saw no significant protection differences other than the update schedule.

As for firewalls, both Norton's firewall and ZoneAlarm kept my PC virtually invisible on the Internet and protected me from unauthorized intrusions. ZoneAlarm gave me the option of letting it automatically decide what could access the Net, or having it prompt me on a case-by-case basis; Norton made some decisions for me and prompted for others. I also tested both on a spyware-infested PC. With Norton, I was deluged with pop-ups even though my browser was closed. With ZoneAlarm, I received none.

While the Norton Internet Security package offers most of the features you expect in an all-in-one security suite, it currently lacks spyware protection. (However, upcoming 2006 versions of the Norton suite, not ready for this review, will include spyware protection.) For an extra \$10 you can purchase Symantec's Anti-spyware Edition, but my tests show neither it—nor a free spyware scanner—is your best bet. (My pick is Webroot's ►

For spyware protection, neither Symantec nor a free application is your best bet.

\$30 Spy Sweeper; see November's "Best Defenders," find.pcworld.com/49945.)

Of the three free spyware scanners we tried—Ad-Aware SE Personal, Spybot Search & Destroy, and Microsoft's Windows AntiSpyware (downloadable beta version)—Microsoft's tool did best, removing 66 percent of active spyware components, but falling far short of the 90 percent removal rate of Spy Sweeper.

Overall, if you're an experienced computer user willing to put in a little time and effort, constructing your own free-ware security suite seems an ideal way to save yourself some money. One caveat: AVG Free Edition does not offer tech support, though you can find several self-help groups online. But even the \$70 Norton suite has only limited support—to speak to a live person, you'll dish out \$30 per incident. —Mary Landesman



Graphics Gurus

Tired of emptying your wallet to Adobe for photo management and editing? You have options.

◆ **GIMP:** Free, www.gimp.org

Bottom line: The app produces good results, yet requires a bit more time and effort than Photoshop Elements does. Not great for novices, but fine for experienced enthusiasts.

◆ **Picasa:** Free, picasa.google.com

Bottom line: This image organizer is so good, it's worth using at any price.

MANY HOME USERS would be happy with the GIMP (GNU Image Manipulation Program), an open-source graphics application. It supplies many of the basic

tools that the \$100 Photoshop Elements and other image editors deliver, including multiple selection tools. The program lets you work with layers and paths, features

a wide selection of filters, and allows alpha channels for transparency. It also permits multiple undos.

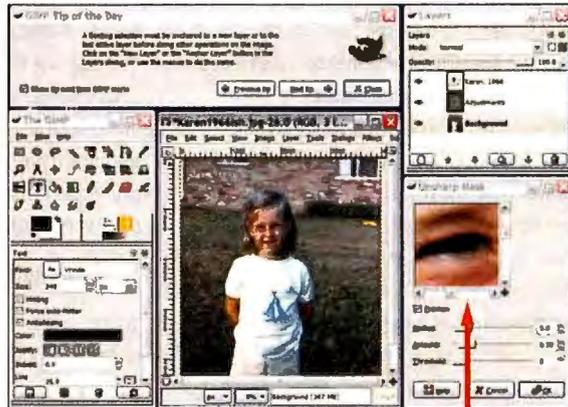
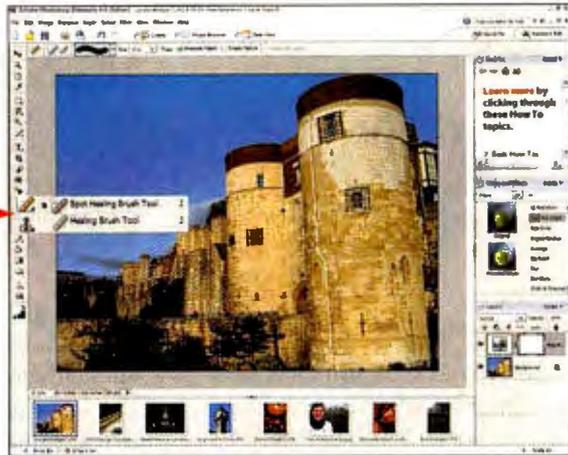
However, the application lacks the unique, sophisticated tools that Adobe's Elements borrows from its pricier \$600 sibling, Photoshop Creative Suite 2. While GIMP offers a cloning tool, Elements has that plus two powerful healing brushes, which you can use to correct blemishes and other imperfections quickly. Elements has a great automatic red-eye reducer; GIMP has none, so you have to make a fairly precise selection around the red area of the eye, set a feathering value, and then adjust the hue and saturation to fix the problem. And while GIMP has levels adjustments for lighting, Elements has those plus an effective shadows-and-highlights enhancer.

GIMP's interface is a bit disorganized, as well. The program presents palettes, tools, and images in individual floating windows, and the commands aren't con-

sistent among the windows. (For example, the commands available in different windows' File, Edit, Select, and View menus aren't the same.) Some of the application's shortcuts are inconsistent too: You can press the hyphen (minus) key to zoom out, but you must press the <Shift>-Plus keys to zoom in.

If you don't want to spend \$100 for

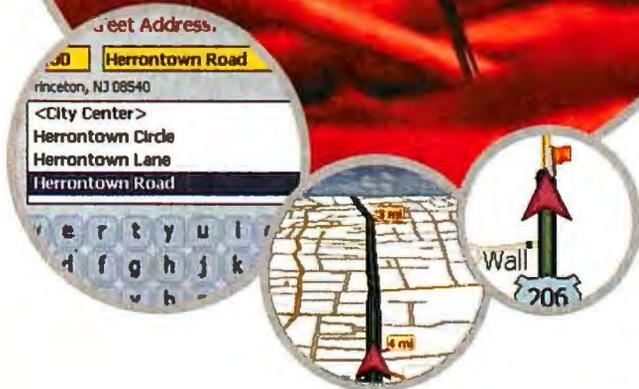
ADOBE PHOTOSHOP ELEMENTS' powerful tools, such as its healing brushes, make this app the fastest choice for cleaning up photos.



GIMP has many image editing tools, but for some jobs you'll have to complete a few more manual steps than you would with Photoshop Elements.

Elements, though, GIMP is worth a try. The free program offers plenty of usable tools, and if you're willing to make do with the capabilities it has and spend some time learning its quirks, you can get good results. If you want an easier, faster route to better pictures, however, ►

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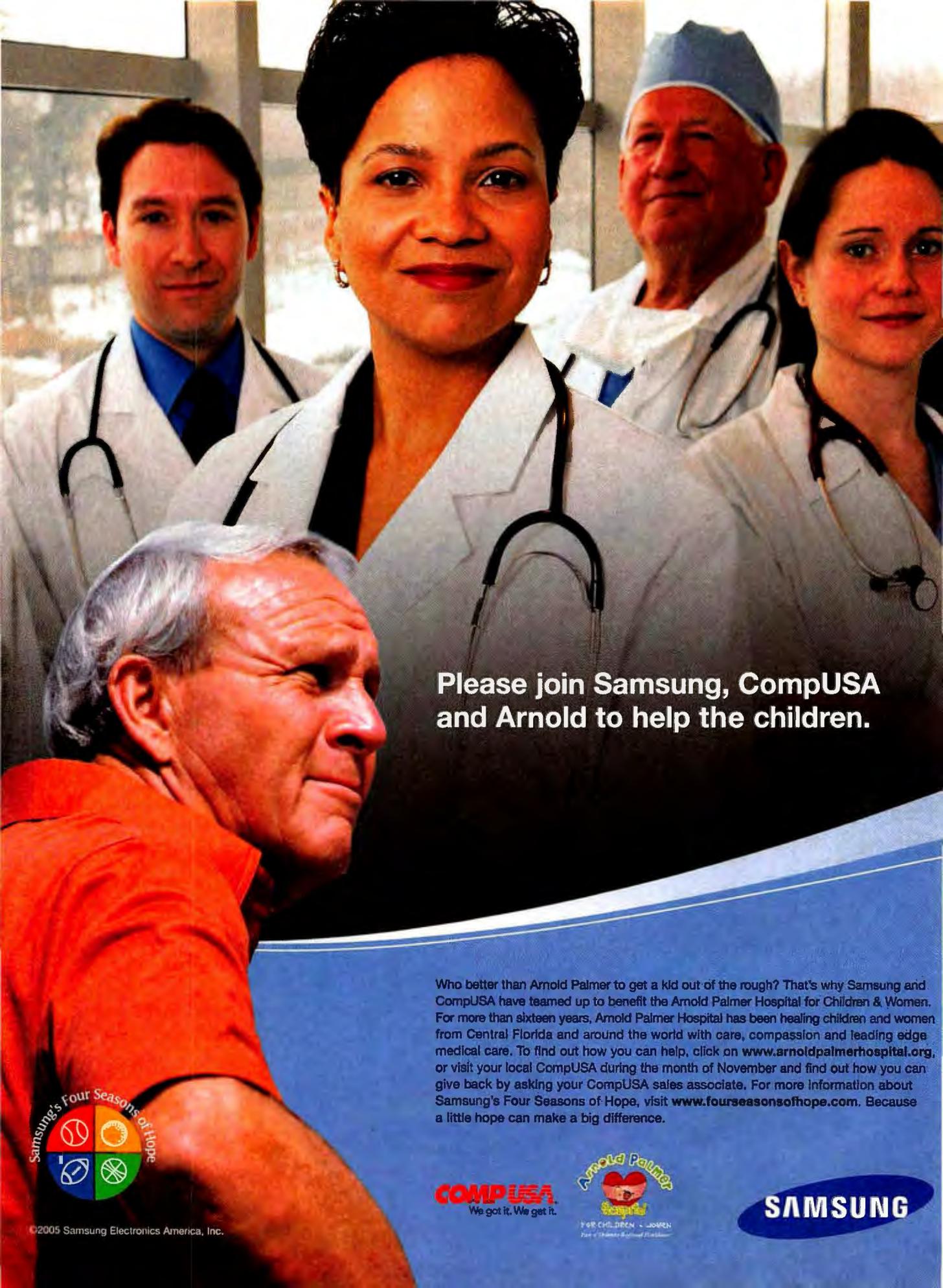
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you'll find that Elements delivers. The GIMP, now in version 2.2.8, is available for the Windows, Mac, and Linux platforms.

ABLE MANAGER

GOOGLE'S FREE Picasa 2 organizer truly rivals the image organizer included in Adobe Photoshop Elements. And Picasa shares one of the popular Web search engine's best qualities: its speed.

Scrolling, searching, and categorizing tasks fly by. For example, search for pictures or videos by typing a word, and the results come up as you type. Elements' organizer feels lethargic by comparison.

Picasa offers many unique features, too: It will send pictures through Microsoft Outlook, Google's Gmail, or Google's Hello photo-sharing application. You can also select pictures to send to Google's free Blogger service. And Picasa lets you make a simple Web page or HTML storybook, or export images to a TiVo box. Elements' organizer can help you create great Web pages and slide shows, but it has no blogging aids.

Elements' main advantage is its tagging system, in which you drag icons that look like luggage tags onto one or more pictures to categorize them. After you tag your images, you can conduct searches by looking for a tag or for a combination of

them. Picasa has its own labeling system, but it's nowhere near as attractive.

Photoshop Elements has more features overall, but Picasa has plenty of its own—so many that you'll feel like you're getting away with something by downloading the program for free. —Alan Stafford



Financial Finesse

Feel like ditching Intuit's Quicken? Your finances may be well managed by Moneydance.

◆ **Moneydance:** \$30, www.moneydance.com
Bottom line: This program is a worthy option for budgeting and banking, if you've had it with Intuit software and services.

THERE'S MORE THAN meets the eye to Reilly Technologies' \$30 Moneydance personal finance manager. The bare-bones, somewhat geeky and gray interface does little to expose the features that make the program a respectable alternative to the similarly priced Basic version of the market-leading Quicken 2006. Moneydance is also worth considering if you typically opt for the upscale versions of Quicken, which run \$50 to \$80, but don't make much use of their investing or planning tools. (Note: We could not,

however, find a free application that could put up a really good fight against Quicken.)

In addition to expected basic expense tracking features, Moneydance offers budgeting and basic investment tools, support for international currencies, a range of report options including graphs, and bill reminders. Money-

dance also includes online banking by way of support for .qif file imports—something Intuit has dropped, angering many longtime Quicken users.

If you like, add more functionality by downloading extensions to the program; I installed a credit card payoff calculator. Reilly and others can create extensions (there are only a few of them right now) using a free software developer's kit.

What does Moneydance lack compared with Quicken Basic? It doesn't approach the polish of Quicken's highly customizable interface, honed by years of consumer research. And it doesn't transform strange downloaded payee names (the ones that come in with additional numbers denoting accounts or store branches) into plain English.

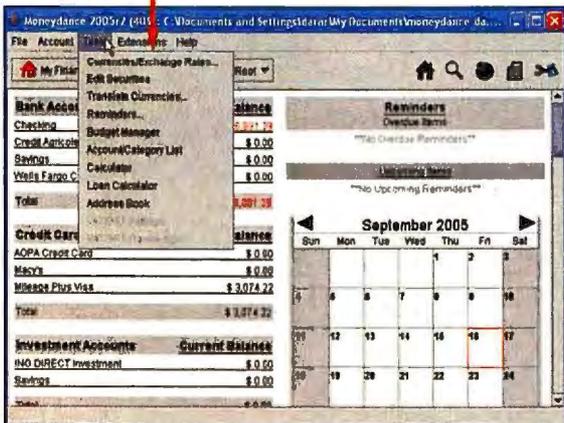
Compared with the higher-end versions of Quicken (Deluxe for \$50, Premier for \$70, Premier Home & Business for \$80), Moneydance is missing the calculators and some of the investment planning, tax, and accounting tools you'll find in those more expensive packages.

Also, Moneydance doesn't allow you to attach digital images of related documents—like checks or invoices—to transaction entries and accounts, a feature the three high-end versions of Quicken offer.

Moneydance's tech support isn't fancy, either: You can consult the support page's FAQ or e-mail a question to the company (with no promise of when you'll hear back). Additionally, you can access community resources, including a mailing list and a Yahoo-based user group that's independent of Moneydance itself. But there's no phone tech support.

Still, one of Moneydance's biggest selling points may be something else the program doesn't do: It doesn't install desktop shortcuts for two or three of its marketing partners, a longstanding Quicken practice. In fact, for readers who've written recently to tell us they've crossed swords with Intuit over shoddy tech support or over policies such as ending download support for older versions of the program, Moneydance gets points simply for not being Quicken. —Yardena Arar

MONEYDANCE can handle basic banking chores, though its interface doesn't match up to the polish of Quicken.





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Media Mavens

You don't need Roxio or Nero to rip and burn your tunes. Two free programs can do the job.

◆ **DeepBurner Free 1.6:** Free, www.deepburner.com

Bottom line: This freeware program ably burns data to CD and DVD, but lacks DVD authoring and related tools.

◆ **Musicmatch Jukebox 10:** Free, www.musicmatch.com

Bottom line: It's not lightning fast, but this app capably rips audio and burns to CD.

ALTHOUGH THEY'RE excellent DVD/CD suites, Nero 6 Ultra and Roxio Easy Media Creator 7.5 each have a hefty, \$100 price. So I flashed back to my starving-student days (ramen noodles, anyone?) and found worthy freebies to tackle some of the tasks that the suites cover. You won't find a free all-in-one that does everything—nor will you find free DVD authoring tools that compare to Nero's or Roxio's. (For our look at the latest suites, see page 62.)

For handling music files, I settled on the free version of Musicmatch Jukebox 10: It rips audio-CD tracks to WMA, MP3, and MP3 Pro and burns them back to CD. (Windows Media Player, a freebie that's probably already on your Windows system, lacks MP3 Pro support.) One caveat: Musicmatch Jukebox 10 works more slowly than commercial software.

For burning your data onto a CD or DVD, my pick is DeepBurner 1.6. DeepBurner is simple to learn and use. It writes both data CDs and DVDs with aplomb, as well as CD or DVD ISO images (one large file containing all the data on a disc). It even writes audio CDs from MP3, .ogg, or .wav files. I found no dedicated, free data backup programs that support optical drives; if you're organized

You can score plenty of PDF power for a fraction of the cost of Adobe Acrobat.

enough, you can use DeepBurner for that.

Life without Nero and Roxio can be good—within limits. Some people should still shell out for one of the suites, since freeware can't match Nero's or Roxio's DVD authoring, video editing and output, LP/tape restoration, and sound-editing capabilities. But if you lead a simple life, give the freeware a try. —*Jon L. Jacobi*



PDFs for Less

No need to spend hundreds on Adobe Acrobat. Low-cost alternatives can serve you well.

◆ **CutePDF 3:** \$50, find.pcworld.com/49943
Bottom line: Affordable tool creates PDFs and has good basic security, but it lacks Microsoft Office integration.

FEW PEOPLE CREATE enough PDF files to justify forking over \$299 for Adobe's Acrobat 7 Standard PDF-creation program. (Acrobat Reader, of course, has long been free.) But some less-pricey alternatives shine. And if you make only a handful of PDF files a year, you can do so without paying one red cent, through Adobe's own free Create Adobe PDF Online site (registration required; createpdf.adobe.com).

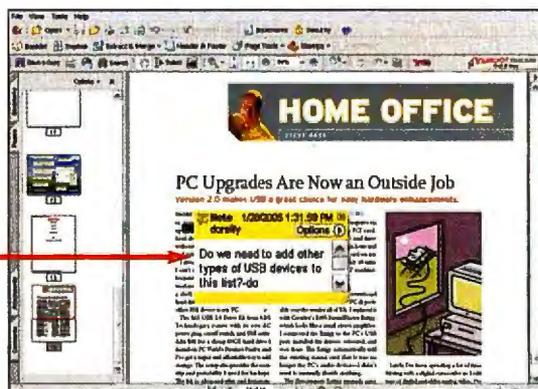
Note that the free service

limits each PDF to 100MB and 50 uploaded pages, and it times out after 10 minutes of processing per file, a limiting factor if you work with complicated files containing high-resolution images.

For more flexibility and power, try Acro Software's \$50 CutePDF 3. With it you can create a PDF by combining various text and image files, or edit an existing one. You can also combine or extract PDFs, and add backgrounds, letterheads, and forms to them. Basic security options include password protection and watermarks. CutePDF lacks many of Acrobat's advanced tools, such as integration with Microsoft Word, print and copy controls, and a "Send to PDF" option for your right-click menu. To "Print to PDF," you must download a free companion utility, CutePDF Writer. Still, you score plenty of power for a fraction of Acrobat's cost.

More expensive, but with more features and better integration, is Global Graphics Software's \$84 Jaws PDF Creator 3.6 (find.pcworld.com/49944). It has the PDF printer driver, as well as a desktop icon where you can drag and drop files to convert them to PDFs. It also installs a PDF toolbar in Word, Excel, and PowerPoint, à la Acrobat (though not to the other Office apps that Acrobat supports.) Jaws PDF Creator adds 128-bit encryption of the files and provides some control over printing and editing. —*Dennis O'Reilly*

THE \$50 CUTEPDF allows you to edit a PDF file, or make new PDFs, without breaking the bank.



Acer recommends Windows® XP Professional.

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Acer®, like Ferrari, is the technology driver of tomorrow. Both produce desirable, eye-catching and devastatingly fast products that embody the passion, spirit and experience of years leading the competition. The magnificent carbon fiber casing of the Ferrari 4000 conceals the very latest 64Bit technology, full wireless connectivity and widescreen monitor. Powerful, dark and purposeful, the Ferrari 4000 has the presence of a true champion.

November/
December 2005

NEW **Ferrari 4000** NOTEBOOK
TECHNOLOGY DRIVER

Ferrari

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 - HyperTransport™ Technology
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- ATI™ MOBILITY™ RADEON® X700 graphics, 128MB DDR
- 802.11b/g WLAN, Bluetooth®, gigabit LAN, V.92 modem
- One-year limited warranty³

Ferrari 4005WLMi

\$2,199

(LX.FR406.035)

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Acer AL2416Wd

- 24" wide-screen TFT LCD
- 1920 x 1200 native resolution
- 1000:1 contrast ratio
- 178° horizontal viewing angle
- 178° vertical viewing angle
- VGA signal connector
- 500 cd/m² brightness
- 6ms response time
- Internal power adapter
- Silver color

Acer AL2416Wd

\$919

(ET.L6102.018)



24" WIDE - SCREEN

Acer AL2032W A

- 20" wide-screen TFT LCD
- 1680 x 1050 native resolution
- 800:1 contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- Two 5.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 8ms response time
- External power adapter
- Gloss-black color

Acer AL2032W A

\$539

(ET.L380B.065)



8MS RESPONSE TIME

Acer recommends Windows® XP Professional.

The Acer TravelMate 4400 features everything you need to perform at your best in today's business environment, including advanced graphics capabilities, wide-screen display and wireless connectivity. Moreover, because this notebook is powered by AMD Turion™ 64 Mobile Technology, you'll experience leading-edge 32-bit performance and seamless 32- to 64-bit migration. For added convenience get the ezDock Docking Station, your one-step connection to desktop peripherals.

Acer® TravelMate™ 4400

Powerful Business Asset



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 - AMD PowerNow!™ Technology
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- Microsoft® Windows® XP Professional
- 512MB DDR333 SDRAM
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- 802.11b/g WLAN, gigabit LAN, V.92 modem
- One-year limited warranty³



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Acer® ezDock

Manage and organize peripheral connections with ease. Add or remove devices instantly, without turning off your notebook. The one-plug Acer ezDock features 21 interface ports and two card slots for desktop-like expansion possibilities, as well as PCI Express™ technology and a Kensington® lock slot.



Acer ezDock Docking Station

\$299

(LC.D0103.004)

Compatible with the TravelMate 8100, 4650, 4400, 3000, C310, C200; Ferrari 4000

Acer TravelMate 4402WLMi

\$1,199

AMD Turion™ 64 Mobile Technology ML-30
Microsoft® Windows® XP Professional
(LX.T7806.023)



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Compare Monitor Prices/Features & You'll Choose Acer®



Acer AL1951B

\$379

(ET.L4108.028)

Acer AL1951B

- 19" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
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- 135° vertical viewing angle
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- VGA, DVI-D signal connectors
- 400 cd/m² brightness
- 6ms response time
- External power adapter
- Silver/black color

GMS RESPONSE TIME



Acer AL1922r

\$349

(ET.L2508.091)

Acer AL1922r

- 19" TFT LCD with height adjustment & rotation
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 8ms response time
- Internal power adapter
- Silver/black color

\$30 PRICE CUT!



Acer AL1917 bm

\$289

(ET.1917B.M00)

Acer AL1917 bm

- 19" TFT LCD
- 1280 x 1024 native resolution
- 500:1 contrast ratio
- 140° horizontal viewing angle
- 140° vertical viewing angle
- Two 1.0W integrated speakers
- VGA signal connector
- 250 cd/m² brightness
- 12ms response time
- Internal power adapter
- Black color

BUILT-IN SPEAKERS



Acer AL1916W

\$279

(ET.L5209.005)

Acer AL1916W

- 19" wide-screen TFT LCD
- 1440 x 900 native resolution
- 500:1 contrast ratio
- 150° horizontal viewing angle
- 130° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 8ms response time
- Internal power adapter
- Black color

19" WIDE-SCREEN



Acer AL1717 Bbmd

\$249

(ET.1717B.MD8)

Acer AL1717 Bbmd

- 17" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 8ms response time
- Internal power adapter
- Black color

GMS RESPONSE TIME



Acer AL1717 bm

\$239

(ET.1717B.M00)

Acer AL1717 bm

- 17" TFT LCD
- 1280 x 1024 native resolution
- 500:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- Two 1.0W integrated speakers
- VGA signal connector
- 300 cd/m² brightness
- 12ms response time
- Internal power adapter
- Black color

BUILT-IN SPEAKERS

Acer recommends Windows® XP Professional.

The Acer Aspire T135 boasts an impressive feature set in a stylish chassis at a price that won't break your budget. Ample power means you can efficiently perform everyday tasks. Expansion slots make the system easy to upgrade, while the eight USB 2.0 ports (two front, two internal, four back) give you the ability to connect to the latest peripherals. All in all, a sound investment for home, school or office needs.

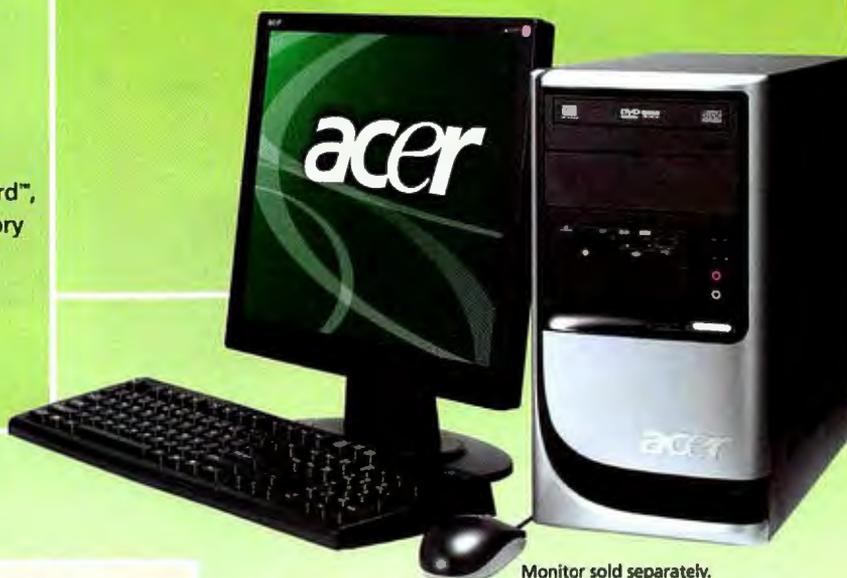
Acer® Aspire™ T135

All-Around Budget Performer



- AMD Sempron™ Processor 3100+
- 3DNow!™ Professional Technology
- HyperTransport™ Technology
- Enhanced Virus Protection Technology¹
- Microsoft® Windows® XP Home Edition
- 512MB DDR SDRAM
- 80GB² hard drive
- DVD-Dual drive (DVD+/-RW)
- 9-in-1 card reader for optional MultiMediaCard™, Secure Digital card, SmartMedia™ card, Memory Stick®, Memory Stick PRO™, CompactFlash® I/II card, Microdrive® or xD-Picture Card™
- Integrated UniChrome™ Pro graphics
- 10/100 LAN
- One-year limited warranty³

\$50 PRICE CUT!



Monitor sold separately.

Acer Aspire T135-U-S3100

\$399

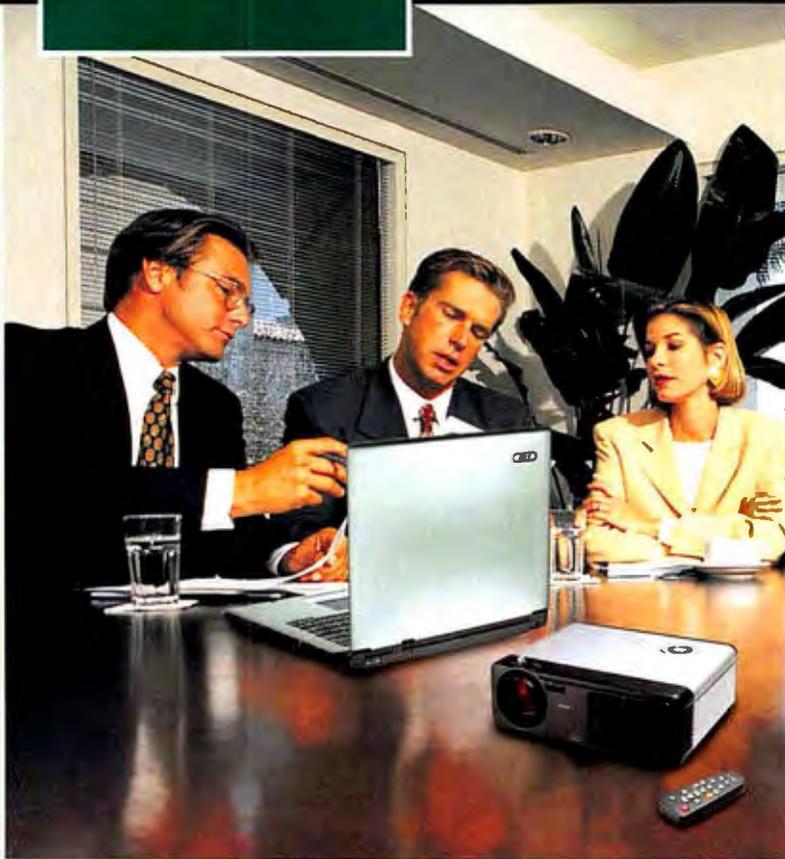
AMD Sempron™ Processor 3100+
Microsoft® Windows® XP Home Edition



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Acer® Projector with DLP™ Technology

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PD525



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- XGA (1024 x 768) native resolution
- 2000:1 contrast ratio
- 16.7 million displayable colors
- PC and Mac compatible

\$220 PRICE CUT!

Acer PD525

\$889

(EY.J1501.W04)

Projector Accessories

The Acer PD525 projector comes with these accessories: remote control (batteries included) with laser pointer; carrying case; lens cap; CD-ROM user's guide; quick-start instructions; AC power cord; VGA (D-sub) to component/HDTV adapter; VGA (15-pin D-sub), composite video (RCA), S-video, USB and audio (mini-to-mini phone jack) cables.

For permanent placement of a projector in a conference room or classroom, you'll want an easy-to-install Ceiling Mount. Also, consider keeping a Replacement Lamp Module on hand for your Acer projector.

Replacement Lamp Module

\$299

(EC.J1001.001)

- Expected life in hours: 2,000 standard mode, 3,000 economy mode
- Designed for Acer PD525 and PD116P

Ceiling Mount

\$79

(EZ.PCM03.007)

- 6.6 pounds
- Designed for Acer PD525 and PD116P

Acer recommends Windows® XP Professional.

For your home or for your office the full-featured Acer Aspire 5000 notebook provides the must-have computing features, including a versatile DVD-Dual drive (DVD+/-RW) and wireless connectivity. You can also expect desktop-caliber performance from this multimedia powerhouse thanks to AMD Turion™ 64 Mobile Technology.

Acer® Aspire™ 5000 High Performance Value



Made for mobility with
AMD64 performance



DVD-DUAL DRIVE



Acer Aspire 5002LMI-XPP

\$999

AMD Turion™ 64 Mobile Technology ML-30
Microsoft® Windows® XP Professional
(LX.A5106.001)

- AMD Turion™ 64 Mobile Technology
 - AMD PowerNow!™ Technology
 - HyperTransport™ Technology
 - Enhanced Virus Protection Technology¹
- Microsoft® Windows® XP Professional
- 512MB DDR333 SDRAM
- 80GB² hard drive
- Integrated DVD-Dual drive (DVD+/-RW)
- 15.0" XGA (1024 x 768) TFT display
- Si5M760GX chipset with integrated Mirage™2 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty³



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Quality is built into every notebook Acer makes, and each comes with a one-year standard limited warranty.³ It includes hardware technical support via toll-free phone plus a concurrent International Traveler's Warranty for travel outside the U.S. and Canada. Extra protection is available with one of these upgrades:

2-Year Extension of Limited Warranty (146.A8820.EG2)

\$99

Prepays freight to and from Acer repair depot.
Excludes extension of International Traveler's Warranty.

It's a tough world out there, and accidents do happen—sticky spills, dangerous drops, nasty knocks—which is why you should consider the Total Protection Upgrade. It runs concurrently with the limited warranty³ and limited warranty extension and covers the cost of a replacement unit if your covered notebook cannot be repaired.

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\$199

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Excludes extension of International Traveler's Warranty.

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Acer® Aspire™ 3000

Entertainment Starts Here



- Mobile AMD Sempron™ Processor 2800+
 - AMD PowerNow!™ Technology
 - HyperTransport™ Technology
 - Enhanced Virus Protection Technology¹
- Microsoft® Windows® XP Home Edition
- 256MB DDR333 SDRAM
- 40GB² hard drive
- Integrated CD-RW/DVD-ROM combo drive
- 15.0" XGA (1024 x 768) TFT display
- SiSM760GX chipset with integrated Mirage™2 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty³



Acer Aspire 3002LCi

\$649

Mobile AMD Sempron™ Processor 2800+
Microsoft® Windows® XP Home Edition
(LXA5505.263)



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¹ Enhanced Virus Protection (EVP) is enabled by Microsoft® Windows® XP Service Pack 2. By default, EVP will protect the user's Windows operating system only. Users must enable the protection of their applications and associated files to be protected from memory buffer overrun attacks. AMD and Microsoft strongly recommend that users use third-party anti-virus software as part of their security strategy.

² When referring to storage capacity, GB stands for one billion bytes and MB stands for one million bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.

³ For a free copy of the standard limited warranty end-users should see a reseller where Acer products are sold or write to Acer America Corporation, Warranty Department, P.O. Box 6137, Temple, TX 76503.

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Color Lasers Get Affordable

New low prices put the quality, speed, and dependability of color laser printing within reach. Our lab tests reveal the best models for your money.

BY PAUL JASPER

TEST Center YOU COULD have purchased a new car for what a color laser printer used to fetch. A bargain model was seldom seen—and when such a rarity did come along, it tended to turn in lackluster print speeds. As recently as May 2004, all but one unit in our Top 10 cost at least \$1600. This month, however, we tested only low-priced models, and all the printers that made our chart cost \$699 or less. Our Best Buy is just \$449—less than even some inkjet photo printers.

Most of the color laser ►



OUR BEST BUY, the Dell 3000cn, is fast and delivers high print quality.

TESTING BY THOMAS LUONG
PHOTOGRAPH BY CHARLIE NUCCI

printers we tested this month delivered impressive speeds for a bargain price. You don't have to skimp on features, either: All but one come with built-in networking, and all print on glossy paper—a capability previously unavailable on low-cost models. Glossy paper has a sheen like that on prints from a photo lab. Though the glossy-paper prints from these printers won't please ardent photographers, the quality from some units is certainly good enough for business brochures. As for more mundane office work, the text quality of these color lasers was on a par with that of mono-



Oki Data
C5200n

chrome lasers. However, the standard paper capacities of these models tend to be low.

The cost of operating a color laser printer could dwarf what you spend on it initially. For example, a set of toner cartridges for the \$500 Brother HL-2700CN costs \$665. Cartridges for the \$599 Oki Data C5200n cost \$490, though imaging drums aren't built into them; replacing these separate items will cost another \$365. The chart below lists each vendor's estimated costs per page. For further discussion of toner and drum costs, see "Pennies per Page Soon Turns Into Dollars," on page 138.

PHOTOGRAPHS: RICK RIZNER

FEATURES COMPARISON

TEST Center Color Laser Printing at Home-Office Prices

MOST LOW-COST COLOR LASER PRINTERS deliver fast printing speeds, though tested print quality was mixed.

	COLOR LASER PRINTER	PCW Rating	Performance	Specifications
1	Dell 3000cn Best BUY \$449 find.pcworld.com/45974	83 Very Good	<ul style="list-style-type: none"> Text quality: Superior Graphics/photo quality: Good/Fair Tested speeds (ppm): 17.9 text/3.4 graphics 	<ul style="list-style-type: none"> 25 ppm text 5 ppm graphics 2400-by-600-dpi maximum resolution
2	Oki Data C5200n \$599 find.pcworld.com/49737	81 Very Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics/photo quality: Fair/Poor Tested speeds (ppm): 12.8 text/5.2 graphics 	<ul style="list-style-type: none"> 24 ppm text 16 ppm graphics 1200-by-600-dpi maximum resolution
3	Konica Minolta MagiColor 2430DL \$500 find.pcworld.com/49736	79 Good	<ul style="list-style-type: none"> Text quality: Good Graphics/photo quality: Fair/Fair Tested speeds (ppm): 13.0 text/2.7 graphics 	<ul style="list-style-type: none"> 20 ppm text 5 ppm graphics 2400-by-600-dpi maximum resolution
4	Brother HL-2700CN \$500 find.pcworld.com/45958	78 Good	<ul style="list-style-type: none"> Text quality: Fair Graphics/photo quality: Poor/Poor Tested speeds (ppm): 18.7 text/3.1 graphics 	<ul style="list-style-type: none"> 31 ppm text 8 ppm graphics 2400-by-600-dpi maximum resolution
5	Lexmark C522n \$499 find.pcworld.com/49738	77 Good	<ul style="list-style-type: none"> Text quality: Good Graphics/photo quality: Fair/Poor Tested speeds (ppm): 14.3 text/3.8 graphics 	<ul style="list-style-type: none"> 20 ppm text 20 ppm graphics 1200-by-1200-dpi maximum resolution
6	HP Color LaserJet 3600n \$699 find.pcworld.com/49740	74 Good	<ul style="list-style-type: none"> Text quality: Fair Graphics/photo quality: Fair/Poor Tested speeds (ppm): 13.0 text/5.6 graphics 	<ul style="list-style-type: none"> 17 ppm text 17 ppm graphics 3600-by-600-dpi maximum resolution
7	Xerox Phaser 6120n \$499 find.pcworld.com/49742	73 Good	<ul style="list-style-type: none"> Text quality: Fair Graphics/photo quality: Good/Fair Tested speeds (ppm): 14.7 text/1.6 graphics 	<ul style="list-style-type: none"> 20 ppm text 5 ppm graphics 600-by-600-dpi maximum resolution
8	Konica Minolta MagiColor 2450 \$699 find.pcworld.com/48336	71 Good	<ul style="list-style-type: none"> Text quality: Fair Graphics/photo quality: Fair/Poor Tested speeds (ppm): 14.4 text/1.6 graphics 	<ul style="list-style-type: none"> 20 ppm text 5 ppm graphics 9600-by-600-dpi maximum resolution
9	HP Color LaserJet 2600n \$399 find.pcworld.com/49744	70 Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics/photo quality: Fair/Fair Tested speeds (ppm): 6.8 text/2.6 graphics 	<ul style="list-style-type: none"> 8 ppm text 8 ppm graphics 600-by-600-dpi maximum resolution
10	HP Color LaserJet 2550L \$499 find.pcworld.com/45962	61 Fair	<ul style="list-style-type: none"> Text quality: Fair Graphics/photo quality: Good/Fair Tested speeds (ppm): 8.6 text/1.1 graphics 	<ul style="list-style-type: none"> 20 ppm text 4 ppm graphics 2400-by-600-dpi maximum resolution

FOOTNOTES: ¹Color toner cost is for a set of three cartridges; value-pack price listed if available. Costs per page are vendor estimates. ²Not applicable; drum is built into either the printer or the toner cartridges. HOW WE TEST: We run tests for text, line-art, and photo samples (at normal quality settings on plain paper). Data based on tests designed and conducted by the PC World Test

Best Buy **Dell 3000cn**

THE \$449 DELL 3000CN earned our Best Buy in part because this very low-priced model delivered high print quality, printed quickly, and earned our top design score.

The 3000cn printed text that looked crisp and was neither overly heavy nor too light. Even small fonts were easy to read. Line art looked almost perfect, and our grayscale test photograph displayed both sharp details and smooth tonal transitions.

Colors in graphics looked accurate, though a little light. Like all the other models we tested, the



Konica Minolta
MagiColor 2430DL

3000cn didn't blow us away with the quality of its glossy photos, although its textures did look quite smooth compared with output from the other printers.

Text printed at an extremely speedy 17.9 pages per minute in our tests; only the Brother HL-2700CN was faster. At 3.4 ppm, the 3000cn's color graphics printing was slightly faster than the 3.0-ppm average.

The standard paper tray holds only 150 sheets. However, boosting input capacity is affordable: An extra 250-sheet drawer costs \$180, and a 500-sheet drawer is a good deal at \$230. The optional duplexer sells for a reasonable \$300. The 3000cn supports PCL (Printer Control Language) emulation, though not PostScript. At about 17 by 17 inches, it takes up little desktop space.

The 3000cn should be economical to run. The estimated cost of 1.5 cents per monochrome page is the least expensive among the printers on our chart. Though the starter cartridges are rated to last only 2000 pages for black and 1000 pages for color, Dell sells a 4000-page black toner cartridge for \$45; each 2000-page color cartridge costs \$65.

Installing the 3000cn on our network at the PC World Test Center was straightforward. The backlit LCD and intuitive menus made setup simple.

Oki Data C5200n

THE BEST ATTRIBUTES of the \$599 Oki Data C5200n are its text quality and its graphics printing speeds. The C5200n printed solid, crisp text, even producing closely spaced bold letters without bleeding together the edges, which is a common problem. On plain paper our color graphics had a rich, waxy appearance that exhibited some graininess but acceptable shadow detail.

The C5200n depends on a Windows GDI-based driver to push the page rendering workload onto your PC; models that support PCL or PostScript use their own memory and processor for this task.

In our speed tests the C5200n printed text at 12.8 pages per minute, just above average, and spat out color graphics at a rapid 5.2 ppm. Only the HP 3600n printed graphics faster.

The C5200n offers impressive paper handling. For starters, the main paper drawer has a generous 300-sheet capacity, and the multipurpose tray holds 100 additional sheets or 10 envelopes. The 100-sheet output tray also allows a straight path for envelopes and thick media. The optional duplexer is reasonably priced at \$320, but Oki Data suggests ▶

	Cost of consumables ¹	Bottom line
	<ul style="list-style-type: none"> • Toner cost (black/color): \$45/\$195 • Drum cost: \$43 • Cost per page (black/color): 1.5/12.5 cents 	High print quality and rapid text printing at an excellent price. This unit has the lowest cost per black page, a small footprint, and good design. It also supports PCL.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$62/\$428 • Drum cost: \$80 black/\$285 color • Cost per page (black/color): 2.1/11.1 cents 	Delivers high-quality text and fast graphics printing. Toner replacement is easy. Estimated cost per color page is in line with competitors'. Rear output tray for thick media.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$85/\$350 • Drum cost: \$149 • Cost per page (black/color): 2.2/11.0 cents 	Performance is above average, and estimated costs per page are competitive. Printing via PictBridge, without upgrade, is in draft mode only.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$170/\$495 • Drum cost: n/a² • Cost per page (black/color): 2.6/12.5 cents 	Fastest model in test group at printing text, but letters looked slightly fuzzy. Graphics came out overly dark. Compact unit doesn't print on legal-size paper. Supports PCL.
	<ul style="list-style-type: none"> • Toner cost (black/color): Unavailable • Drum cost: Unavailable • Cost per page (black/color): 2.5/13.0 cents 	Good performance for a low price. Toner cartridges are easy to replace. Supports PCL and PostScript. Duplexer is not available for this printer.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$126/\$375 • Drum cost: n/a² • Cost per page (black/color): 2.1/11.5 cents 	Fastest graphics print speed of test group, but text looked a bit thin. This model is easy to use and maintain, and it has a small footprint. Options are reasonably priced.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$79/\$420 • Drum cost: \$156 • Cost per page (black/color): 2.5/12.7 cents 	Better graphics quality than most of the units, though graphics speeds were slow. Supports PCL and PostScript. Similar to Konica Minolta's 2450, but \$200 cheaper.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$85/\$350 • Drum cost: \$149 • Cost per page (black/color): 2.2/11.0 cents 	Features and performance fail to justify \$200 premium over similar Xerox Phaser 6120n. Supports PostScript and PCL. Estimated color costs are on a par with competitors'.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$75/\$249 • Drum cost: n/a² • Cost per page (black/color): 2.9/14.9 cents 	Small model is best suited for low-volume printing. Text looked sharp but printed extremely slowly. Though purchase price is low, estimated cost per page is high.
	<ul style="list-style-type: none"> • Toner cost (black/color): \$83/\$300 • Drum cost: \$174 • Cost per page (black/color): 2.4/12.0 cents 	Truly compact model lacks integrated networking and compromises on paper handling. Print speeds are slow. Installation of the driver was easy. Supports PCL.

Center. All rights reserved. **CHART NOTES:** The PCW Rating for color laser printers is based on features (30 percent), speed and print quality (30 percent), price (20 percent), and ease of use (20 percent). Ratings are as of 10/26/05.

that you also add 64MB of RAM, which costs \$168. A 530-sheet drawer is pricey at \$456.

The C5200n isn't especially big, but its 22.1-inch-deep case gives it a large footprint. The top lifts to expose the entire paper path, making replacement of the toner cartridges a cinch. The printer ships with 1500-page starter cartridges; standard replacement cartridges are rated to print 3000 pages. However, buying the high-capacity 5000-page cartridges could help control printing costs: Estimated costs per page are 2.1 cents for black and 11.1 cents for color.

Konica Minolta MagiColor 2430DL

THE \$500 Konica Minolta MagiColor 2430DL performed at roughly average speeds, and has a low estimated cost per color page. It produced text pages at 13.0 ppm and color graphics at 2.7 ppm, which was substantially slower than the speeds of the less expensive Dell 3000cn.

Text looked crisp, if a little heavy. Line art also appeared heavy, causing close parallel lines to merge. Color graphics printed with good detail, though an orange cast made people look like they had been to a tanning salon.

The sole paper tray holds up to 200 sheets of plain paper, which isn't much for office use, but you can supplement that with a 500-sheet drawer for \$299 and a duplexer for \$399.

The 2430DL comes with cartridges rated for just 1500 pages each. Using higher-capacity, 4500-page toner cartridges gives the unit a very low estimated cost per color page of 11.0 cents.

In addition, the 2430DL includes an unusual feature for a color laser printer: a port on its front panel for printing photos from PictBridge-compatible digital cameras. However, the standard configuration, which we tested, prints only in draft mode; you have to install an additional 256MB of RAM (\$149) to enable printing at 2400-by-600-dpi resolution. Photos looked yellowish and somewhat grainy.

Brother HL-2700CN

THE BROTHER HL-2700CN earned our highest overall score for output performance, and the model is reasonably priced at \$500. Text printing was remarkably quick, at 18.7 ppm—the fastest speed on the chart—and color graphics printed at a respectable 3.1 ppm.

The built-in Web interface is convenient for



Brother
HL-2700CN

managing the printer, but Brother also includes administration software. Larger companies can use their existing SNMP applications.

Text quality wasn't tops, however, as letters looked slightly fuzzy and had lots of jagged edges. Color graphics were too dark.

Paper handling is simple, making this model best suited for groups with simple printing needs. The HL-2700CN has a 250-sheet paper drawer, with no bypass tray. To print on legal-size paper, you'll need to buy a \$150 tray for the main drawer. An additional 500-sheet drawer costs a whopping \$550—and this drawer doesn't accept legal-size paper.

Lexmark C522n

THE LEXMARK C522n gives small offices ample features for a budget price of \$499. It supports both

PCL and PostScript. The vertical paper path, with stacked toner cartridges that are easily accessed from a fold-down front door, gives the printer a small footprint.

The main paper drawer holds up to 250 sheets of plain paper, up to legal size. A slot on the front allows you to feed different media a single sheet at a time. For \$299, you can add a 500-sheet paper drawer. You can't add a duplexer, however.

This laser printer provides good performance for the price. In our tests the C522n printed text at an above-average 14.3 ppm and color graphics at a healthy 3.8 ppm.

Text quality was good overall, though some letters looked shaved off at the top. Fine italics appeared spotty, but bold characters were distinct. Color graphics printed too light and grainy, but had good shadow detail. Glossy photos showed the same washed-out look and a dithering pattern.

At the time of this writing, Lexmark hadn't set the price for the C522n's replacement toner cartridges. Lexmark ships the printer with 1500-page starter cartridges.



Lexmark
C522n

HP Color LaserJet 3600n

THE HP COLOR LASERJET 3600n printed color graphics faster than any other model and earned high marks for its paper handling. The 3600n has a vertical one-pass engine, which keeps its footprint small. The front of the machine folds down to expose the toner cartridges.

The main paper drawer holds up to 250 sheets of paper. Folding down the multipurpose tray at ▶



HP Color LaserJet
3600n



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the front lets you stack another 100 sheets. For heavy-duty printing you can attach an optional 500-sheet bin for a reasonable \$300. HP doesn't offer a duplexer for the 3600n; to get that feature you could buy the 3600dn instead.

While text pages in our tests printed at an about-average 13.0 ppm, color graphics arrived at a remarkably speedy 5.6 ppm.

The 3600n's crisp text would have been more readable if it had printed slightly heavier. Large fonts appeared blotchy. Despite accurate hues, our color graphics came out too dark, with unnatural-looking shadow areas. The same images also looked too dark when printed on glossy photo paper, and objects had fuzzy, colored fringes.

The estimated cost per color page is low—11.5 cents. Better yet, HP ships the printer with full-size cartridges that are rated to print 6000 black pages and 4000 color pages—a \$501 value.



Xerox Phaser 6120n

Xerox Phaser 6120n

THE XEROX PHASER 6120n is priced low at \$499, and delivers better graphics quality than the very similar Konica Minolta MagiColor 2450, which costs \$200 more. Like the 2450, the 6120n supports PCL and PostScript. The two models' speeds were nearly identical.

In our tests the 6120n printed text quickly at 14.7 ppm. However, its color graphics speed was a disappointing 1.6 ppm.

Print quality was also a mixed bag. Text was very heavy, with blotchy edges. Color graphics displayed appealing contrast and accurate color, though they were marred by some fine banding. On glossy paper photos appeared somewhat grainy and hazy; however, they remained fairly attractive overall.

The 6120n has a 200-sheet paper tray; you can add a second 500-sheet tray for \$299, though it handles only letter-size paper—you have to ▶

OPERATING COSTS

Pennies per Page Soon Turns Into Dollars

THOUGH YOU CAN BUY a color laser printer for a small sum these days, supplies can be a significant expense. Even if your printing volume is low, you will likely spend, eventually, a great deal more money on supplies than you did for the printer.

Among our tested printers, ongoing costs for printing text pages contrast sharply. Printing ten reams (500 sheets each) of text pages with the Dell 3000cn will use up an estimated \$75 worth of consumables, or 1.5 cents per page. The black toner cartridge for the HP 2600n is inexpensive, but its per-page costs are much higher: At 2.9 cents per text page, printing on ten reams of paper will use up \$145 worth of toner. HP's black toner cartridge yields an estimated 2500 pages and costs \$75, while the Dell cartridge runs \$45 and is rated to last 4000 pages.

Estimated costs to print 5000 color pages vary even more dramatically. At 11.0 cents per page, the costs of consumables add up to \$550 for the Konica Minolta MagiColor 2430DL. At 14.9 cents per page, costs for the HP Color LaserJet 2600n total \$745. The photograph at right shows each printer's toner cartridges.

THE PRICES OF PARTS

THE COSTS PER PAGE listed in our chart on page 134 are the vendors' estimates, which are based on printing a black-and-white document with 5 percent coverage of black toner, and on printing color

pages with 5 percent coverage of each toner, or 20 percent total.

The number of replaceable parts, and their prices, varies. With the HP Color LaserJet 2600n, for example, you have to replace only the toner cartridges. The Oki Data C5200n, on the other hand, has ten items that need to be swapped: four toner cartridges, four drums, a fuser unit, and a transfer belt. Fortunately, you'll rarely have to swap some of these items; the transfer belt, for instance, lasts an estimated 50,000 pages.

Watch for unreasonably high prices. The C5200n's fuser costs \$140, and is rated to last 45,000 pages. The same part for the Brother HL-2700CN is rated to last 60,000 pages—but your accountant is sure to raise a red flag when the bill for \$550 arrives.

—Eric Butterfield

COSTS PER COLOR PAGE



Lowest
11.0 cents
 Konica Minolta MagiColor
 2430DL and 2450

Highest
14.9 cents
 HP Color LaserJet
 2600n

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load envelopes and legal-size paper in the main tray. An optional duplexer will cost you \$399.

Xerox rates the life of the 6120n's imaging drum more conservatively than Konica Minolta does for that of the 2450, which contributes to a higher estimated cost per page, for the 6120n, of 2.5 cents for black and 12.7 cents for color.

Installation was quick and easy, thanks in part to Xerox's thorough documentation. The control panel has a two-line LCD for setting networking and paper-handling options.

Konica Minolta MagiColor 2450

THIS \$699 PRINTER offers little to justify the extra cost over the almost identical-looking Konica Minolta MagiColor 2430DL and similar Xerox Phaser 6120n, both of which cost about \$200 less.

On glossy paper our photos abounded with dithering patterns, and skin tones turned orange. On plain paper the same image looked grainy, with banding and horrific facial colors.

Text printing was heavy and fuzzy. Lines didn't look solid in our line art print. Only the grayscale print impressed us, as its overall lightness allowed for smooth gradients and good shadow detail in the image.

The printer doesn't have a manual bypass slot—you can feed envelopes only from the main tray. You can add a 40GB hard disk for \$349; with it, you can store and print PDFs and password-protected documents.

Using the same high-capacity toner cartridges and imaging drum as the 2430DL, the 2450 offers estimated costs of 2.2 cents for black pages and 11.0 cents for color pages.

Like the 2430DL, the 2450 has a front USB port, though it doesn't do anything—yet. Konica Minolta says it will soon release a free firmware upgrade that will enable printing from PictBridge-compatible digital cameras.

HP Color LaserJet 2600n

THE \$399 HP Color LaserJet 2600n is easy to maintain and is best suited for a small workgroup with modest demands. Lightweight at only 40.5 pounds, the printer is also compact and should squeeze into the most cramped of workspaces.

The 2600n's paper drawer holds up to 250 sheets of plain paper. For \$149 you can add a second 250-sheet tray, which might be handy for printing your letterhead, but hardly turns this unit into a high-



Konica Minolta
MagiColor 2450



HP Color LaserJet
2600n



HP Color LaserJet
2550L

capacity workhorse. No optional duplexer is available; however, the 2600dn includes this feature.

The 2600n printed some of the sharpest-looking text we saw, albeit slowly, at 6.8 ppm. On plain paper color images looked grainy with lots of banding. Colors were oversaturated, and skin tones had an unnatural orange tint. Glossy photos looked slightly greenish, a little grainy, and had faint banding.

The four toner cartridges are the only replaceable parts, and they slide easily into individual slots behind the fold-down front door of the printer. The 2600n comes with full-capacity cartridges, though their rated capacities are modest: just 2500 pages for the black cartridge, and 2000 pages for the color cartridges. The 2600n has the highest estimated costs per page of any printer in our tested group: 2.9 cents per monochrome page and 14.9 cents per color page.

HP Color LaserJet 2550L

THE HP COLOR LASERJET 2550L is so compact, you can hardly believe it's a color laser printer. The clever carousel design squeezes everything into a surprisingly small space.

At \$499, this unit looks like a bargain. However, the printer sacrifices some common amenities, such as built-in networking; also, it has only USB and parallel ports.

The 2550L's simple fold-out paper tray holds just 125 sheets, as does the output bin. You can easily boost the capacity by adding a proper 250-sheet drawer, reasonably priced at \$150. Alternatively, you can add a 500-sheet drawer for \$300, upping paper capacity to 875 sheets.

However, if you plan to do high-volume printing, you likely will want a faster printer. In our tests the 2550L printed text at a leisurely 8.6 ppm and generated color pages at a miserable 1.1 ppm, the slowest of the batch.

Text quality was uninspiring. Most characters looked too heavy and larger letters appeared blotchy. Color images seemed a bit dark overall, but sharp.

Considering its slow speeds and subpar print quality, the only reason to buy the 2550L over the less expensive and network-ready 2600n is lower cost per page. ■

Paul Jasper is a technology consultant and freelance writer in San Francisco; Eric Butterfield is an associate editor for PC World.

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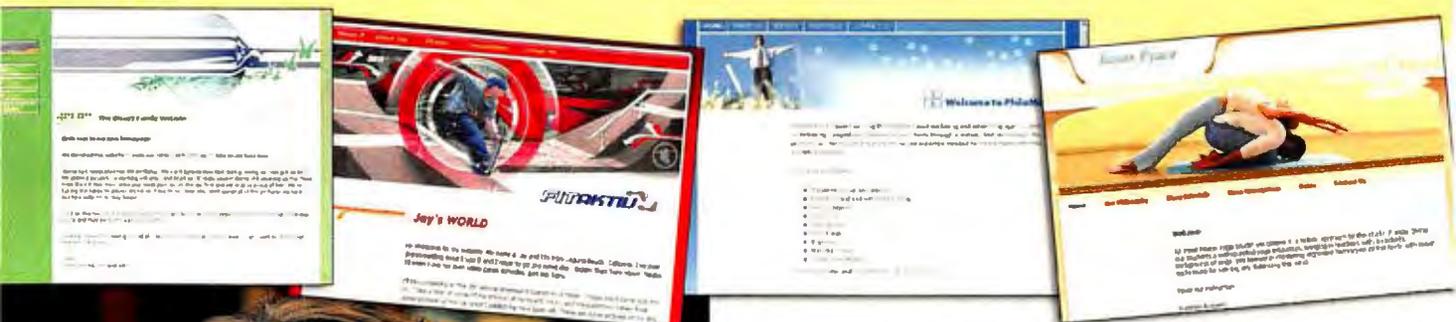
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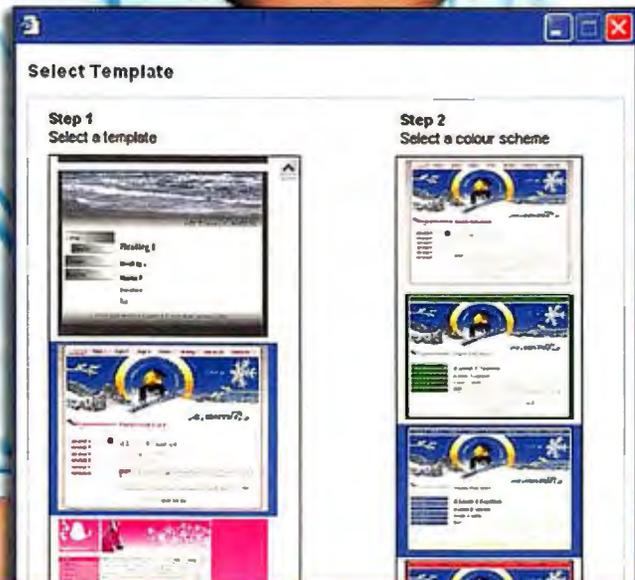
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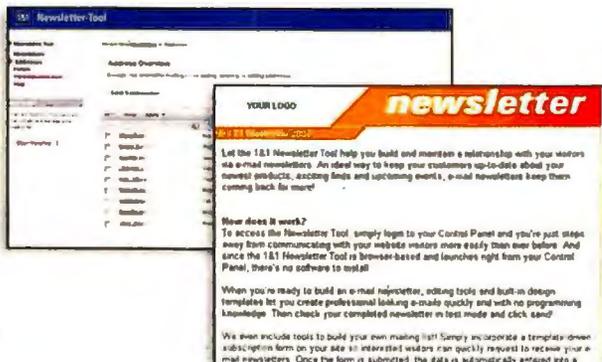


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YAHOO!

STANDARD

\$19⁹⁵

Go Daddy

PREMIUM

\$19⁹⁵

Price per month

Included Domains

Web Space

Monthly Transfer Volume

E-mail Accounts

Mailbox Size

Website Builder

Photo Gallery

Dynamic Web Content

Web Statistics

E-mail Newsletter Tool

In2site Live Dialogue

Chat Channels

Form Builder

Database

Search Engine Tools

PHP Support (Linux)

Perl Support (Linux)

Software suite (\$600 value)

90-day Money Back Guarantee

Support

3

4000 MB

200 GB

1,000 IMAP or POP3

2000 MB

18 pages

✓

✓

✓

✓

✓

✓

✓

25 MySQL (Linux)

✓

✓

✓

✓

✓

24/7 Toll-free Phone, E-mail

1

4000 MB

75 GB

50 POP3

2000 MB

✓

✓

✓

✓

Extra charge applies

—

—

✓

MySQL support

Extra charge applies

✓

✓

—

—

24/7 Toll-free Phone, E-mail

0

4000 MB

200 GB

1,000 POP3

10 MB

Extra charge applies

✓

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✓

Extra charge applies

—

—

25 MySQL (Linux)

Extra charge applies

✓

✓

—

24/7 Phone, E-mail

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Plus \$12.95 per month for a 20-page site with Go Daddy

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Add \$10 per month with Yahoo!

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VALUE

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**FREE
DOMAINS
INCLUDED**



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Included Domains	5	1
Web Space	10,000 MB	10,000 MB
Monthly Transfer Volume	300 GB	200 GB
E-mail Accounts	2,000 IMAP or POP3	100 POP3
Mailbox Size	2000 MB	2000 MB
Website Builder	25 pages	✓
Photo Gallery	✓	✓
Dynamic Web Content	✓	✓
Web Statistics	✓	✓
E-mail Newsletter Tool	✓	Extra charge applies
In2site Live Dialogue	✓	—
Chat Channels	✓	—
Form Builder	✓	✓
Database	50 MySQL (Linux)	MySQL support
Search Engine Tools	✓	Extra charge applies
PHP Support (Linux)	✓	✓
Perl Support (Linux)	✓	✓
Dedicated SSL Certificate	✓	—
Software suite (\$600 value)	✓	—
90-day Money Back Guarantee	✓	—
Support	24/7 Toll-free Phone, E-mail	24/7 Toll-free Phone, E-mail

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per month with
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the best value
for your money!**

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1&1

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**Andreas Gauger,
Chairman of
the Board**



1&1 – THE #1 WEB H

Not many Internet companies can say they've been in business for nearly 15 years. Thanks to solid products, reliable services and a commitment to providing the most feature-rich web hosting packages at some of the most competitive prices available, 1&1 Internet has steadily developed into the world's biggest and best web host.

From home offices to corporate centers, 1&1's name has become synonymous with quality.



1&1 began offering its accessible and affordable hosting packages to a small – but loyal – European customer base nearly 10 years ago. The company's reputation for reliability, integrity and value allowed it to quickly expand throughout Europe, the U.K., and the U.S.

Today some 4 million people around the world rely on 1&1 for web hosting, domain registration and various other services.

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WORLD'S MOST



In fact, you can even find 1&1 on the high seas as the main sponsor of United Internet Team Germany, a contender for the coveted America's Cup yachting trophy.



Thanks to its size, strength and longstanding reputation for quality and dependability, 1&1 is more focused than ever on offering the absolute best value for your money. While the

company has evolved into a major player in the global web hosting market, it remains even more committed to the basic principles that have contributed so much to its success: great products at low prices, with none of the too-good-to-be-true pricing gimmicks or small print "catches" you'll find elsewhere. As we move forward, we believe this ongoing commitment

to helping customers succeed will bring us further growth and, subsequently, the ability to provide customers with a whole new dimension of online possibilities.

of Host Names

OCTOBER 2005 NETCRAFT HOSTING PROVIDER DATASET <small>www.netcraft.com</small>				
5,150,774	4,831,035	1,510,910	1,238,078	950,675
1&1 Internet	Go Daddy, Inc.	Network Solution	Yahoo!	register.com

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Here is how 1&1 stacks up against the competition. All trademarks are the property of their respective owners.



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1&1

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No setup fee PER MONTH

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**united
internet**

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Next-generation shopping sites aim to help you find great prices on the best products, from sellers you can trust. **Which ones deliver?**



ILLUSTRATIONS BY GORDON STUDER

BY GRACE AQUINO

W

ITH COMPARISON-shopping sites to guide the way, you can find enormous savings on your favorite tech (and nontech)

products—everything from cameras to PCs, and from diapers to bottled water.

But the Web has so many comparison sites to choose from—how do you know which are worth a visit? To save you time, I did the legwork for you. First I sorted through 20 new and old pricing engines and then settled on 9 worth using.

While some of them—NexTag, PriceGrabber, and Yahoo Shopping—are old-timers, others, including Become.com, PriceRunner.com, and Smarter.com, are new to the scene. Still others have undergone recent changes: MSN revamped its shopping channel, Shopping.com is now an eBay company, and Shopzilla is the new name for BizRate.com. (Full disclosure: PriceGrabber and Yahoo link to *PC World's* reviews; PriceGrabber powers ►

PCWorld.com's price-comparison engine, Product Finder, as well.)

To test each site's price-comparison prowess, I searched for Canon's PowerShot SD550 digital camera, Maxtor's OneTouch II 300GB external hard drive, and Pioneer's DVR-633H-S DVD player/recorder. I also looked at each site's organization, interface, and extras. Overall, I preferred PriceRunner over the competition. Cheapskates will also find bargains at Yahoo Shopping. And research fanatics will find that PriceGrabber provides good tools, such as product reviews and merchant information, before you buy.

BEST

All Around

MY PICK FOR THE BEST comparison-shopping site, **PriceRunner.com** (www.pricerunner.com), gives me what I want. It's efficient; it has a no-frills design; and, best of all, it finds great deals. The pages are a bit text-heavy, but there's enough white space that the look feels uncluttered.

PriceRunner found the lowest bottom-line price—meaning estimated tax and shipping are included—on all three of my products. And it had the cheapest base-price listings on two of the three items,

the hard drive and the DVR. Many of its cheap listings lack a direct link to the vendor's site, though, which creates a bit more work for the shopper.

One nice feature: PriceRunner warns buyers about potentially dodgy merchants. The site's Observation List includes stores that have possible issues with delivery, service, and payment security. If your results include a questionable vendor, a warning icon will appear. However, it would be better if the site allowed you to omit the stores altogether. At this point, you can sort by merchant rating, pushing suspect vendors to the bottom.

FEATURES COMPARISON

Comparison Shopping: PriceRunner Finds the Best Deals

YAHOO SHOPPING ALSO LOCATED some great bargains, while PriceGrabber provides useful and convenient research tools.

SHOPPING SITE	PCW Rating	Canon PowerShot SD550	Maxtor OneTouch II E01W300	Pioneer DVR-633H-S	Sorting options
1 PriceRunner www.pricerunner.com	85 Very Good	Sellers: 29 Lowest base price: \$397 Lowest bottom-line price: \$406	Sellers: 29 Lowest base price: \$169 Lowest bottom-line price: \$175	Sellers: 12 Lowest base price: \$379 Lowest bottom-line price: \$414	Base price, bottom-line price, merchant, merchant message, merchant rating, shipping info, stock availability
2 PriceGrabber www.pricegrabber.com	82 Very Good	Sellers: 35 Lowest base price: \$427 Lowest bottom-line price: \$440	Sellers: 28 Lowest base price: \$250 Lowest bottom-line price: \$260	Sellers: 11 Lowest base price: \$405 Lowest bottom-line price: \$421	Base price, bottom-line price, merchant rating
3 Yahoo Shopping shopping.yahoo.com	81 Very Good	Sellers: 19 Lowest base price: \$396 Lowest bottom-line price: \$441	Sellers: 20 Lowest base price: \$252 Lowest bottom-line price: \$270	Sellers: 18 Lowest base price: \$379 Lowest bottom-line price: \$418	Base price, bottom-line price, merchant, merchant rating, shipping info
4 Shopzilla www.shopzilla.com	79 Good	Sellers: 40 Lowest base price: \$396 Lowest bottom-line price: \$410	Sellers: 21 Lowest base price: \$251 Lowest bottom-line price: \$257	Sellers: 14 Lowest base price: \$385 Lowest bottom-line price: \$421	Base price, bottom-line price, merchant, merchant rating
5 Nextag www.nextag.com	78 Good	Sellers: 26 Lowest base price: \$422 Lowest bottom-line price: \$439	Sellers: 15 Lowest base price: \$250 Lowest bottom-line price: \$257	Sellers: 12 Lowest base price: \$385 Lowest bottom-line price: \$425	Base price, bottom-line price, merchant, merchant rating, stock availability
6 MSN Shopping shopping.msn.com	77 Good	Sellers: 45 Lowest base price: \$389 Lowest bottom-line price: n/a	Sellers: 1 Lowest base price: \$320 Lowest bottom-line price: n/a	Sellers: 11 Lowest base price: \$399 Lowest bottom-line price: n/a	Base price, merchant, merchant rating
7 Shopping.com www.shopping.com	76 Good	Sellers: 33 Lowest base price: \$429 Lowest bottom-line price: \$440	Sellers: 22 Lowest base price: \$250 Lowest bottom-line price: \$257	Sellers: 15 Lowest base price: \$399 Lowest bottom-line price: \$429	Base price, merchant, merchant rating
8 Smarter.com www.smarter.com	71 Good	Sellers: 0 Lowest base price: n/a Lowest bottom-line price: n/a	Sellers: 15 Lowest base price: \$251 Lowest bottom-line price: \$264	Sellers: 0 Lowest base price: n/a Lowest bottom-line price: n/a	Bottom-line price (or base price if you don't provide your zip code), merchant
9 Become.com www.become.com	67 Fair	Sellers: 14 Lowest base price: \$397 Lowest bottom-line price: n/a	Sellers: 5 Lowest base price: \$280 Lowest bottom-line price: n/a	Sellers: 3 Lowest base price: \$386 Lowest bottom-line price: n/a	Base price, merchant

n/a = not available. **CHART NOTES:** Base price: without shipping and tax; bottom-line price: with shipping and tax. All prices checked on 9/19/05. For more on PC World's ratings, visit find.pcworld.com/49902.

Both **Shopping.com** (www.shopping.com) and **Shopzilla** (www.shopzilla.com) are good at identifying recommended sellers. At Shopping.com, a listing gets a SmartBuy seal if the product is from one of the site's Trusted Stores. The product also has to be in stock and neither used nor refurbished, and the listing must include tax and shipping. Shopzilla awards its Smart Choice seal to products with the lowest price from a BizRate Certified store, provided that the availability and product information are accurate, and the tax and shipping are included. (To be certified by BizRate, a store must solic-

it customer feedback via BizRate surveys, have received 20 or more surveys in the last 90 days, and maintain at least a Satisfactory rating.)

Besides finding a reputable vendor, you also want to make sure you buy the best product. PriceRunner offers user reviews, but they can be scarce. I saw one each for the camera and the hard drive, but none for the DVR.

Still, there's plenty to like about the site, including options galore for filtering results in category searches. During my camera hunt, for instance, I was able to narrow my search by features such as the number of pixels, optical zoom, and the memory type.

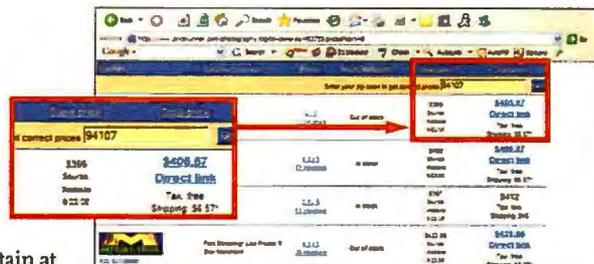
If you can't wait for a hot item or would rather visit a physical store, PriceRunner also lists local retailers that carry your desired product. But the site could stand to add more stores. When I searched for Apple's 4GB iPod Nano in white, the only "local" store that came up was in Woodland Hills, California—some 400 miles from my house! The company says it's constantly expanding the database.

A few sites, such as Cairo (www.cairo.com) and SalesCircular (www.salescircular.com), are geared toward finding sale items in your area. Cairo didn't have listings for the iPod Nano, but it did offer sale information on older iPod models. SalesCircular's search function failed the two times I visited the site. But you can select your city and a product category to browse items on sale in that category.

BEST

For Cheapskates

FOR THE ULTIMATE bargain hunter, I recommend **PriceRunner** and **Yahoo Shopping** (shopping.yahoo.com). Technically, PriceRunner did the better job overall, finding the lowest base price on the hard drive and tying Yahoo for the best deal on the DVR. But because PriceRunner lists sellers of questionable



PRICERUNNER FEATURES a great selection, low prices, and an easy-to-navigate interface.



NOT ONLY DOES YAHOO Shopping offer good prices, it also calls your attention to bargains in different categories of electronics and computer equipment.

status, I found Yahoo a good alternative.

Yahoo tied Shopzilla in second place for the best base price (behind MSN) on the camera. Its hard-drive results matched the average of the nine sites. What's nice, though, is that Yahoo features a dedicated category for sales and promotions (MSN does, too) and provides links to used and refurbished products, which could mean more savings.

To browse for more bargains, it's worth sorting through the clutter of **MSN Shopping** (shopping.msn.com). MSN recently partnered with Shopping.com, so it should pull from both databases and produce lots of results. It worked for my camera search, finding 45 stores—the most in my test—and it located the lowest base price, too. It even listed eBay auctions.

But it was impossible to see all of the search results at once. The site initially returned 19 listings, one of which was a generic link to 27 additional stores (I couldn't tell whether those were from Shopping.com's database or from MSN's). If you browse quickly, it's easy to overlook those merchants; and you can't compare their results to the original listings. Another annoyance: MSN does not provide a bottom-line cost.

If you're just looking for a great deal on a camera or other gadget and aren't particular about the model, specialty ▶

Verdict

Though rather dull-looking compared with the others, PriceRunner offers almost everything you need in a pricing engine: It finds low prices and is easy to navigate.

This old standby delivers useful reviews and merchant details, a large product database, and a nice interface that's a cinch to use. But it didn't find the lowest prices.

While it bombards you with ads and info, making navigation more of a chore, Yahoo is worth a look for its great deals and *Consumer Reports* buying guides.

This approachable site is easy to get around and provides merchant ratings from BizRate. Its product background and reviews aren't as good as PriceGrabber's, however.

NexTag offers an easy-to-navigate interface and nifty charts showing a product's price changes over time. Average prices and a mediocre selection of sellers hold it back.

By teaming up with Shopping.com, MSN gives you a wider selection in most product categories. The interface is way too cluttered, though, and there's no bottom-line pricing.

This otherwise-average site is a worthy stop if you value reviews from Epinions.com. The interface is fairly boring but straightforward enough to navigate.

Smarter.com has a clean interface and offers some unique features, such as text-messaging support and live-chat help, but its product selection pales in comparison.

This new, Google-like site offers dedicated buttons for research and shopping. Its selection of sellers is too skimpy, but that may change as the site matures.

sites StealDeals.net (www.stealdeals.net) and Techbargains (www.techbargains.com) feature deals of the day. For instance, StealDeals lists online bargains in categories such as computers and home theater, while Techbargains helps you ferret out coupons, as well as online and local deals—it even searches eBay. (Disclosure: Techbargains powers PCWorld.com's Bargain Finder.) Both sites also let you sign up for e-mail alerts if your desired product drops in price.

BEST

For Research Fanatics

SAY YOU WANT a new camera but aren't sure which one to get. Use the buying help at certain comparison sites.

PriceGrabber's (www.pricegrabber.com) features impressed me the most. The site presents information neatly, letting you tab between product details and user and professional reviews. You can

even find out about a store's return policy, business hours, and special services by clicking on the Merchant Info link.

Become (www.become.com) looks as if it should be helpful—it gives you an option to re-search a product (not just shop and buy). But its database currently is sparse. My searches for the three products yielded few results, finding only the Maxtor drive. Research results weren't helpful either: I received a few links to reviews and info, but more of the links pointed to merchants selling the product.

Although average in most respects, **NexTag** (www.nextag.com) offers an interesting tool: a price history chart showing a product's cost over time so you can get an idea of whether you should wait to buy. And it includes a downloadable Internet Explorer toolbar to give you instant access to that search engine.

Smarter (www.smarter.com) can help you comparison shop while you're out at



PRICEGRABBER PROVIDES the best tools for people who want to do a little product research first.

stores via its free SMS service. You send a text message to 610/762-7837 (610-SMARTER) with a model name or part number, and the system replies with the lowest online price it finds. But Smarter's product selection is unimpressive. In my initial search, the site found the hard drive but turned up zero results for the camera and the DVR. A few weeks later, I found the camera but not the DVR.

These sites may not help you find pirate's booty, but they can save you a buck—or more—over the long haul. ■

Grace Aquino is a senior associate editor and Erik Larkin an associate editor for PC World.

MONEY SAVERS

Shopping Tips: Advice to Keep Your Wallet Safe and Full



1 Do a background check: At the Better Business Bureau's Web site (search.bbb.org), you can search records by Web address. If a retailer isn't listed, that isn't necessarily a bad sign. It means that the BBB does not have any information on the business, good or bad. If you have a choice between buying from a company with a satisfactory BBB record and one that's not listed, go with the one that's on file.

2 Save with refurbis: Companies often sell factory-refurbished items at a substantial discount, and often with a limited warranty. These may be defective yet unused products that have been restored by the manufacturer, or even special-order items a customer cancelled at the last minute. Dell and Sony sell refurbis in outlet sections on their Web sites. You can also find deals at Refurbdepot.com.

3 Clip coupons: Several sites gather coupon codes that can score you free shipping or a percentage off the original price. Two good ones are Dealcoupon.com (linked to the highly useful bargain site Dealnews.com) and Specialoffers.com.

4 Go straight to the source: Online retail shops (like Amazon.com) sometimes feature other sites' products and

then relay orders to those sites. If you find an item you want, don't click the Buy button immediately. First check the manufacturer's or original shipper's site to see if you can get the product for less. Cutting out the middleman can save you money.

5 Use the right tools: The SquareTrade SideBar for Internet Explorer (just released at Squaretrade.com) automatically searches for lower prices when you shop for certain consumer electronics (for example, digital cameras) at online stores like Amazon.com and Tiger Direct. The tool pulls in pricing info from Shopping.com and displays the details in a pop-up sidebar. It also looks for listings on eBay and your local Craigslist. In addition, it promises shopping protection by displaying a warning when you enter a known fraudulent Web site. —Erik Larkin



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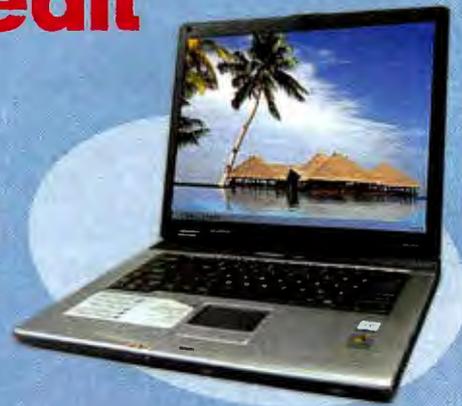
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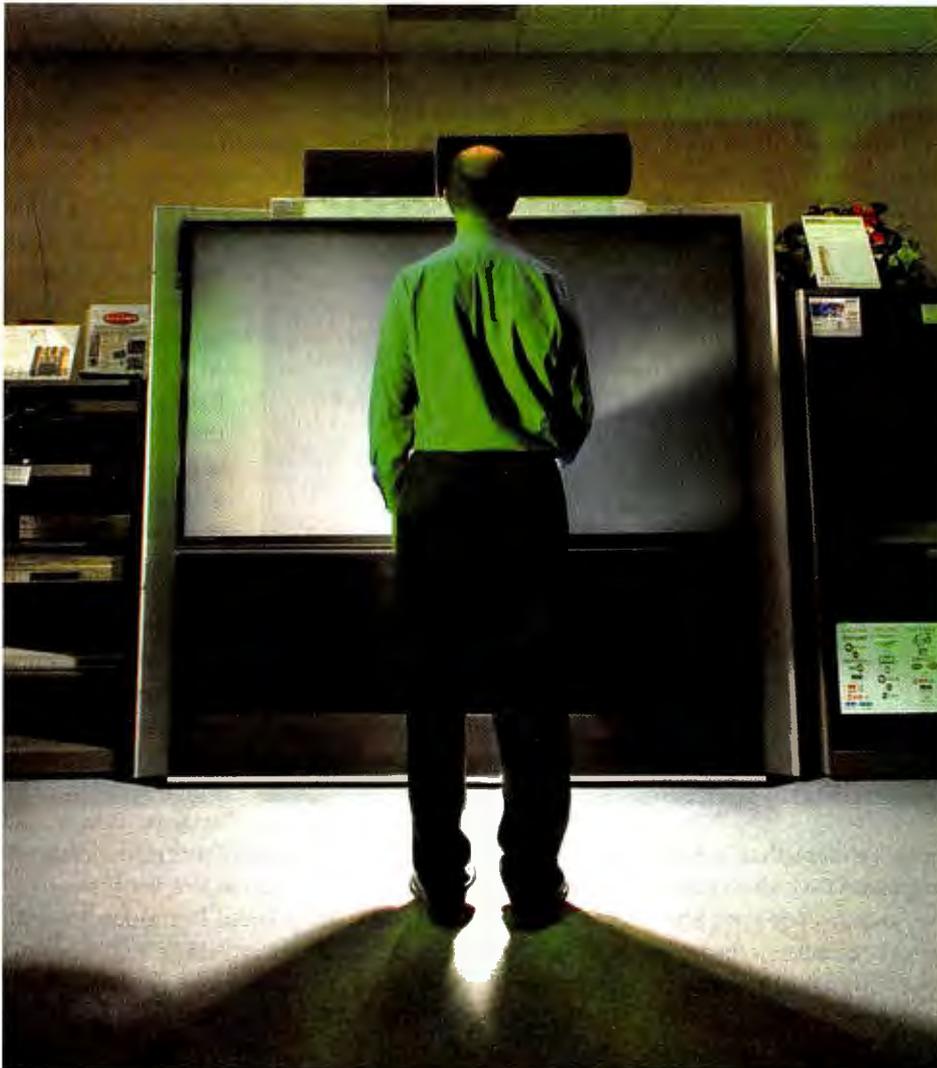
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TEN HDTV MYTHS

THE WORLD OF HIGH-DEFINITION TELEVISION CAN BE AS CONFUSING AS IT IS ALLURING. IF YOU'RE READY TO MAKE THE LEAP, WE HAVE THE FACTS YOU NEED. **BY YARDENA ARAR**

PLASMA TV SETS start out bright and beautiful, but burn out to an early death. Every single high-definition television program looks equally crisp and gorgeous. The higher resolution of a 1080p high-def set means that your shows and DVDs

will always look better than on a more ordinary 720p set.

Are these gospel truths about HDTV? Nope. Just a sampling of the many popular factoids, half-truths, and myths that can make choosing and enjoying a high-def television set complicated and

confusing—and in some cases, needlessly expensive.

To help dispel these myths, we consulted an A-team of HDTV experts. The challenge: Identify and debunk troublesome, costly, and all-too-prevalent misconceptions about high-definition TV—

from the basics of broadcasting to the arcane secrets of hardware. We lay out the facts you'll need to have at your disposal in order to make the right decisions. Armed with this information, you'll know just what to expect when you take the HDTV plunge. ►

"An HD set is all you need to get high-def programs."

IN OUR DREAMS! To experience the vibrant images and the Dolby 5.1 sound of true high-definition TV, you need several things—and an HD-ready set (a display that can accept HD-format input and display it at a minimum of 720 lines of progressive-scan or noninterlaced video) is just one of them.

First, a show needs to be shot in high definition, and that may not be the case, even when a show claims that it is. Bjorn Dybdahl, owner of Bjorn's, a high-end audio-video store in San Antonio, Texas, says that he's seen many high-def sports broadcasts shown partly in standard definition because the producer is using some non-HD cameras in its coverage. And although TNT's digital channel presents *Law & Order* reruns in high definition, early episodes weren't shot in

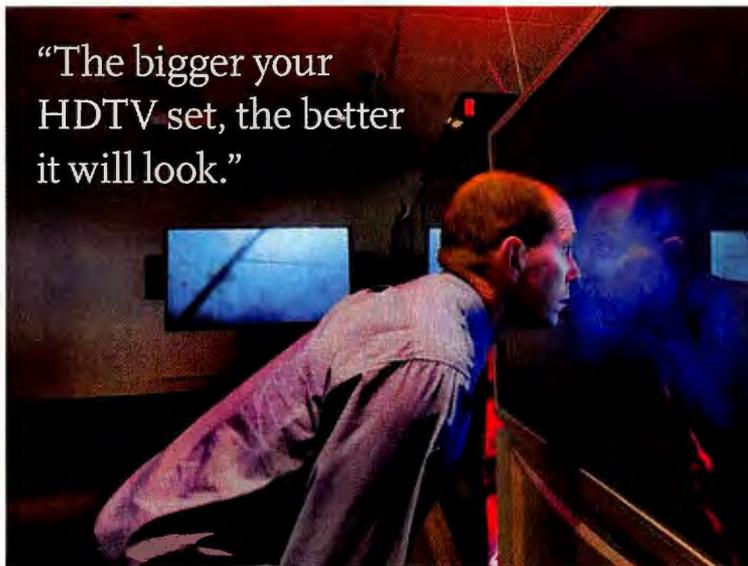
You can buy a high-definition CRT set (and you'll save a lot of money if you do).

HD; as a result, in those episodes, you see a 4:3 standard-def show that is stretched and scaled up to high-def size. It doesn't look great.

Second, the program must be transmitted in high def by a station that you can receive either over the air or from your cable or satellite provid-

er. ("Shown in high definition where available" doesn't mean it's available to you.)

Third, you need an HD receiver to process the signal. A set that has a built-in ATSC digital tuner can display over-the-air HD broadcasts with



"The bigger your HDTV set, the better it will look."

nothing more than a good antenna. ATSC, which stands for Advanced Television Standards Committee, is the group that defined the 18 formats of the coming digital TV system, only 6 of which are considered high definition. (And by the way, there is no such thing as an HD antenna—there are just antennas.) If your HDTV set comes with picture-in-picture, you won't

get high-def-picture-in-high-def-picture unless your set comes with two ATSC tuners.

An HD-ready set lacks such a tuner, so you'll need either a set-top box with a tuner, or an HD box from your cable or satellite service. Regardless of the box you get, you need to make sure that you're feeding

its digital output into your HD-ready set. "A lot of people will get an HD-ready set [and] an HD cable box, but they will use the analog feed from the HD box," says Jeff Cove, Panasonic's vice president for technology and alliances.

Finally, you must tune your HDTV set to a high-definition channel showing actual HD content. Picking up the analog transmission from your local affiliate on your high-def cable box won't result in delivery of a show in HD.

"The bigger your HDTV set, the better it will look."

BIGGER ISN'T BETTER if you are seated so close to the set that you can see every pixel or line of resolution. Generally, you don't want to sit closer to a 720p HDTV than twice the length of the screen diagonal.

On the other hand, if you sit too far away from a high-resolution TV, its special benefits may disappear. "For an awful lot of viewing, what limits the resolution is the human eye," says Larry Weber, president-elect of the Society for Information Display, a

group of display industry pros. At a distance of 10 feet from the screen, the eye can't detect pixels smaller than 1 millimeter; so if you look at a 37-inch set from that far away, you won't notice significant difference between a high-definition image and a standard-def image.

Content also affects perceived image quality. Digital TVs are fixed-pixel displays—the screen resolution is hard-wired, so content has to be scaled, or adjusted, to fit the screen resolution. Not surprisingly, most television content is most attractive when displayed at its native resolution. That's why today's DVD movies, which reproduce the original film at 480

lines of progressive-scan video, may look better on an Enhanced Definition TV than on an HDTV: EDTV has the same screen resolution (480p) that DVDs have, while HDTV must scale the number of lines to 720p or 1080p (depending on the set), usually via software interpolation.

Conversely, to display HD programming, an EDTV has to eliminate lines of content (once again, usually by software interpolation), and on larger sets the resulting quality loss may be quite obvious.

"The higher the screen resolution, the better the image quality of an HDTV."

MOST HDTV SETS today are 720p displays, but a few vendors are beginning to offer 1080p sets—either LCDs or rear-projection microdisplay (LCD, LCoS, DLP) mod- ▶

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els. As yet, no 1080p plasmas are available (though some have been announced in very large sizes). These sets will clearly do the best job of handling 1080p content—when it arrives. But today's HDTV shows are shown in either 720p or 1080i format: nobody broadcasts in 1080p because of bandwidth issues. Movies may someday be available in 1080p on optical media, but Hollywood hasn't settled on the next-generation hardware standard (Blu-ray or HD-DVD), much less chosen a content format.

Lack of 1080p content is one reason some vendors are holding off on introducing 1080p sets. But those that are selling 1080p sets point out that some HDTV is broadcast in 1080i, and that such content arguably looks better on a 1080p set because less scaling is involved. (On the other hand, 720p content has to be scaled up for a 1080p set.) Here again, though, the capabilities of the human eye come into play: You'll probably notice the superior resolution of 1080p only if you sit very close to the set—or have an extremely large set.

"You have to relinquish the fluid motion of a CRT screen when you move up to HDTV."

NOT AT ALL. You can purchase a high-definition CRT set—and you'll save a lot of money if you do, because they cost less than LCD and plasma-screen televisions of similar size. But in doing so you'll lose the sleek flat-panel chic of a plasma or LCD set. If you want that slim profile, however, be aware that LCDs have trouble rendering fluid

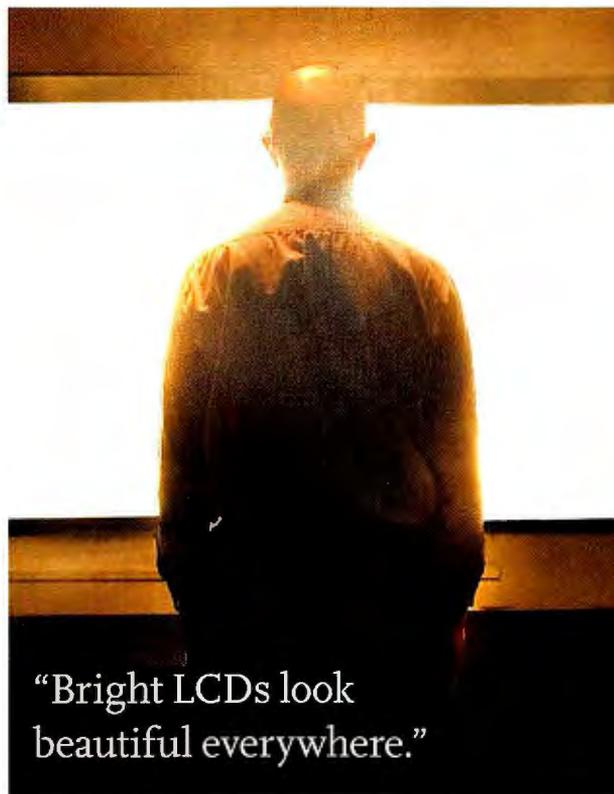
motion, as a result of their somewhat pedestrian response times. Plasma and DLP screens aren't susceptible to this technological weakness.

"Burn-in will wreck your plasma HDTV within a year."

THE PLASMA DISPLAY has advanced since the days when most of us saw plasmas only at airports, where constantly switched-on screens showing

plasma TVs, they depend on phosphor-based displays).

What changed? Phosphors and gas mixtures in the new plasma panels greatly reduce the risk of burn-in, and some sets use burn-in prevention software. "If you're not worried about burn-in for your CRT, you shouldn't worry about it for your plasma TV," says the Society for Information Display's Larry Weber.



"Bright LCDs look beautiful everywhere."

formatted flight information suffered from burn-in—ghost images that linger on screen despite no longer being transmitted.

Today, vendors rate the life expectancy of high-quality plasma TVs at 60,000 hours. That works out to more than 20 years of use if you watch 8 hours a day, 365 days a year; it's also about the same lifetime claimed for LCDs and CRTs (the latter are similarly prone to burn-in because, like

"Bright LCDs look beautiful everywhere, and they use much less power than plasma or CRT sets do."

IT'S TRUE THAT LCDs are bright, which makes them a good choice if you watch TV in a brightly lit room. But if you're inclined to turn down the lights for your rendezvous with *Entourage* or *Medium*, you probably don't want the brightest set on the block, and plasmas and CRTs offer superior color capabilities without

introducing the response-time (and associated motion artifacting) issues that have long plagued LCDs.

As for power consumption, a study by Japan's Green Purchasing Network—an organization dedicated to promoting environmentally friendly purchasing by consumers, business, and government—concluded that the power consumption of similar-size plasma, CRT, and traditional LCD displays in real-world viewing situations is practically the same. However, the coming generation of LCDs that use LED backlighting, while expected to deliver significantly better color, will consume roughly twice as much power as traditional LCDs of the same size.

"These pricey TVs look so great out of the box that it's a waste to pay a small fortune to have a professional calibrate your set."

THAT'S A DOUBLE-whammy myth. It's well known in the TV business that vendors usually ship sets turned to their highest possible brightness level, since brightness draws customers on the showroom floor. At home, however, many people watch TV under low lighting conditions in which an overly bright set can look jarring. In addition, the TV may arrive with less-than-accurate color settings. Consequently, almost any set will benefit from calibration. A professional calibrator has tools that can access settings most of us can't reach—and shouldn't, since we wouldn't know what to do with them. But the pros do charge a few hundred dollars for their services, and you can achieve ►

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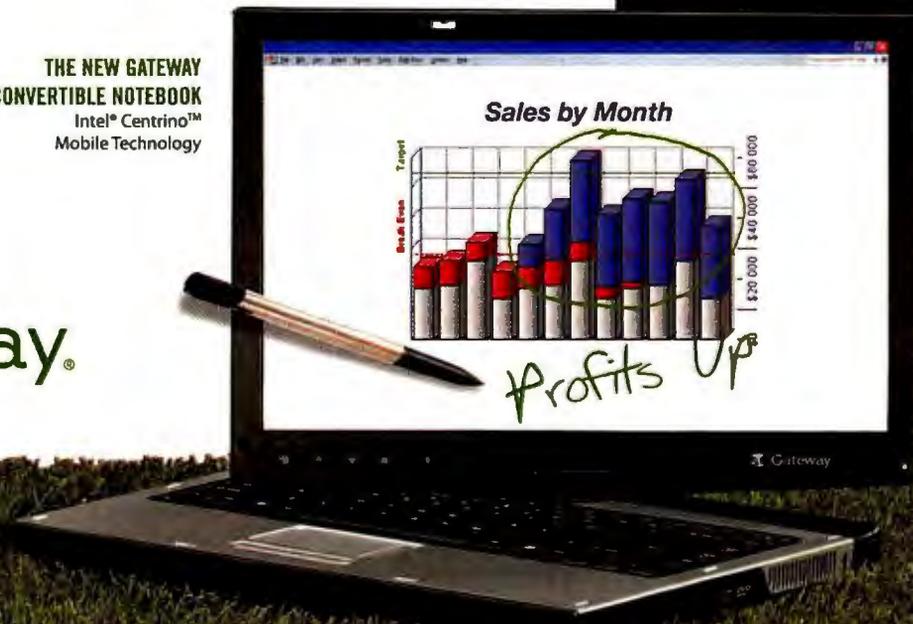
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reasonably good results on your own with software such as the \$40 DVD Essentials.

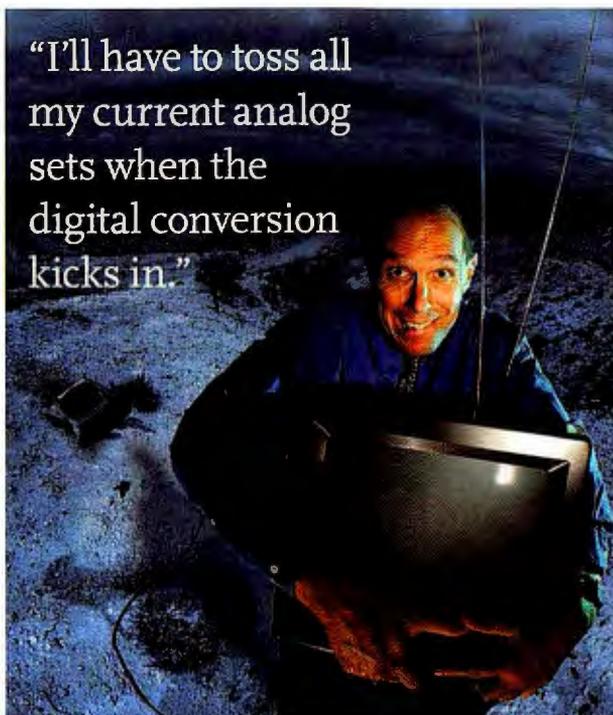
"All true HDTV programming looks equally great."

THIS CLAIM GETS US to a dirty little secret of HD broadcasting: All HDTV programs are compressed—some to a greater extent than others.

The FCC allots each TV station sufficient airwave spectrum to broadcast a little over 19 megabits per second of data, but stations aren't required to devote their share to a single high-def program. They may compress an HD show enough to leave room for one or two standard-def broadcasts as well—a practice known as multicasting.

The ATSC standard includes support for MPEG2 video encoding, but it says nothing about compression levels. Broadcasting an uncompressed MPEG2 video would require 885 mbps (for 720p content) or 995 mbps (for 1080i content). A station that broadcasts a single HD program can devote only 18 mbps to it, HDTV consultant Peter Putman says; and to get that, broadcasters have to use a compression ratio of 49:1 for 720p and 55:1 for 1080i.

If a station uses its bandwidth to broadcast both an HD show and a standard-def show, the HD program has to fit into 13 or 14 mbps. And a station sending out two standard-definition channels along with an HD channel must compress the HD signal to roughly 13.5 mbps, which entails compression ratios in the vicinity of 66:1. Such high compression produces artifacts that might not be noticeable on a small CRT,



but can be quite obvious on a big fixed-pixel display. These include mosquito noise, an effect in which small dots seem to surround a person's head; and macroblock errors, similar to what a fast-moving video game looks like on a PC with too little graphics power.

You can get a hint of how much a station compresses its video by learning whether it multicasts. But generally speaking, satellite and cable carriers compress HD programs more than over-the-air broadcasters do. Though they have a lot more bandwidth at their disposal than terrestrial

stations, these pay-TV carriers need it for sending out the dozens of channels their subscribers expect (not to mention extras like Internet access). Dish Network has said that, because of bandwidth constraints, it will gradually move all of its customers to equipment that supports MPEG4 encoding, which is more efficient than MPEG2. But sometimes it's out of the carriers' hands, too. Pay-TV content providers such as Discovery, ESPN, and HBO also compress their programs before beaming them to the cable and satellite services.

HDTV WEB SITES

High-Def Resources Online

HIGH DEFINITION CONTINUES TO evolve, so it's wise to keep up-to-date. The Consumer Electronics Association offers a useful primer on HDTV (find.pcworld/49884). For more insights from consultant Peter Putman, check out his site, HDTVExpert.com (www.hdtvexpert.com). You can discuss high-def matters from technologies to local reception with the denizens of High Def Forum (www.highdefforum.com).

"Standard-definition TV is unwatchable on HDTV."

WELL...THIS IS A case of hyperbole, not of outright fabrication. True, standard-def programming will never look as good as HD programming on an HDTV because of the scaling issues mentioned previously. But vendors are toiling to better the SD experience on their HD sets, and the success of these efforts varies between vendors and sets. So if you're expecting to watch standard-definition TV on an HD set, make sure that you do your own taste tests.

"I'll have to toss all my current analog sets when the digital conversion kicks in."

THOUGH THIS IS not strictly an HDTV issue, it is a common misconception about the digital transition, which Congress seems bent on completing by 2008. At that point your old sets won't be able to snag over-the-air broadcasts without help, but you should still be able to use them by buying inexpensive digital-to-analog converters. And cable or satellite boxes will still work because the service provider will take care of the conversion. Of course, you won't be able to experience HDTV on an analog set.

These may not be the only myths you'll encounter in your quest for the perfect HDTV—and you can't trust everything you hear (or see) in a showroom. So careful research is essential before you pay for what's likely to be the most expensive TV set you've ever bought. And that is the gospel truth. ■

Yardena Arar is a senior editor for PC World.

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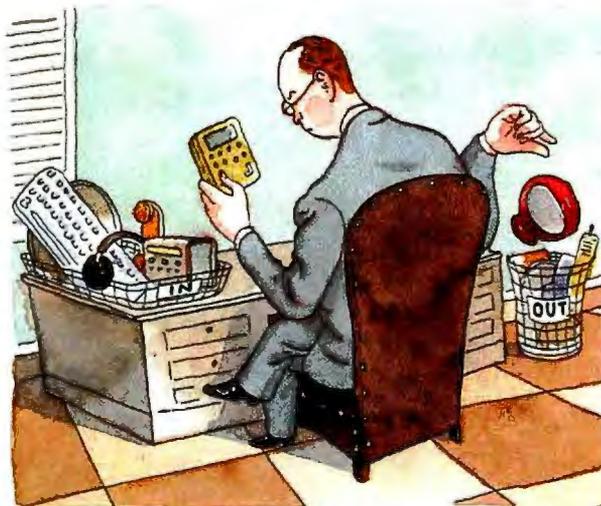
Holiday Tech Grab Bag: Gadgets to Love—or to Lose

A LOT OF GIZMOS cross my desk here at Gadget Central. Some I can't imagine living without; others I can't wait to return. In time for the holiday season, here are some of my favorite things, along with a few "what were they thinking?" items to avoid.

Easy listening: When satellite radio debuted, I hated it. But the content has improved so much since then that now I won't go anywhere without it. I just stick Tao's portable XM2Go (\$299, www.taolife.com) in my pocket and then drop it in my home or car docking station when I return. The Tao also stores 5 hours of XM programs for times when the signal fades.

In a sling: Sling Media's Slingbox (\$250, www.slingmedia.com) records TV shows that you can watch on any broadband-connected computer. I linked it to my TV and Wi-Fi router, and spent the next 90 minutes troubleshooting my router settings and system software. All that for the chance to watch a jittery rerun on a laptop at some Wi-Fi hotspot in Timbuktu. I'll take plain old TV, thanks.

Pretty fly: Firefly's kid-friendly cell phone (\$99, www.fireflymobile.com) has no keypad, just brightly colored buttons for "mom," "dad," and 911, plus



Full-motion video phones?
Some things are better left to
the imagination.

a 20-number phone book. You program the numbers they can call and those that can call them, and buy service in 30-minute chunks (at about 25 cents a minute), so your preteens can't send your bills through the roof.

The no Wi-Fi zone: I was impressed when UTStarcom's F1000 Vonage VoIP phone (\$100, www.utstar.com) automatically logged on to the nearest Wi-Fi network, regardless of who owned it. But if you wander too far from the access point, the line gets crackly and then

dies. So until a seamless Wi-Fi cloud blankets the world, I'll stick with my cell phone.

Pocket pix: The iAudio X5 from Cowon (20GB model, \$299; 30GB model, \$349; www.cowonamerica.com) is a slick MP3 player that also displays videos and text on a 1.8-inch screen. You can record songs directly from a CD player and transfer videos using its software. You wouldn't want to view a whole film on one, but it's a nice way to share home movies, and I'd pick it over a Microsoft-based portable media player.

Ojo? Oh no: Motorola's Ojo Personal Video Phone (www.motorola.com/ojo) does an okay job of delivering full-motion video conversations over a broadband connection. But most people (including me) sound better than they look. The price is kind of ugly, too: \$800 per phone—you'll need at least two—plus \$15 a month for the video service. Some things are better left to the imagination.

Sound works: The impressive Cambridge SurroundWorks 200 (\$1000, www.cambridgesoundworks.com) combines a DVD player/tuner, a subwoofer, and a three-speaker system in one box. Using acoustic virtualization, the system convincingly mimics a 5:1 home theater system. Installation is a snap; you can adjust the speaker to emphasize surround-sound, dialogue, or music; and when I cranked up the subwoofer, it rattled all the windows and scared the pets. It isn't cheap, but setting up a home theater doesn't get much easier.

Pass the buck: Buck the Animated Trophy (\$149, www.gemmy.com), a life-size replica of a mounted deer head, bursts into song when you walk by. The mouth moves, the ears wiggle, the head rocks from side to side... it's all very disturbing. When you tire of "Sweet Home Alabama" and "Friends in Low Places," use the wireless microphone to supply your own Bambi-esque karaoke. If you loved *Hee Haw*, you'll probably like Buck, too. Everyone else should pass. ■

Contributing Editor Dan Tynan is making a list and checking it twice (so you'd better be nice).

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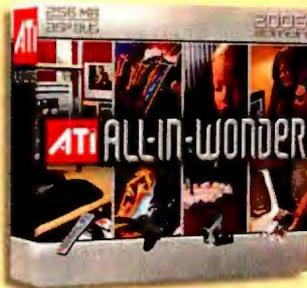
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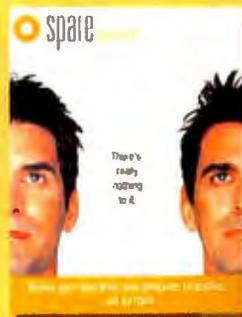
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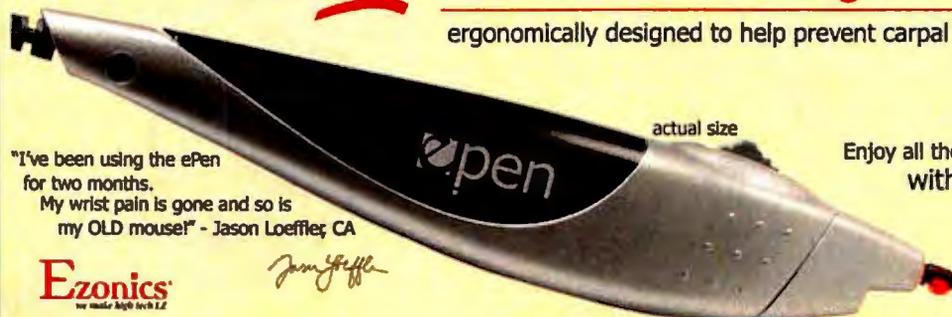
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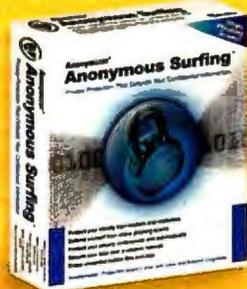


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NETWORKING TIPS

SCOTT SPANBAUER

Windows, Mac, and Linux PCs on the Same Network

THE VAST MAJORITY of computers in the world's homes and offices run Windows. However, humankind does not live by Windows alone. Apple's killer combination of top-notch hardware and a secure, stable, feature-rich operating system in OS X has convinced many Windows users that the modern Macintosh is a superior system for various uses. And with its open-source underpinnings and seemingly endless array of free software, Linux is attracting the attention of more nongEEKs.

Unfortunately, sharing files, printers, Internet connections, and other resources on machines running Windows, OS X, and Linux isn't always easy. The following tips will help you get these operating systems to play nicely with each other.

First, update your software. For example, early versions of Mac OS X (up to and including 10.2) let you connect to Windows files and printers, but only with major coaxing. Later versions of OS X use Windows' Server Message Block protocol

to facilitate connecting to and sharing with non-Macintosh PCs. In several important ways, however, OS X's support for Windows' shared resources remains broken (find workarounds for OS X version 10.4.2—the most recent, at this writing—near the end of the next page).

Like OS X, Linux supports Windows-style sharing through SMB. Though there are many versions of Linux with varied graphical interfaces, for this column I tested SuSE Linux 9.3 (the latest version) with the KDE 3.4 graphical environment. SuSE is one of the easiest Linux distributions to configure and use.

TWEAK YOUR SHARE SETTINGS

Windows: Sharing files and printers on Windows XP systems is disabled by default in Service Pack 2, but enabling this feature is pretty easy. Right-click *My Network Places*, choose *Properties*, right-click the network connection through which you want to share files, select *Properties* again, check *File and Printer Sharing for Microsoft Networks*, and click OK (see FIGURE 1). Now your Windows XP system can share files and printers—all you have to do is tell it what to share.

To share a folder (and its files and subfolders) with other computers on the network, right-click it in Windows Explorer or any folder window, choose *Sharing and Security*•*Sharing*, and check *Share this folder on the network*. To allow people using other computers on the network to alter or delete the files, check *Allow network users to change my files*. Then click OK. To allow other computers on the network to use a printer connected to your PC, click *Start*•*Printers and Faxes*, right-click the printer (or fax modem) that you want to share, choose *Sharing*, select

180 NETWORKING TIPS

It's one big, happy world when Windows, Mac, and Linux machines can access the same files and resources.

184 WINDOWS TIPS

Retrieve your files quickly by assigning them keywords; open Start menus as folders, and vice versa.

186 HARDWARE TIPS

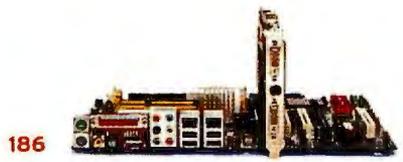
Get acquainted with the ports, slots, and other new features that are found on the 21st-century PC system board.

190 ANSWER LINE

Create an emergency boot CD for PCs without floppies; back up your device drivers; free and low-cost encryption utilities; take a stretch break.

192 MAINTENANCE TIPS

Keep trouble from taking up residence in your PC by following our columnists' top tips for a smooth-running machine.



186

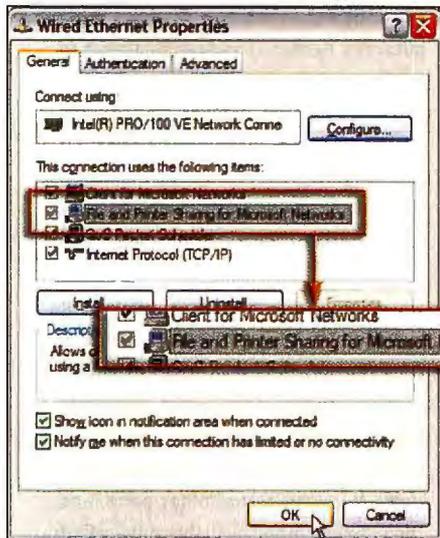


FIGURE 1: SET XP TO SHARE resources on the local network with a couple of clicks.

Share this printer, enter a name for the printer in the text box, and click **OK**.

Macintosh: To share your Mac's files and printers with other computers, launch *Sharing* in System Preferences, select *Services*, enter a descriptive name for the computer in the Computer Name field, and check *Windows Sharing*. To share your Mac's Public folders only with other Macintosh computers, check *Personal File Sharing* instead. If you'd like to specify the printers you want to share, open *Print & Fax* in System Preferences, check *Share these printers with other computers*, and select the appropriate printers.

OS X's default file-sharing security is tighter than Windows XP's. To connect to a shared file or printer, you need to enter the user name and password of an existing account on the OS X computer. If you are accessing your Mac's resources from a non-Mac PC, just use your usual OS X log-in from the non-Mac system. But if

you're creating a share for others, you may prefer to protect your own account by creating a separate Mac account for them (click *Accounts* in System Preferences to do so). To enable Windows Sharing for a specific account, open *Sharing* in System Preferences, click *Accounts*, check the account you want to enable, enter its password, click **OK**, and then click *Done*.

If you recently upgraded to OS X 10.4 from an earlier version, Windows Sharing log-ins will fail until you reset the account password in System Preferences' Accounts settings.

Linux: To share files and printers in SuSE 9.3 with KDE 3.4, use the YAST configuration utility. Simply open the program, enter the root password when prompted, select *Network Services* in the left pane, and click *Samba Server*. After YAST detects your configuration, enable or disable your preferred shared resources (such as printers and home directories), click the *Start Up* tab, select *On—Start Service when Booting*, and click *Finish*. The next time you boot Linux, your file and printer shares will become available to other computers on the network.

MAKE THE CONNECTION

Windows: To connect to shared Windows files and printers from Windows XP, open *My Network Places*. The main window will display icons of any file shares you've connected to in the past; if you're networking for the first time, it won't show any. To see what network resources are available to you, click *View workgroup computers* and click a networked computer's icon to identify the shared resources

it has to offer. The computer you're using will also appear there if it is configured to share files or printers. Once you see a shared folder, you should be able to open it as you would a local folder. If no computers appear, don't give up. See "Teach Your OS to Share" on page 182 for some common solutions to this problem.

Connecting to a shared printer is similar. Open *Printers and Faxes*, and click *Add a printer* in the task pane on the left. Click *Next* to move to the Add Printer Wizard's 'Local or Network Printer' page. Select *A network printer or printer attached to another computer*, and click *Next* twice. Browse the network for printers (if none show up, see "Teach Your OS to Share" for tips on jump-starting your network connection). Select the printer you want to add, click *Next*, and work through the prompts to complete the installation.

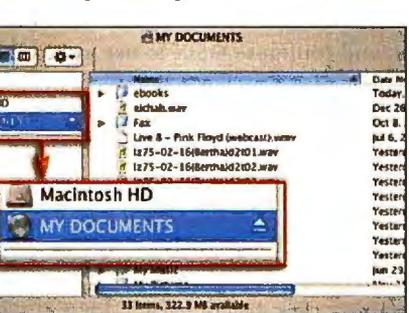


FIGURE 2: LOOK FOR LINKS in the Finder window after you have connected to shared Windows folders in OS X.

er computer, and click *Next* twice. Browse the network for printers (if none show up, see "Teach Your OS to Share" for tips on jump-starting your network connection). Select the printer you want to add, click *Next*, and work through the prompts to complete the installation.

Macintosh: If you want to browse Windows file shares via OS X 10.4, choose *Go>Network* in the Finder. Among the icons displayed in the Finder window should be one with the same name as your Windows workgroup. Double-click it to see the computers with file shares that are currently available on the network. Double-click an icon to display the ▶

computer's shared folders. OS X will ask you to enter a password to access the PC's shares, even if none is actually required—simply click *OK* to proceed. Next, from the pull-down list, select the shared folder

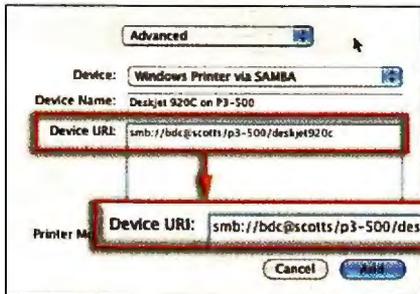


FIGURE 3: ENTER THE ADDRESS of the XP printer in OS X's Print & Fax preferences.

you want to connect to (OS X refers to these as SMB/CIFS shares), and click *OK*. The share will now appear as a link in the Finder's sidebar—click it to display its files and subfolders (see **FIGURE 2**).

Accessing a shared Windows printer from your Mac requires a few more twists and turns. You should be able to browse to and configure OS X to use a shared Windows printer, but in my experience—and that of others—the Mac OS's graphical printer setup is broken. Based on my tests, the resulting printer connection consistently fails because the printer's address is botched. To fix a jumbled network printer address, click *Applications>Utilities>Printer Setup Utility*, select the affected printer from the list, click *Show Info*, and type the printer's correct network address in the location field.

Another way to connect to a shared Windows printer from a Mac is to launch System Preferences, double-click *Print & Fax* in the Hardware section, click the plus sign to launch the printer browser, press the **<Option>** key as you click the *More Printers* button, select *Advanced* from the pull-down list of printer types at the top of the next dialog box, and choose *Windows Printer via SAMBA* in the list that appears below it. Enter a descriptive

name for the printer in the Device Name field, and then complete the Device URI: address using the format `smb://user@workgroup/server/printer`, where *user* is your user name, *workgroup* is the name of the workgroup the printer is shared on, *server* is the system sharing the computer, and *printer* is the shared printer (see **FIGURE 3**). Select the printer's manufacturer on the *Printer Model* pull-down list and its model name in the list that appears after that. Finally, click *Add*.

Linux: To view shared Windows folders in SuSE 9.3 with KDE 3.4, open the *Network Browsing* icon on the KDE desktop and select the *SMB Shares* icon in the Konqueror file manager window that opens. After a short delay, you should see icons for all of the Windows workgroups available on your local network. Open a workgroup icon to view the computers that have shares available. Open an individual computer icon to view its shared folders—it's just like browsing the network in Windows XP.

Unfortunately, the KDE Konqueror browser just doesn't talk properly to OS X 10.4's Windows shares. The workaround is to connect to the OS X share explicitly: Launch the *Network Browsing* link (or choose *Go>Network Folders* in Konqueror), click *Add a Network Folder*, select *Microsoft*

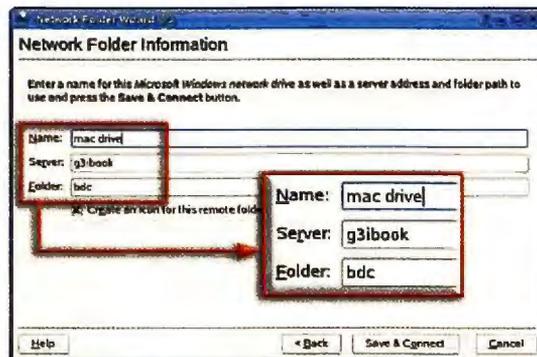


FIGURE 4: CONNECTING A LINUX system to a Macintosh's SMB shares requires that you enter the addresses by hand.

Windows network drive, and click *Next*. Enter a name for the share connection in the Name field, the name of the Macintosh computer you want to connect to in the Server field, and the name of the folder the Mac is sharing in the Folder field (see **FIGURE 4**). Click *Save & Connect*; KDE

OS TOOLBOX

Teach Your OS to Share

IF FILE OR PRINTER sharing doesn't work on your network of Windows, Mac, and Linux PCs, there's likely a solution.

Check your firewall: Though most third-party PC firewalls (such as Zone Labs' free ZoneAlarm) allow other Windows systems on the network to share files and printers, they may block access to and from the network's non-Windows computers by default. If you can't connect to a Windows share from a Mac or Linux machine even though other Windows PCs on the LAN can, disable the firewall. If this does the trick, add the local addresses or PCs to the firewall's trusted zone or address range, and fire it up again.

Try another workgroup: The default workgroup name in XP is MSHOME, but in earlier versions of Windows and in Mac OS X the default is WORKGROUP. If a PC with a shared resource fails to show up in Explorer's list of workgroup computers, click the Up icon or select *Microsoft Windows Network* in the folder pane, and then click another available network (if any) to view its computers. To see all your shares, configure them (if possible) as members of the same workgroup.

Have patience: It can take several minutes for a new share to show up in another computer's network window. To connect to a share directly in Windows, enter its path (such as \\computername\share-name) in Explorer's Address field.

will then prompt you to enter the share's OS X user name and password, after which it will create a link to the folder in the Network Browsing folder.

The process of connecting to a shared Macintosh printer from Linux is easier because both systems use the Common Unix Printing System. The shared Macintosh printer should show up automatically in your list of printers when you go to print in your Linux application. ■

Contributing Editor Scott Spanbauer writes the monthly Internet Tips column. His byline first appeared in print in the November 1986 Issue of Macworld.

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Go to find.pcworld.com/49610

WINDOWS TIPS

SCOTT DUNN

Find Your Files Faster by Giving Them Keywords

I DEPEND ON numerous critical documents to run my small business. All too often, I can't recall where I stashed a particular document. For example, I need to be able to search for JPEG files based on keyword or title. VCom's \$50 PowerDesk Pro file-management utility [find.pcworld.com/49510] and other programs allow you to add such metadata to media files; but I'm concerned that assigning keywords to media might be a waste of time if, for some reason, I can't access the keywords five years from now.

Michael Ernstoff, Los Angeles

YOU MAY BE able to annotate your files in Windows Me, 2000, and XP without requiring any additional software. For many file types, Windows permits you to add your own keywords and comments, which it stores with the file and lets you

START MENU OR FOLDER?

Windows 2K XP 98 ME IF YOU USE Windows Me, 2000, or XP, you may have converted your Start menu to display Control Panel (and also My Computer, My Documents, My Music, and My Pictures) as a menu. (To do so, right-click the Start button, choose *Properties*, click *Customize* on the Start Menu tab, select the *Advanced* tab, and choose *Display as a menu* under Control Panel.) But what if sometimes you want to see Control Panel in a standard folder window? Just right-click *Control Panel* (or any other Start menu submenu) and choose *Open* or *Explore*. In versions of Windows other than XP and its fancy new Start menu, you can double-click a submenu name to open its folder.

locate using its built-in search function. Just which files you can annotate depends on your version of Windows and on the other software installed on your PC. In XP, annotatable files may include JPEG and TIFF images; MP3 and WMA audio; WMV video; and Word, Excel, and other Microsoft Office files. Windows Me and 2000 users should be able to work with Office files and perhaps other types of files as well.

First, open Windows Explorer, right-click the file you want to add keywords or other information to, and choose *Properties*. If the Properties dialog box doesn't have a Summary tab, you're out of luck. If it does, click the *Summary* tab. (If you see a button labeled << *Simple*, click that too.) Fill in the Title, Subject, Author, Keywords, Categories, and/or Comments fields as you wish (see **FIGURE 1**). If you would like to enter more metadata (except in Windows 98), click the *Advanced >>* button. The text boxes may not be apparent until you click to the right of a category name under the Value heading (see **FIGURE 2**). Enter your keywords, click *OK*, and repeat these steps for each file you may search for in the future. Unfortunately, you have to do this procedure one file at a time; if you try to open a Properties dialog box for multiple files, the Summary boxes will be disabled.

In a few cases, you may be able to add and modify a file's metadata directly within the program you use to edit it. For

example, in Microsoft Word and Excel, just choose *File>Properties* to adjust the metadata for the file. Make sure the Summary tab is in front, and then fill in the boxes with your keywords of choice.

Whenever you need to find one of your annotated files, choose *Start>Find>Files or Folders*, *Start>Search>For Files and Folders*, or *Start>Search>All files and folders* depending on your version of Windows. Type one or more of your keywords in the box labeled 'Containing text' or 'A word or phrase in the file', depending on your Windows version. Specify any other desired search criteria, and click *Search* or *Find Now*. Windows will detect your keywords and retrieve the file(s) you seek. ■

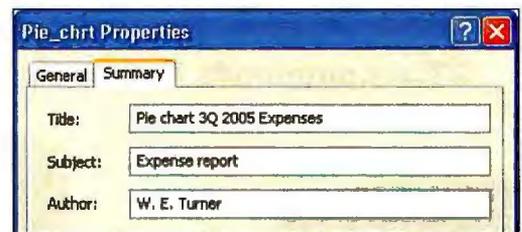


FIGURE 1: ADD, EDIT, STORE, AND VIEW metadata for various file types in Windows' File Properties dialog box.

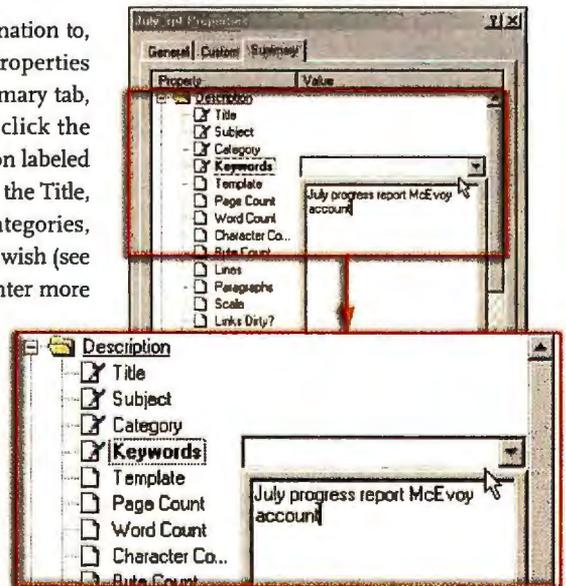
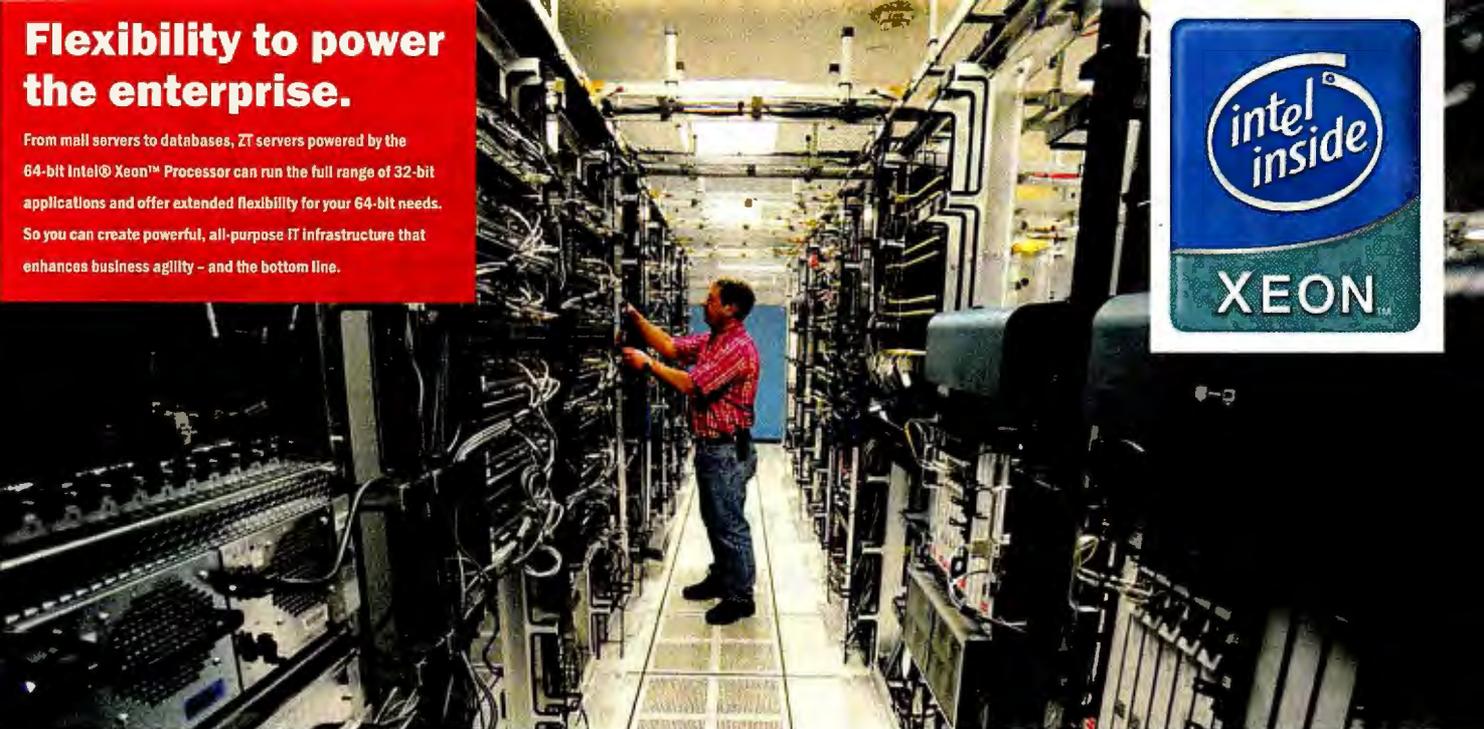


FIGURE 2: TEXT BOXES MAY NOT appear in Windows Me or 2000 until you click to the right of the category name.

Send Windows-related questions and tips to scott_dunn@pcworld.com. We pay \$50 for published items. Visit find.pcworld.com/31607 for more Windows Tips. Scott Dunn is a contributing editor for PC World.

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HARDWARE TIPS

KIRK STEERS

A Tour of the Thoroughly Modern Motherboard

WHETHER IT'S TO install a new graphics card, add RAM, upgrade your hard drive, or slap in a new power supply, sooner or later you'll open your PC's case and plug something into your motherboard. If you haven't looked inside a PC in the last year or two, you may not recognize everything there. For starters, most new motherboards include PCI Express x16 and other new connectors. Here's a tour of today's motherboard.

CPU: A processor rarely needs replacing, and CPU upgrades are seldom cost-effective. But because new CPUs run hotter than their predecessors, you'll find more heat-sink fins within the PC's case. It's crucial to periodically blow out the dust that impedes their efficiency. If you want to beef up your PC with a faster CPU, you may need to upgrade the CPU cooling fan as well. An extra hard drive, a high-end graphics card, or an overclocked CPU can also cause your system to overheat. For more on keeping your computer cool, go to find.pcworld.com/49352 to read my February 2002 column, "A Cool Breeze Keeps Your PC's Innards From Frying."

RAM: Adding memory to your PC is often the simplest and least expensive way to give it more oomph. But RAM types are always changing—DDR2 is the latest and fastest flavor. In fact, the trickiest part of a RAM upgrade is finding the right type and capacity of RAM modules for your PC. Visit find.pcworld.com/49354 for Stan Miastkowski's step-by-step instruc-

tions on installing RAM. And to keep an eye on your available memory, visit find.pcworld.com/49900 to download the no-cost FreeMem utility (see FIGURE 1).

PCI Express slots: Many high-end PCs now have PCI Express (PCIe) expansion slots in addition to standard PCI slots,

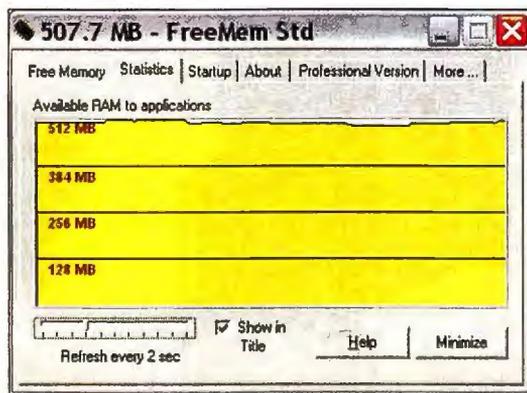


FIGURE 1: KEEP AN EYE ON your PC's memory usage in real time via the FreeMem freeware utility's Statistics tab.

which have been around for years. PCIe slots provide up to 30 times the throughput of the PCI bus and will eventually replace both PCI and AGP slots. Fortunately, your old PCI sound, network, and other expansion cards won't be orphans for a while; today's transitional motherboards have both PCI and PCIe slots.

You may not be able to use your current AGP graphics card in your next PC, however. Most new PCIe motherboards sold in this country use a PCIe x16 slot, rather than an AGP slot, for graphics cards. Systems supporting AGP 8X and PCIe x16 may be in the pipeline, though: Chipmaker Uli has announced a new chip set that supports both AGP 8X and PCIe x16.

PCIe slots come in different lengths,

corresponding to the amount of data they can move. PCIe x1 slots replace the standard PCI port and are about 1 inch (or 26mm) long. They move data on and off the motherboard at up to 250 MBps in each direction at once. The PCIe x16 slot that replaces the AGP graphics-card slot is 90mm (about 3.5 inches) long, just like a PCI slot. A PCIe x16 slot can move data—you guessed it—up to 16 times faster than an x1 slot can: as fast as 4 GBps in each direction simultaneously.

SATA bus: Serial ATA (SATA) replaces the slower parallel ATA (also called PATA or EIDE) that manufacturers long used to link hard drives and optical drives to the motherboard. SATA ports first appeared on motherboards more than two years ago; many SATA motherboards have PATA connectors as well.

SATA connectors are smaller than their PATA counterparts and support only one drive at a time—so you don't have to fuss with jumpers to set a drive to master or slave as you might with PATA. The thinner SATA cable doesn't clutter the inside of a PC case as thicker PATA cables do; most important, the smaller cable reduces the chance of overheating (the wider PATA cables can restrict airflow in the case). SATA connections are easy to extend outside the PC case to accommodate external hard drives and optical drives.

SATA drives require a special power connector in place of the standard 5V connector used for IDE drives. Many new PCs come with a SATA power connector, but older machines typically don't. You can purchase an inexpensive (\$5 to \$10) adapter for converting a 5V connector to SATA at your local electronics store.

LIGHT AND SOUND

DVI port (not shown): Most new monitors and graphics cards are fitted with Digital Video Interface ports instead of the VGA connectors used by analog CRT monitors. DVI delivers digital video but no sound.

HDMI port (not shown): Some high-end PCs have a High Definition Multimedia Interface port, which seems likely to succeed DVI. The slimmed-down, USB-like HDMI connector is easier to handle than a DVI connector, and it delivers both ►

PERFORMANCE

1

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MOTHERBOARD UNDER THE MICROSCOPE

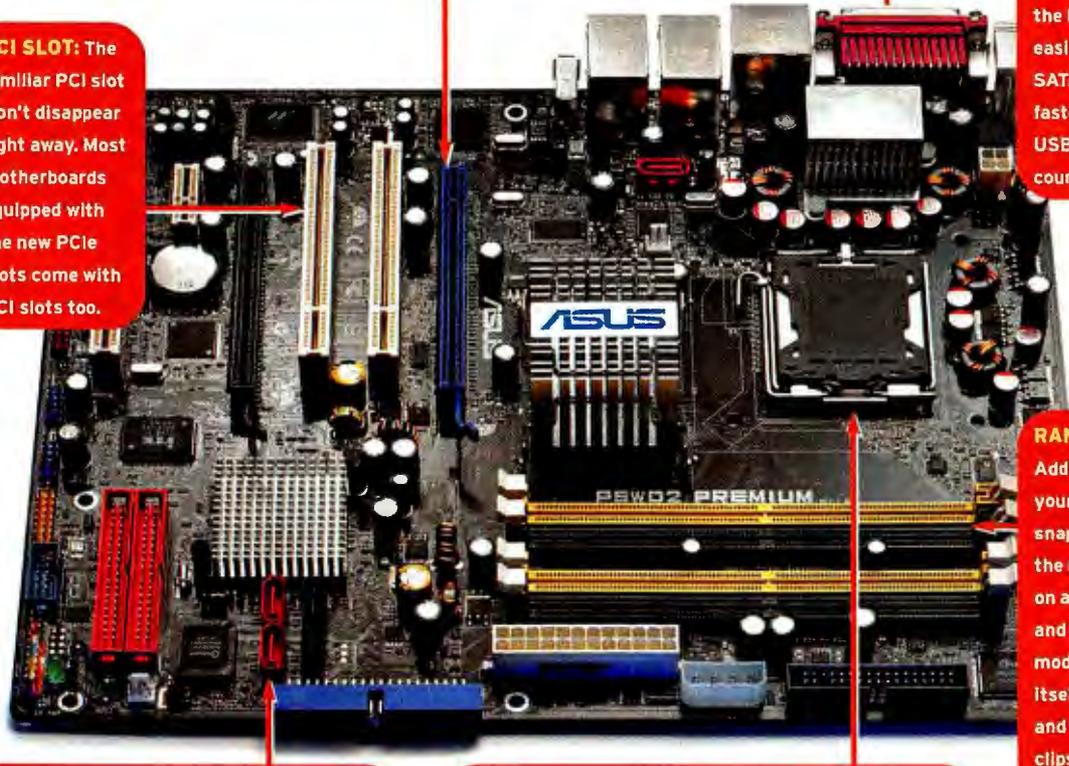
PCI EXPRESS SLOT: PCI Express (PCIe) expansion slots will eventually replace the PCI and AGP expansion slots that have been used in nearly all computers for several years. The standard PCI Express x1 slot is about 1 inch (26mm) long; the x16 slot (replacing the AGP slot for graphics cards) is the same length (90mm or 3.5 inches) as existing PCI slots.

PCI SLOT: The familiar PCI slot won't disappear right away. Most motherboards equipped with the new PCIe slots come with PCI slots too.



Reverse angle

EXTERNAL SATA CONNECTOR: An advantage of SATA over PATA is that manufacturers can place the SATA connector outside the PC's case for easier connections. SATA devices are faster than their USB and FireWire counterparts.



INTERNAL SATA CONNECTOR: The serial ATA interface supports more bandwidth than its predecessor, parallel ATA. SATA also greatly simplifies connecting hard drives and optical drives to your motherboard.

CPU SOCKET: You will probably never need to swap out your CPU because your system's other components will become outdated first. However, if you do upgrade your CPU (or overclock your current one—see find.pcworld.com/49360), you may need a more efficient cooling fan.

RAM SOCKET: Adding memory to your system is a snap, literally. Place the memory module on an open socket and push gently. The module will seat itself in the socket, and the retaining clips at either end will snap shut by themselves.

digital video and digital audio—a welcome simplification for home entertainment systems. Note: HDMI also uses the HDCP copy-protection scheme that enables content providers to control the number of times customers can copy HDTV and other high-definition content.

To connect a PC or graphics card that has a DVI port to a monitor that has an HDMI port (or vice versa), use an adapter such as the High Performance HDMI to DVI Video Adapter (\$30) available from Monster Cable (find.pcworld.com/49358).

S/PDIF port (not shown): Ultimately,

every digital audio signal must be converted to analog in order to drive the flexible diaphragm in a speaker that generates the sound. On many PCs, the sound card converts digital audio to analog signals, which are then sent to the speakers. Digital speakers—such as those using USB connections—perform the digital-to-analog conversion within the speaker.

The longer an audio signal remains digital, the better the sound quality is. That's why many high-end and some midrange PCs now come with a Sony/Philips Digital Interface Format (S/PDIF) port that

carries the digital signal directly from the motherboard to the speakers (with no sound card or external device intervening). Look for a small square connector—called a Toslink connector—on the back of your PC or sound card. ■

Go to find.pcworld.com/31511 for past Hardware Tips columns. Send your tips and questions to kirk_steers@pcworld.com. We pay \$50 for published items. PC World Contributing Editor Kirk Steers is author of PC Upgrading and Troubleshooting QuickSteps from McGraw Hill/Osborne Press.

PHOTOGRAPH: MARC SIMON



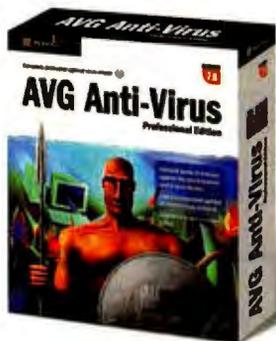
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ANSWER LINE

LINCOLN SPECTOR

Emergency Boot CDs for PCs Without Floppy Drives

? YOUR NOVEMBER 2003 column ["What to Do When XP or 2000 Won't Boot," find.pcworld.com/49362] told how to make emergency boot floppies. What if your PC has no floppy drive?

Karl Whisenand, via the Internet

AN EMERGENCY BOOT CD will, like the floppy I described, get Windows running if your hard drive's boot sector or Windows' boot files are corrupted. This solution requires Gilles Vollant's WinImage (find.pcworld.com/49364), a \$30 program that has a 30-day free trial period.

Once you have WinImage installed, open Windows Explorer and select **Tools•Folder Options•View•Show hidden files and folders**. Uncheck **Hide protected operating system files (Recommended)**, click **Yes**, and then click **Apply**. Leave the Folder Options dialog box open, start WinImage, select **File•New•1.44 MB**, and click **OK**. Choose **Image•Boot sector properties**, select the

WinNT/2K/XP button, and click **OK**.

Now choose **Image•Inject** and navigate to your C: drive. Hold down the **<Ctrl>** key as you select the files **boot.ini**, **NTDETECT.COM**, and **nldr** (the extensions may not be visible; see **FIGURE 1**). Click **Open** and then **Yes**. Select **File•Save** and name the file **boot files**. In the 'Save as type' drop-down menu, select **Image file (*.IMA)**. Click **Save**.

Close WinImage and return to the Folder Options dialog box. Recheck **Hide protected operating system files (Recommended)**; you may also select **Do not show hidden files and folders**. Click **OK**.

Now create a bootable CD that employs an image file instead of an actual floppy. Point your CD authoring program to the image file **boot files.ima** that you just created, and then burn the CD.

GRAB DRIVERS OFF YOUR PC



IS IT POSSIBLE for me to back up all of the device drivers on my computer to a CD?

Alex Garcia, Miami

I'VE PREPARED a batch file that copies most (if not all) of your driver files. Browse to find.pcworld.com/49366 to download **driverback.bat**. Once it's on your system, double-click the file to create your backup.

The batch file copies the drivers (and a lot of extra files) to a folder called 'driverback' inside My Documents. Use your CD authoring software to copy the contents of this folder to a CD.

To reinstall drivers, use either Device Manager or Control Panel's Add Hardware applet to open the Hardware Update

Wizard. If the wizard doesn't automatically look for drivers on the CD, point to the CD drive when asked for a location.

PROTECT FILES AND FOLDERS



WHAT'S THE MOST effective way to password-protect my important files and folders?

Jomon Varghese

South Kalamassery, Kerala, India

THE ENCRYPTED File System in Windows 2000 and XP Pro makes files accessible only when you log on to the computer with the same user ID you used when encrypting the folder. Unfortunately, EFS is so tightly integrated into the file

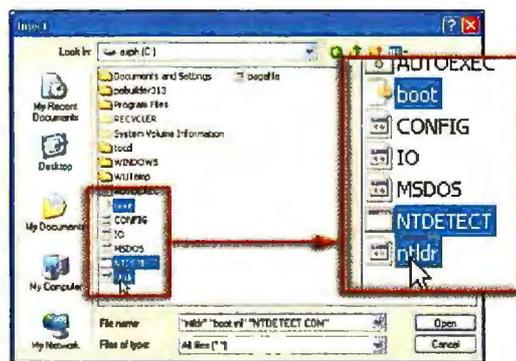


FIGURE 1: PLACE THE IMAGE of a boot floppy on an emergency boot CD by using the WinImage utility.

system—and so transparent to use—that a simple mistake can render your data accessible to others or inaccessible to you.

I prefer to use encrypted "safes" that open and close at my command. When closed, a safe is just a large file filled with gobbledygook. But when you run your decryption program and enter your password, Windows sees it as another drive—perfectly readable and writable.

Cypherix's free Cryptainer LE (find.pcworld.com/49370) creates virtual drives up to 25MB. The \$45 Cryptainer PE version (find.pcworld.com/49372) supports drives up to 25GB and uses stronger AES encryption in place of LE's Blowfish. ■

Send your questions to answer@pcworld.com. We pay \$50 for published items. See find.pcworld.com/31577 for more Answer Line columns. You'll find Contributing Editor Lincoln Spector's humorous and other writings at www.thelinkinspector.com.

DON'T TAKE A WINDOWS SLOW-UP SITTING DOWN

WHEN YOU CLICK an icon to launch a program, you may have to wait as Windows talks to the hard drive, swaps other programs out of RAM, and finally begins to open the new window. Then you wait some more as the program itself loads. Rather than sitting there drumming your fingers on the keyboard—or screaming at an inanimate object—use those precious few seconds to your advantage. Get up. Stretch. Look far away. Do a few jumping jacks (just watch out for ceiling fans). Sitting at a computer all day is not healthy. When Windows forces you to take a short break, make the most of it.



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MAINTENANCE TIPS

MICHAEL S. LASKY

Essential Trouble-Saving Tips Are Just a Link Away

EACH YEAR *PC World* publishes hundreds of tips to help you maintain, secure, troubleshoot, and improve the performance of your hardware and software.

read Lincoln Spector's March *Answer Line* on deleting unneeded uninstall folders.

Some aging PCs need a complete Windows restore. To get your system working the way it did out of the box, read Lincoln's tips from his March "Windows Rejuvenated!" feature (find.pcworld.com/49334).

Once you have Windows back in shape, set the OS to clean up after (and protect) itself. Lincoln tells you how in "Let Windows Handle PC Maintenance for You," from last July's *Answer Line* (find.pcworld.com/49348).

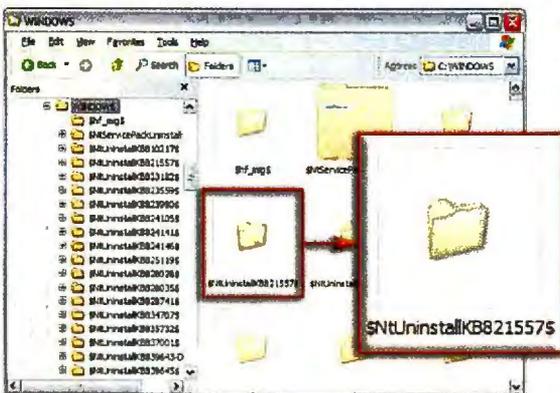


FIGURE 1: SAVE SPACE ON YOUR hard drive by deleting unneeded uninstall folders from past Windows updates.

Here are quick links to 11 top tips for the upkeep and protection of your system, peripherals, and data. Clip this page and keep it near your computer as an index to our essential PC maintenance tips.

LEAN AND MEAN WINDOWS

YOUR FIRST LINE of defense is a fully patched PC. To update Windows automatically in XP, right-click *My Computer*, click *Properties*•*Automatic Updates*, choose *Automatic (recommended)*, set a time for the updates (or accept the default), and click OK. For more, read last May's *Internet Tips* column by Scott Spanbauer, "It's Time to Update Your Internet Security Arsenal" (find.pcworld.com/49330).

To recover space on your hard drive, delete the massive uninstall folders that Windows creates for major updates (see **FIGURE 1**). Visit find.pcworld.com/49332 to

HARDWARE CURE-ALLS

FOR QUICK HELP with PC problems, Windows crashes, network snafus, uncooperative printers, and lots of other common computing conundrums, see Kirk Steers's "Five-Minute Fixes" from last January (find.pcworld.com/49336).

To nip PC troubles in the bud, read Kirk's August *Hardware Tips* column,

"Ten Quick Tips to Keep PC Trouble at Arm's Length" (find.pcworld.com/49350).

Kirk tells how to calculate the wattage needs of your PC's components—and ensure that your power supply can handle the load—in his April column, "Do the Math to Get Your PC All the Power It Needs" (find.pcworld.com/49339).

If your system is just slightly quieter than a fully loaded 747 at takeoff, check out Lincoln Spector's tips for turning the volume down on all your PC's components in "Quiet, Please! Cut Your PC's Clatter the Cool Way" (find.pcworld.com/49340), his October *Answer Line* column.

PREVENTIVE SECURITY

WE'VE SAID IT before, and we'll say it again: Think before you click! It's getting tougher to tell the legitimate e-mail links from the phishing hooks, as Scott Spanbauer discovered while researching last March's *Internet Tips* column, "Paranoia: The Best Defense Against E-Mail Attacks" (find.pcworld.com/49342; see **FIGURE 2**).

Andrew Brandt's July *Security Tips* column, "Identify Malware Hiding in Windows' System Folders" (find.pcworld.com/49344), described new pests lurking in Windows, and the free Process Explorer utility for unmasking these sneaks.

Finally, for safer Web browsing with Internet Explorer, check out Steve Bass's "Four Tips to Make IE More Secure," his September *Hassle-Free PC* column (find.pcworld.com/49346).

Former *PC World* Senior Editor Michael S. Lasky is now a freelance writer and PC consultant in San Francisco.

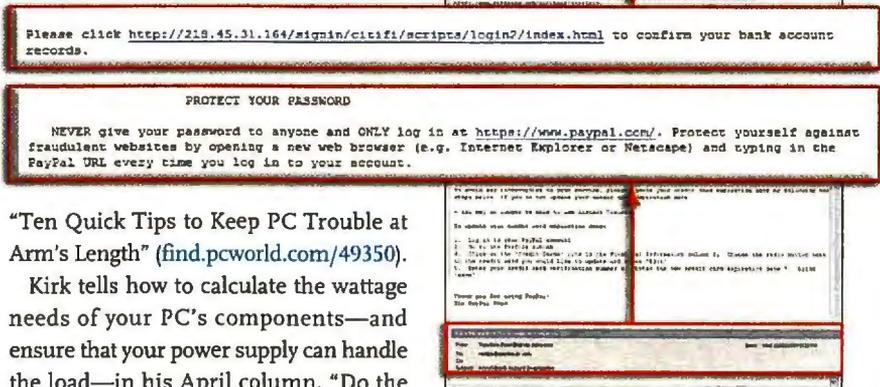


FIGURE 2: LOOK TWICE to tell the legitimate e-mail link from the bogus phishing attempt.

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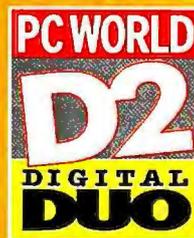


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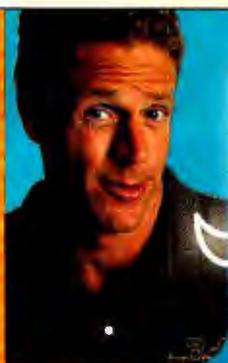


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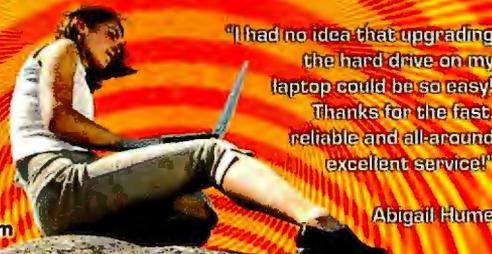
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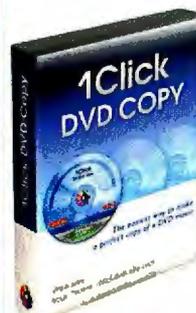


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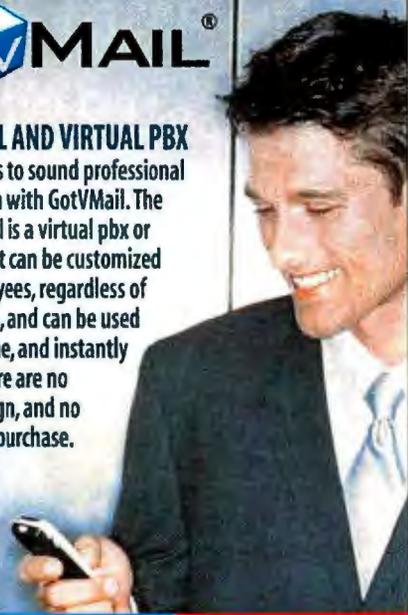
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PCs and Music: Imperfect Together?

MAYBE BILL GATES AND STEVE JOBS want a computer at the hub of their home entertainment systems. Maybe you do, too. But excuse me for believing that the PC music hub is an idea whose time has not yet come.

This insight hit me once again when I tried to install iTunes 5.0.1 (purportedly offering "several stability improvements over the original 5.0") on one of my Windows systems. When I rebooted—or attempted to—I discovered that it had rendered the PC effectively inoperative.

Every time I pressed the power button, the PC would display the Windows boot screen and then go into a dead hang. The thing wouldn't even boot via the <F8> key and Safe Mode. What saved me was the "Last Known Good Configuration" option—once I actually read the screen and figured out that in a typical bit of stupid Microsoft interface design you have to press the L key to make it work.

After the system's resurrection, iTunes reported that it was still trying to install

itself, a process I nipped in the bud with brief trips to Task Manager and Add/Remove Programs. A unique case? Nope. I found similar tales of woe on the Web. And then I remembered the time I bought a friend's daughter a \$100 iTunes gift certificate to go with her bat mitzvah iPod.

It worked for one entire song. Then iTunes deducted \$20 for two albums, but in lieu of tunes delivered two messages declaring that "an unknown error occurred." Since there was no phone number available for Mom to give Jobs's Tune Town a piece of her mind, she used online customer service—and never heard back. The problem, which arose in June 2004, did not get any response until

August, and the matter was finally resolved in September thanks only to my complaints to Apple PR folks. Will I ever buy music from Mr. Jobs again? Guess.

There may be something about music services that does not love PCs. When I installed a version of Napster on a different machine a few months ago, it crashed even harder—and, as I discovered when Chkdk

revealed dozens of cross-linked and otherwise munged-up system files, crashed irrevocably. That episode required a complete refurbishment of the hard drive from the restoration discs.

These incidents are hardly the only ones where digital media products don't work the way they should. I like the idea of Windows Media-based subscription music plans like Napster's and Yahoo's, but I hear enough horror stories to keep me listening to radio and buying CDs. And though Windows Media Center PC proponents always talk a good game, every Media Center I've tried has had serious failings. Devices for streaming entertainment over wireless networks add layers of complexity and awkwardness.

Decentralization isn't always a bad idea, either. If a CD goes bad—and I can't remember the last one that did—you're out a few bucks. When your hard drive with hundreds of songs on it goes bad, you may be out many hours of your precious time fixing the problem.

Add in the fact that most PC-based collections degrade the original's sound quality at least a bit, and it turns out that keeping all your music on a computer makes the most sense if you get your collection for free by stealing it—exactly what the iPod's packaging smirkingly advises against. I don't steal. So for me, for now, I'll continue to store my music library in a cabinet that software can't break. ■

Contributing Editor Stephen Manes is cohost of PC World's Digital Duo (www.pcworld.com/digitalduo) on public television. Visit find.pcworld.com/31595 to see more Full Disclosure columns.

**Music lovers, beware!
Your PC may trash your
tunes...and vice versa.**



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