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Three months AOL membership8



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1. Fire 255MB memory upgrade is only available direct from Totable when you purchase one of the advertised Totable intercolor of this specific software. It is passed to the property of the p

# **CLIP & SAVE BONUS**

hold only 1 hour of video at the maximum bit-rate and imagequality settings. Other encoders such as DivX, MPEG-4. and H.264 can shrink a given video file size by about half, enabling you to safely fit nearly 7 hours of content on a single DVD without seeing any significant diminution in image quality. The catch: To play back the video you create, you'll need either PC software that supports the codec you used or a DVD player (or handheld video device) that can play these new formats.

### CREATE A PHOTO SLIDE SHOW

MOST BURNING SUITES allow you to perpetually revisit an exotic getaway or momentous event by creating a slide-show DVD replete with your selection of music and digital images. Even better, you can archive the full-resolution original images on the same disc.

### AUTHOR YOUR DVD MOVIE

DVD BURNING SUITES and other authoring software let you create professional-looking navigation menus, and let you add chapter marks for jumping to specific sections in your video.

MEDIA TIPS

COPYING TIPS

# Convert From VHS to DVD

BUY A DUAL-DECK RECORDER. Bar none, VCR-DVD recorder combo decks offer you the most expedient and convenient means of transferring analog tapes to disc. Priced at about \$400, these decks typically have a one-touch copy button that automates synchronizing the start of your VHS source tape with the start of the DVD recorder. If you prefer to fiddle with cables, any DVD recorder can copy video input from a VCR's composite or S-Video connector.

CORRECT IMAGE PROBLEMS BY CHANGING CABLES.

When you hook up a VCR, a camcorder, or another analog source to your DVD recorder, you may notice an image problem, such as banding running across the screen. Faulty or cheap wires (like the ones that come bundled with a VCR or DVD recorder) could be at fault. Before assuming that your TV or recorder is on the fritz, invest in higher-quality (usually gold coated) cables.

# **Burn Your DVD**

### CHOOSE YOUR WRITE SPEED

FOR OPTIMAL performance, make sure the write speed corresponds to the speed rating of the media you're using. To maximize the quality of your burned disc and to avoid buffer underruns (especially if you plan to use your PC while you burn a disc), try bumping the recording speed down a notch.

### SELECT MULTISESSION OR FINALIZE

with write-once DVD+R and -R, you can opt to add data to the disc at later times (called a multisession write) or to lock the disc so that you can't add more content (called disc finalization). For video, if you want to play your disc in other players or recorders, you'll have to finalize the disc. For data, most PC DVD drives can read a multisession disc that hasn't been finalized.

# DVDs: Handle With Care

AVOID DIRECT HEAT AND LIGHT. Keeping your DVDs on a closet shelf won't ruin them, but leaving them near a sunny window might. The disc's dye layer is sensitive to heat and light; and if either affects the disc, its data may become unreadable.

LABEL WISELY. Adhesive labels are difficult to apply evenly—and could cause problems if the disc is poorly manufactured. A better bet is to use an inkjet printer that supports writing to printable media. Stay away from alcohol-based pens, too; water-based pens are safer for the discs.

CLEAN DISCS CAREFULLY. Use a lint-free cloth (see left), compressed air, or a liquid cleanser intended for use with DVD media. Dust and other airborne particles can scratch a disc. When cleaning with a lint-free cloth, clean in linear strokes from the inside of the hub toward the outside of the disc- never use a circular motion. And never use a tissue, paper towel, or random rag.

### DRAG AND DROP DATA FILES

IF YOU'RE USING rewritable media, you can simply drag and drop files in Windows Explorer, as if the DVD burner were a floppy drive. The ±RW disc you create will use the UDF file system; PCs that run Windows 2000 or XP can read the disc, but Macs cannot.

### VERIFY YOUR DATA

THIS FINAL STEP is tedious but necessary—especially if you are backing up critical data or making a one-of-a-kind video disc. Verifying your data is your best means of confirming that the software made an accurate copy of your files, and that the disc didn't have an unexpected problem during the burn.

# **PCWORLD**

# Instant Reference Guide to Creating DVDs

Whether you're archiving data or making your own movie masterpieces, these tips will help you get the most out of burning DVDs.



### **BUY HIGH-QUALITY BLANK DISCS**

IN A COMPREHENSIVE study by the National Institute of Standards and Technologies, researchers found that name-brand media were more reliable and compatible than generic discs.

### FOR BURNING VIDEO, USE DVD+R OR -R

THESE DISCS ARE typically best for one-time use; you can also append

SHOPPING TIPS

# Buying a DVD Burner

DVD WRITE SPEEDS
have rapidly jumped,
leading to a glut of
older, slower
drives on store
shelves. Don't skimp
on speed, even though older 8X
drives are available at bargain prices.
The latest 16X burners may cost a bit
more, but they shave a couple of minutes off a full-disc burn. The newest
drives can write at up to 16X on
DVD±R, and they support writing to

8.5GB double-layer discs, too.

data to a disc over time, but you'll be able to play the disc in other devices only after you've finalized its content.

### FOR PROJECTS, USE DVD±RW OR -RAM

FOR ROUTINE DATA backups, ongoing research reports, or video editing, use DVD±RW or DVD-RAM. These disc types can hold data or video (though DVD-RAM discs have limited compatibility on stand-alone DVD players). Each format has a corresponding Video Recording mode. This simplifies the task of doing video editing on disc but reduces the disc's playback compatibility with other players and recorders.

### PAY ATTENTION TO MEDIA'S X-RATING

TO GET THE BEST speed out of your drive, use media that matches your drive's speed rating. With standalone DVD recorders, media speed is less critical, since you record television in real time. (Only recorders equipped with a hard drive require faster media, to enable high-speed dubbing at up to 8X.)

### CHECK DRIVE FIRMWARE UPDATES

DRIVE MAKERS continually update the firmware for their burners, to provide support for additional media. Install the latest update to ensure that your drive runs at maximum capability.

# Prepare Your Content

### ORGANIZE DATA FILES

COLLECT THE FILES you'll likely want to burn, and store them in one place—for example, inside My Documents. This will make it easier to find the data you want to transfer to disc.

### IMPORT AUDIO AND VIDEO

USE AN AUDIOVISUAL input box connected to your PC via USB 2.0, or use a TV-tuner card or other graphics

card that has A/V inputs. If you can, work with S-Video for optimal clarity and with FireWire to enable a digital connection between a DV camcorder and a PC.

### PACK MORE VIDEO ON A DISC

USE A DIFFERENT video codec or lower the bit rate to fit more data on a disc. MPEG-2 is the standard codec for DVD-Video, but with it a disc can

Continued on the other side.





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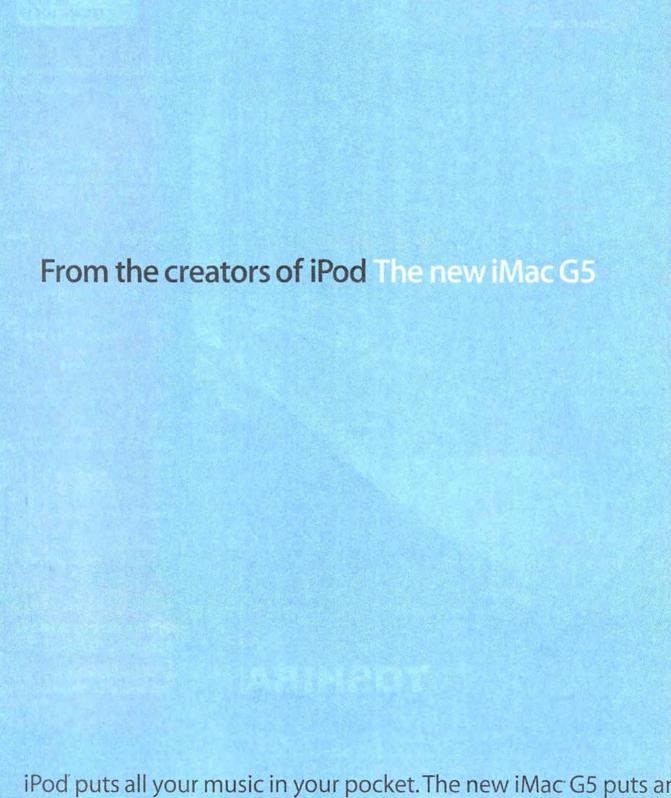
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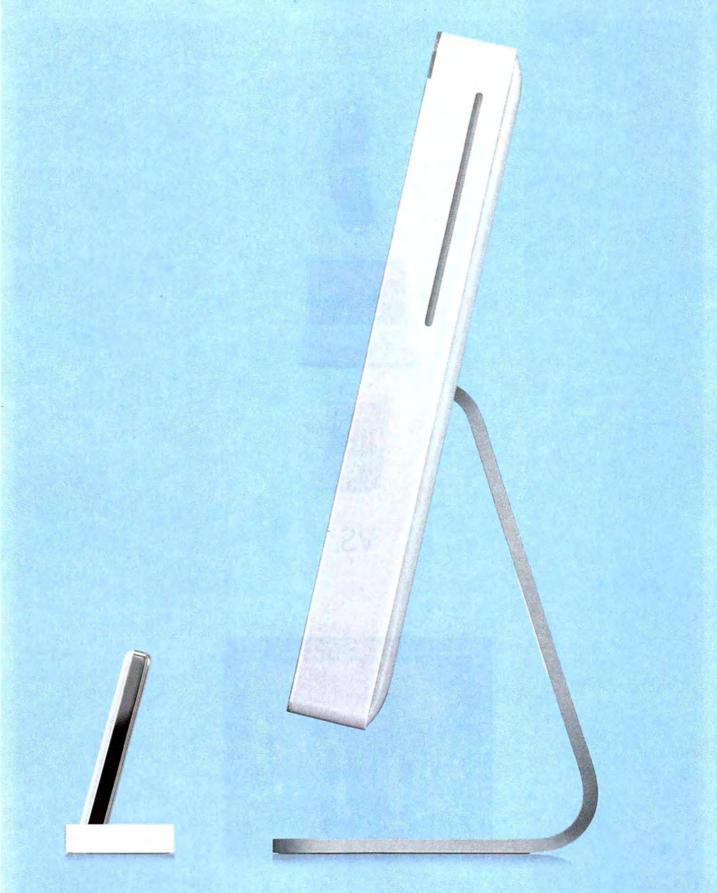
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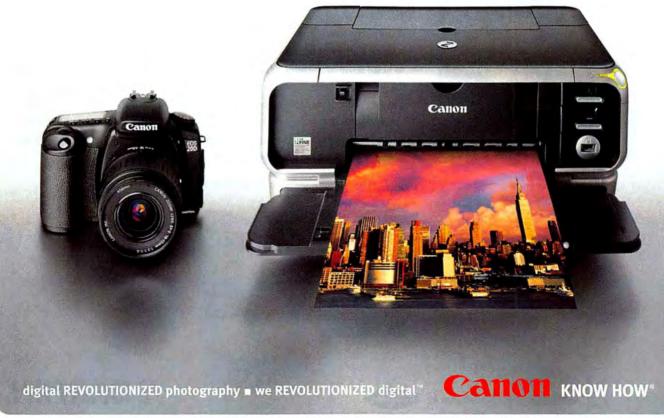




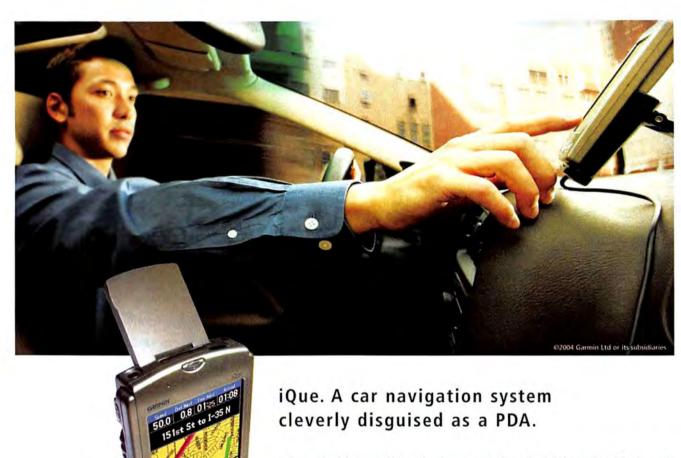
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A "find" feature lets you search for and drive to areas of interest



The iQue 3200 or iQue 3600 with MP3 and voice recorder

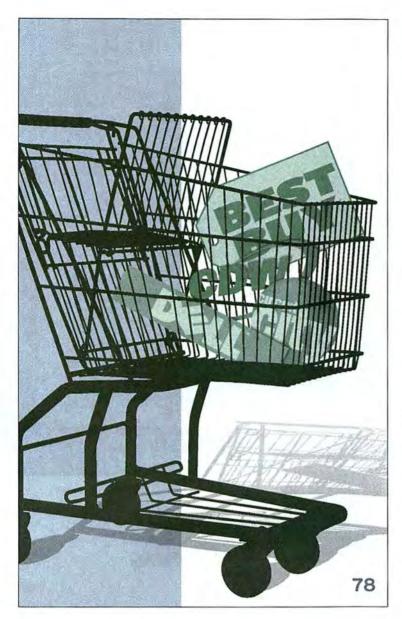












### SHOPPING SECRETS

### 78 Best Places to Buy

Converging computer and entertainment technologies make buying decisions trickier and more interconnected than ever. Which sellers offer customers the best buying advice, deals, selection, and return policies? Nearly 3500 PC World readers and our incognito team of reporters combine to bring you the answers you need.

Cover photography by Marc Simon



KEYWORD: PCWORLD W W . P C W O R L D . C O M

### FEATURES

### WIRELESS NETWORKS

### 94 The Ultimate Wireless Guide

Devices of many kinds now come with wireless connections. We offer troubleshooting tips and test the latest networking kits and add-ons for a home or small-office net.

### SECURITY THREATS

### 115 Biography of a Worm

When a worm strikes, its damage is swift and far-reaching. We trace the history of the recent Sasser bug to show how a Windows flaw can be exploited and how an ad hoc network of virus fighters leaps into action to fix it.

### SEARCH TOOLS

### 147 Find Files Fast

Need to unearth a buried document, e-mail, or attachment? We tried ten search utilities that claim they can dig up any file you

need, in a flash. Learn which tools do the job, no matter how cluttered your hard drive.

### ON THE COVER







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### **TOP 100**

- 164 Spotlight: Monitors Wide-screen displays become more affordable.
- 170 Top 15 Desktop PCs
- 172 Top 15 Notebook PCs
- 175 Top 10 Printers
- 177 Top 10 Hard Drives
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- 45 Consumer Watch How safe and reliable are Net phones?
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### TELL US WHAT YOU THINK

Visit www.pcworld.com/pcwinput and rate this issue-you could win a 5GB Rio Carbon MP3 and WMA music player, which currently sells for approximately \$250. You'll need the subscriber number from your mailing label to take this survey online. The site explains the official rules and also how to participate in the drawing if you're not a subscriber. You can enter from October 16 through November 12, 2004.

### COMING UP IN DECEMBER

The Future PC: We look at the trends in technology for 2005at work, at home, and on the go. Digital Photography Secrets: Take your shots to the next level with our apps, tips, and services.

Identity Theft: How it occurs, how to protect yourself, and how to recover if it ever happens to you. Video Players to Go: These new players promise portable video. We examine how well they deliver.





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### **NEWS & TRENDS**

### 20 Is XP's Service Pack 2 Safe?

As the Windows megapatch rolls out to PCs everywhere, some users report problems.

### 24 AMD Sempron Is No Athlon XP

Preliminary PC World tests show that the newest value CPU underperforms its predecessor.

### 28 The Presidential Candidates' Tech Views

Where do George W. Bush and John Kerry stand on Internet security, privacy, and other issues?

### 30 Portable Media Centers Debut

New mobile devices running on a Microsoft platform put video playback power in your hands.

### 32 Three Minutes With Craig Newmark

Craigslist founder discusses the popular site.

### **NEW PRODUCTS**

### 60 Digital Music Players

MP3 players from Creative, Rave-MP, and Rio

### 62 Productivity Software

Microsoft Works 8

### 68 Network Security Camera

D-Link Securicam Network DCS-5300G

### 70 Image Editing Software

Jasc Paint Shop Pro Studio

### 72 PDA

T-Mobile Sidekick II

### 74 Notebook

HP Pavilion Dv1000

See page 61 for a complete list of new products reviewed.

### NEXT GEAR

### 153 Rip Your Records

Transform old vinyl recordings into digital files.

### 156 Phone Accessories

Four gadgets equipped with Bluetooth wireless.

### 158 Gadget Freak

Movie download sites: great idea, poor execution.

### HERE'S HOW

### 182 Office Tips

Password-protect new documents automatically.

### 186 Windows Tips

Make your mouse's scroll wheel perform tricks.

### 190 Internet Tips

Free off the Net: books, music, and movies.

### 192 Hardware Tips

Should you get a PCI Express graphics card?

### 194 Answer Line

Tidy up your PC after you uninstall a program.

# TURBODRIVE





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## Reliable Wireless Nets, Spacious LCD Screens, and a Rugged Laptop

FOR NOVEMBER, we take in-depth looks at wireless networking kits. wide-screen LCD monitors, and a notebook to be reckoned with. Elsewhere, we compare search tools in "Find Files Fast," train our ears on

three fresh MP3 players in New Products, examine software for converting vinyl recordings into digital recordings in Next Gear, and rank a raft of new hard drives and monochrome laser printers in Top 100.



### 94 Routers for Wireless Networking Netgear's WGT624 router (available with PCI and USB adapters) is one of five solid kits we look at in our feature "The Ultimate Wireless Guide."



164 Wonderful Wide-Screen Monitors The 17-inch Sharp LL-M17W1 (left) and the 24-inch Samsung SyncMaster 243T bask in this month's Spotlight on wide-screen LCD monitors.



62 Extreme Outdoor Notebook Panasonic's sturdy, well-designed Toughbook Y2 out-toughs the competition with light weight, strong performance, and long battery life.

### THIS MONTH'S CROP OF TOP PRODUCTS

### DESKTOP PCs

- 170 ABS Awesome 6500 ★★★★☆
- 170 CyberPower Gamer Infinity 8000 Dream \*\*\*\*
- 170 HP Media Center PC M1050y
- 170 HP Pavilion A650e \*\*\*\*
- 170 Micro Express MicroFlex 38A
- 170 Polywell Poly 939VF-FX53 \*\*\*\*
- 170 Sys Technology Sys Performance 3700+/64 \*\*\*\*

### NOTEBOOK PCs

- 172 Dell Inspiron 8600c \*\*\*\*
- 74 HP Pavilion Dv1000 \*\*\*\*
- 62 Panasonic Toughbook Y2 \*\*\*\*
- 172 Toshiba Satellite A55-S326 \*\*\*\*

### MONOCHROME LASER PRINTERS

- 175 Brother HL-5140 ★★★★☆
- 175 Brother HL-6050DN \*\*\*\*
- 175 Oki Data Oki B4350 \*\*\*\*\*
- 175 Oki Data Oki B6300n ★★★☆
- 175 Samsung ML-2250 \*\*\*

### HARD DRIVES

- 177 CMS Velocity SATA Automatic Backup System ★★★★☆
- 177 Seagate 40GB Portable External Hard Drive ★★★★☆
- 177 Western Digital Dual-Option Media Center ★★★★☆

### WIDE-SCREEN LCD MONITORS

- 166 Apple Cinema HD Display ★★★☆
- 166 LG Electronics Flatron L172WT \*\*\*\*
- 166 Samsung SyncMaster 243T \*\*\*\*
- 166 Sharp LL-M17W1 ★★★★☆

### WIRELESS NETWORKING KITS

- 97 Belkin F5D7231-4 router kit
- 97 D-Link DI-624 router kit ★★★☆
- 97 Linksys WKPC54G Network Kit \*\*\*\*
- 97 Netgear WGT624 router kit \*\*\*\*

### MP3 PLAYER

60 Rio Carbon ★★★★

### DIGITAL CAMERAS

- 179 Canon PowerShot A400 \*\*\*
- 179 Fujifilm FinePix E550 \*\*\*
- 179 Sony Cyber-shot DSC-F88 \*\*\*

### **FILE-FINDING UTILITIES**

- 148 DtSearch Desktop \*\*\*\*
- 148 Lookout \*\*\*
- 148 Lycos HotBot Desktop \*\*\*\*

### **OPERATING SYSTEM**

74 Xandros Desktop OS Deluxe 2.5 \*\*\*\*

### BACKUP SOFTWARE

72 Acronis True Image 8 \*\*\*\*

### IMAGE EDITING SOFTWARE

70 Jasc Paint Shop Pro Studio \*\*\*\*

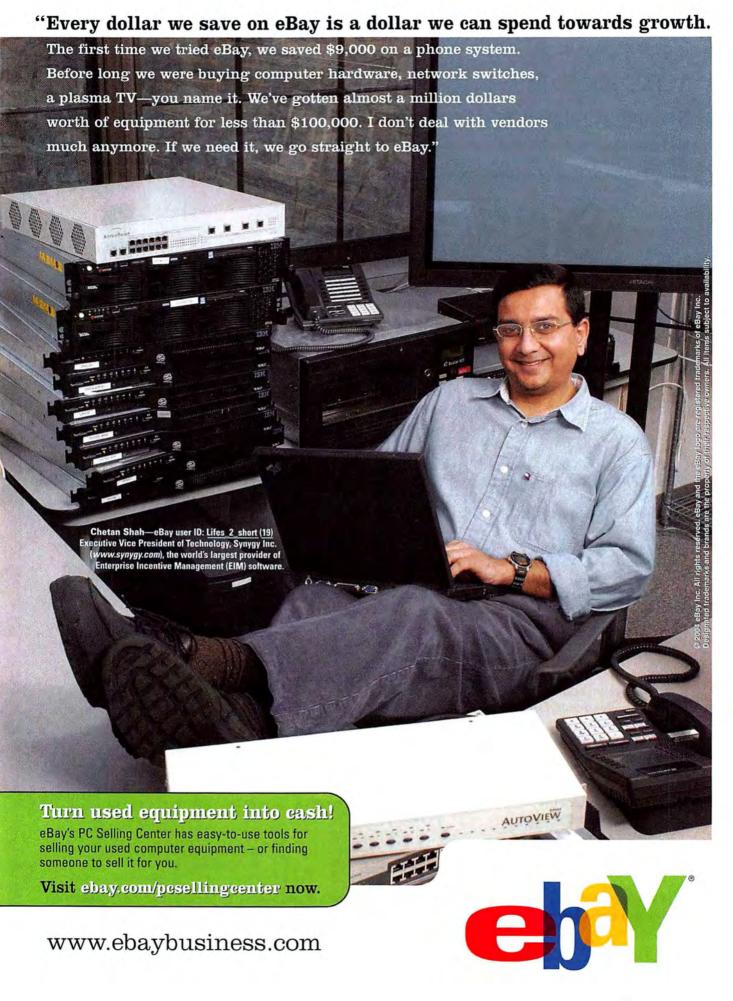
### PRODUCTIVITY SOFTWARE

62 Microsoft Works 8 \*\*\*\*

### MUSIC CONVERSION SOFTWARE

154 Microsoft Plus Digital Media Edition \*\*\*\*

THE HIGHEST-RANKING new products reviewed in this issue of PC World are listed above, together with the page number where each product is reviewed and the star rating it received. See find. pcworld.com/10860 for more about PC World's Star Ratings.





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### ONLINE FEATURES



### The Perfect Family PC

### find.pcworld.com/44420

The computer isn't just about you anymore. Here's how to make the right buying decision when everyone from 10-year-olds to teens wants to be wired.



### Is Online Banking Risky?

### find.pcworld.com/44422

Scammers and thieves are out there, using all kinds of tricks to get access to your bank account. We've got practical ideas for lowering your risk.

### FEATURED COLUMN



### **PDA Pundit**

### find.pcworld.com/44424

Senior Editor Yardena Arar tells you what's hot in handhelds and gives you the inside scoop about the best software for your personal digital assistant.

### E-MAIL NEWSLETTERS

### Weekly Brief

Best stories of the week.

Daily Product Review

Expert reviews, sneak previews.

Steve Bass's Home Office Get the most from your gear.

Best Buys

Award winners from our Top 100.

### **Daily Downloads**

The hottest software on the Web: games, utilities, drivers, and more.

Visit find.pcworld.com/37577

for these newsletters and more.

Visit find.pcworld.com/39908 for regular *PC World* columns.

### PRODUCT FINDER

How it works: Powerful search tools find the products you want. Best prices: Real-time prices drawn directly from vendors.

Merchants: Hundreds of retailers, with ratings from customers.

Services: Simplified order tracking and shipping calculations for all of your online purchases.

Go to find.pcworld.com/37580 for all Product Finder listings.

### FIND-IT URLS

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.

### HIGHLIGHTS

### Today @ PC World Blog

### find.pcworld.com/44426

PC World's editors give you the up-to-the-minute skinny—as well as their unvarnished opinions—on new products, trends, and the latest goings-on in the technology industry in our staff Weblog. Disagree with something you read? Let us know, instantly. Updated every day.



### TOP 10 DOWNLOADS

Head to find.pcworld.com/44122 to locate and download these popular files.

- 1. Ad-Aware SE 1.04
- 2. Spybot Search & Destroy 1.3
- 3. WebWasher Classic
- 4. RegRepair 4.4.03
- 5. SpywareGuard 2.2 (Browser Hijack Blaster)
- 6. Fast Defrag Standard and Professional
- 7. Disk Cleanup 4.6
- 8. WinRescue XP 1.08
- 9. MasterBooter 3.3
- 10. Registry First Aid 3.3.1

### MOST POPULAR PRODUCTS

At press time, these were the top sellers, by category, at *PC World*'s Product Finder.

- Hard Drive
  - Toshiba MK6021GAS find.pcworld.com/44434
- Digital Camera
   Canon Digital Rebel EF-S find.pcworld.com/44428
- Input Device Logitech MX1000 Mouse find.pcworld.com/44436
- Scanner
   Epson Perfection 4870
   find.pcworld.com/44430
- Backup Utility
   Dantz Retrospect Profind.pcworld.com/44444





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# Download your **FREE Digital World** issue today!

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- Digital music & video services
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- New content formats (Super Audio CD, HD-DVD, etc.)
- Satellite TV and radio
- Car electronics
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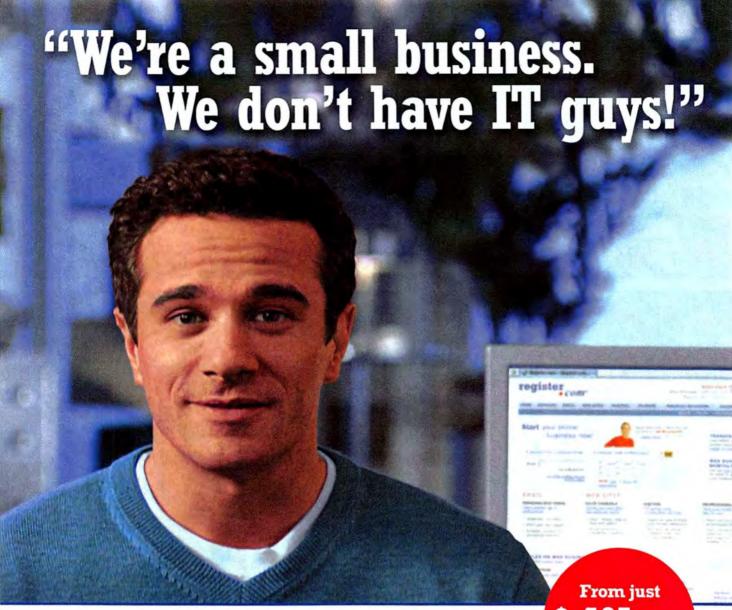
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# Is This Any Way to Fix Security Holes?

## How today's software patching process actually helps hackers do their job.

IT IS TEMPTING TO THINK OF HACKERS as twisted geniuses. Tinseltown sure does: Show me someone who's a hacker in a movie, and I'll show you a brilliant, enterprising nerd who has gone bad—someone who is fueled in equal parts by caffeine, cunning, and native technical skills.

In the real world, most hackers aren't that clever, and they aren't that industrious. They're more like looters, using brute force to break into PCs via weaknesses others have exposed. Oftentimes, they do so after developers have released patches, but before many users have installed them.

"Biography of a Worm" (page 115) is the moment-by-moment tale of one of the most notorious of those lootings, the invasion of the Sasser worm last spring. Author Dan Verton, a newcomer to this magazine but a seasoned senior writer at our sister publication Computerworld, knows his security, and not just of the digital variety: He's a former intelligence officer for the U.S. Marine Corps.

"Security isn't just about bits and bytes. It's about public safety as well," he explains. "Every insecure home computer is an attack vector waiting to be turned on by a sophisticated hacker." In other words, determined cyberterrorists could someday use the worms or viruses they plant on our PCs to launch assaults on government or private-sector infrastructure.

### FROM WEAKNESS TO WORM

SASSER, LUCKILY, was more colossal headache than national crisis. Its appearance is the climax of Verton's article: By the time a German teen pounded out the code, most of the heavy lifting had already been done. Months earlier, a California security researcher had discovered the Windows flaw it attacked, and Microsoft had acknowledged it and released a patch.



THE DEFENDER: Security reporter (and former Marine intelligence officer) Verton.

Shortly after Microsoft's security alert appeared, a Russian hacker made the flaw the subject of an "exploit," a sort of do-ityourself worm recipe. The exploit became a building block of Sasser, which has infected at least 700,000 systems-so far.

Other attacks have similar biographies, and some are uglier still. Not every sleuth who finds a flaw discreetly alerts the developer. Some simply release the details to the world at large; hackers get their hands on it before a fix exists.

Microsoft's message to security researchers is simple: Help us, don't surprise us. "Providing information on vulnerabilities [to the public] only ends up putting customers at risk," says Stephen Toulouse, a senior program manager at the Microsoft Security Response Center.

To that end, the company is a member of the Organization for Internet Safety (www.oisafety.org), a group that encourages researchers and developers to work together to identify and patch vulnerabilities. Sounds like a worthy cause to me.

But the danger in this sort of low-key, secretive approach is that it reduces the pressure on software companies to release important fixes as quickly as possible. In the case of the Windows hole that Sasser attacked, for instance, Microsoft didn't provide a patch until 188 days after it knew about the problem.

Of course, a hasty, buggy fix can be worse than the flaw it purports to correct. Still, for more than six months, even Windows users who diligently patched their machines were running an operating system with a gaping hole. That's enough to make any PC user squirm.

And when users squirm, says Verton, software companies must feel their pain. Real improvements in security may come only if users demand them: "If customers say, 'We won't buy your software unless it meets certain conditions," he believes, "that would make developers change."

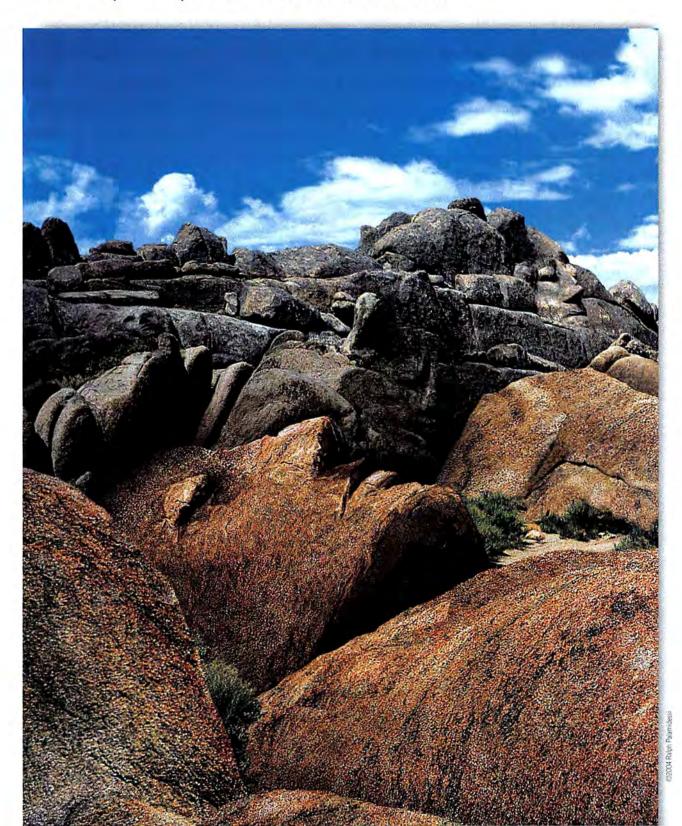
Even Microsoft's Toulouse says that software buyers have every right to be demanding, nowadays. His response to users who think that Microsoft's security practices leave something to be desired?

"Keep telling us that," he requests. "We're working hard, and we need to hear how we can do better."

Tell us what you think, too. As long as there's a security mess, we'll keep covering it-and we need your feedback.

Visit Editor in Chief Harry McCracken's Weblog at blogs.pcworld.com/techlog; contact him at mageditor@pcworld.com.

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# Is XP's Fix Safe?

WINDOWS XP SERVICE PACK 2 SEEMS A SMOOTH UPGRADE FOR MOST, BUT MANY ARE PUTTING OFF INSTALLING MICROSOFT'S BIG SECURITY PATCH ANYWAY. BY SCOTT SPANBAUER

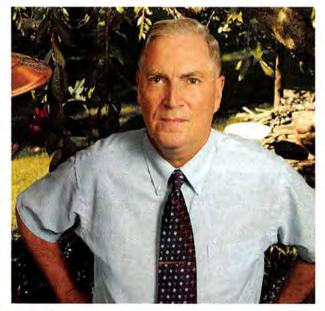
WINDOWS XP Service Pack 2 promises to protect you from the most pervasive worm attacks, stop pop-up ads, and tighten security in Windows' Achilles' heel, Internet Explorer. But given the problems many users experienced with XP's first service pack, some people have been waiting to hear whether this update is more likely to hurt than help.

The news is mostly positive: With SP2 finally making its way onto millions of computers, early reports suggest that the upgrade has gone smoothly for the majority of those who have installed it. But for at least a significant number of people, SP2 has spelled trouble, triggering software conflicts, system slowdowns, network outages, and in some cases boot failures. Blame for the difficulties (some of which are still emerging) may rest

with software and hardware vendors, or with Microsoft itself. But regardless of who's at fault, if you were hoping that the decision to install SP2 would be easy, think again.

### SP2'S STREET CRED

BY ALL ACCOUNTS. Microsoft went to considerable lengths to work the bugs out of its latest bug fix in hopes of avoiding the slowdowns, crashes, and boot-up problems that bedeviled SP1 in 2002. Although SP2 was widely expected to appear in June, the company delayed the launch twice to address last-minute problems before releasing it in August. Since that time, XP users have downloaded SP2 manually through Microsoft's Windows Update service or automatically via XP's update feature. A Microsoft spokesperson predicts that the service pack will



CRASH VICTIM: After Ed Norris of Logansport, Indiana, installed SP2, his PC wouldn't boot up. His dealer suspected a ZoneAlarm conflict.

be installed through automatic updates on about 100 million PCs by the end of October.

To find out how some of these early adopters fared with

SP2, we surveyed 3421 Windows XP users about their attitudes toward and experiences with the update. (Because the participants in the survey were self-selected-they responded to an invitation on our Web site to report on their experiences with Windows XP-the results cannot be generalized to all users of Windows XP.) Though Microsoft's rollout of the patch through Windows XP's Automatic Updates feature had barely begun, more than 60 percent of the survey's respondents reported that they had already installed SP2.

But of those who hadn't installed SP2, more than a third reported that they feared the update would impede system performance. Michael Rask of Killeen, Texas, says he's waiting until he's sure SP2 won't interfere with his installed software. Rask, who manages an automotive repair shop, is confident enough in his own ability to maintain adequate security to hold off on installing SP2. "Security is not a problem, since I run up-todate firewall and antivirus programs, delete 90 percent of my e-mail, and run Firefox as my browser," Rask says.

Of the survey respondents who did download and install SP2, about three-quarters detected no problems afterward. The remaining respondents experienced some postupgrade fallout, though 10.3 percent described the problems as mild, having little effect on their ability to use the PC. Another 9 percent, however, reported experiencing moderate difficulties, and 4 percent encountered problems that made the PC difficult or impossible to use.

Of those who reported snags, 31 percent experienced malfunctioning software, 14 percent had



NO RUSH: Michael Rask of Killeen, Texas, is holding off on SP2 until he's certain that it won't conflict with software at his auto repair shop.

system slowdowns, and 8 percent reported having trouble connecting to a home or office network. Of the 2106 respondents who installed SP2, 34 (1.6 percent) said they'd run into the worst-case scenario: Their PCs wouldn't boot.

Ed Norris of Logansport, In-

SURVEY

# THE SP2 INDEX

- · Percentage of PC World survey respondents who installed SP2: 62%
- · Percentage of those respondents who had no problems: 74%
- · Percentage who reported mild problems: 10.3%
- Moderate problems: 9%
- Severe problems: 4%
- · Most common problem: Malfunctioning software
- · Favorite new feature in SP2: Popup blocking
- · Least favorite feature: New security features that conflict with thirdparty security software Source: PCWorld.com survey of 3421

site visitors who use Windows XP.

diana, an employee of the state's department of health, found himself in this unfortunate predicament. "The computer got partway through rebooting but then kept shutting itself down and attempting to reboot again. It wouldn't even go to Safe Mode," Norris re-

> calls. After working on it for several hours, his computer dealer got the PC going again by booting with a rescue disk, uninstalling SP2, and reinstalling both Windows XP and SP2. No data was lost, and Norris's bill came to only \$45. The dealer blamed the trouble on a conflict with Zone Labs' ZoneAlarm firewall. which Norris had installed.

> Microsoft says that older versions of ZoneAlarm are among the many thirdparty applications that are incompatible with its new service pack. Zone Labs vice president Fred Felman says that the problem may lie elsewhere. "I'd say it's a relatively small

IN BRIEF

### **Product Pipeline**



MULTIFUNCTION COLOR LASER: Canon's Image-Class MF8170c is the first color laser-based multifunction printer we've seen offered for less than \$1000. Expected at press time, the \$999 printer-scannercopier-fax machine boasts print speeds of 16 pages per minute for black-and-white and 4 ppm for color, according to the company's own measurements. The device's assorted connectivity options include a built-in 33.6-kbps fax modem and USB 2.0 and ethernet ports. find.pcworld.com/44370



WEE WI-FI CARD: Palm-One's new Wi-Fi SDIO Card adds 802.11b wireless connectivity to two of the company's recent Bluetoothequipped handhelds, the Tungsten T3 and the Zire 72. Not much bigger than a postage stamp, the \$129 card comes bundled with software that makes both setup and network configuration a breeze-but the wireless capability does take a heavy toll on battery life. find.pcworld.com/44368

LLUSTRATION: JACK GALLAGHER

group of people that have had trouble with our firewall," he says, adding that at least some conflicts that on the surface appear to be software-related may actually be caused by hardware. "The first thing you blame is your firewall," says Felman, "but the conflicts with SP2 are on every level."

### **WE WARNED YOU**

INDEED. Microsoft has also identified incompatibilities between SP2 and AMD 64-bit processors and certain Intel Pentium 4 and Celeron D processors that prevent Windows XP from booting normally. And besides backing up your hard disk and eliminating spyware and adware (which tend to lock up IE after you install SP2), Microsoft recommends

that you update your hardware drivers before installing SP2. The company even provides links to SP2-related sites posted by major PC vendors (see find.pcworld.com/44352).

To be fair. Microsoft has

tails, see find.pcworld.com/ 44354). Many items on the list are corporate editions of backup, antivirus, or remote-access programs that await incoming connections from serversthe exact activity that the fire-

# To be fair, Microsoft has made it clear that installing SP2 carries some risks.

made it clear that installing SP2 carries some risks. Shortly after launching the service pack, the company posted a list of 50 applications that appear to stop functioning after the Windows Firewall in SP2 starts working, along with the necessary steps to get the programs running again (for dewall blocks. Also present on the list are several popular networked games, including Unreal Tournament 2003.

Another Microsoft Knowledge Base article lists dozens of other common applications that "experience a loss of functionality" on Windows XP SP2 systems. In addition to bootup errors with ZoneAlarm, the list describes such severe conflicts as complete loss of network activity when a PC attempts to use Eset's NOD32 antivirus program, and the disabling of scheduled scanning in Symantec's Norton AntiVirus 2003.

Still, Service Pack 2 is an important upgrade with many desirable features, especially for the security-minded. If you follow Microsoft's installation guidelines and check the lists of known conflicts in advance. you'll probably get through the experience unscathed-or at worst have to overcome only mildly irritating conflicts.

For a list of online resources about Windows XP SP2, see find. pcworld.com/44358.

NEXT WINDOWS

# **LONGHORN TO ARRIVE SHORT ON FEATURES**

SINCE RELEASING Windows XP in 2001. Microsoft has devoted the lion's share of its development resources to the next version of Windows, code-named Longhorn. The company earlier this year previewed some of the new technologies, including a graphics system code-named Avalon that makes better use of today's powerful graphics processors; a file system called WinFS that is intended to speed data access; and (of interest primarily to programmers) the successor to Microsoft's .Net application development model, WinFX (see "Your Next OS: Windows 2006?" at find.pcworld.com/44356).

But with SP2 siphoning unanticipated levels of development resources away from Longhorn, Microsoft had to choose between releasing the next OS with all the promised new features and releasing it in what Microsoft's vice president Jim Allchin terms "a reasonable time frame." With Windows XP already nearing its fourth birthday, Microsoft chose the latter. Longhorn



will ship in early 2006 with WinFX and Ava-Ion in place but without the vaunted WinFS file system. Microsoft says that WinFS will appear-perhaps as an extra-cost add-onsometime after Longhorn ships.

It's hard to say whether the changed plans matter to the average Windows user, primarily because it's unclear whether WinFS alone would have delivered any benefits, "Until there are applications that take advantage of WinFS, what are you missing out on?" Al Gillen, IDC research director, queries. Corporations find Windows 2000 Professional and Windows XP good enough already, he says, and long lines of eager upgraders like those who embraced Windows 95 are unlikely. "A lot of people-Microsoft included-have been waiting for the next Windows 95. We don't see that scenario happening with Longhorn," adds Gillen.

But releasing Longhorn without WinFS may signal a trend toward software modularity that could bode well for PC users, Gillen adds. In addition to unyoking WinFS from Longhorn, Microsoft announced that it will release versions of Avalon and WinFX for Windows XP and 2003 Server in 2006, so you won't have to upgrade to Longhorn to benefit from those technologies. Gillen predicts that repackaging core features as bolt-ons will relieve some of the pressure on users to upgrade their entire OS-an undertaking many people are happy to postpone for as long as possible.

# THE 10X LENS AND THE COLOR SCIENCE CHIP: A LOVE STORY

IT WAS MEANT TO BE.

The new Kodak EasyShare DX7590 zoom digital camera is the marriage of superior engineering and design with groundbreaking technology, resulting in the most advanced Kodak digital camera yet.

Kodak staked a claim in advanced digital photography with the

award-winning 4MP Kodak EasyShare DX6490 zoom digital camera. Now, the DX7590 takes technology a step further as the first 5MP camera that combines a Schneider-Kreuznach Variogon 10x optical zoom lens and the innovative Kodak color science image-processing chip with the ease of use that's

become the hallmark of the Kodak EasyShare system. And creative control is squarely in your court with a clickto-capture time of 0.2 seconds, 16 scene and 5 color modes, highspeed/low-light-capable autofocus, and new continuous-focus and bracketing modes. At the heart of the DX7590 is the Kodak color science chip, engineered to produce highly saturated, accurate colors. But the greatest image processor available would be nothing without a lens that can capture outstanding color, contrast, and clarity. That's why the DX7590's professional-quality 10x optical zoom lens is designed specifically for digital imaging,

delivering the equivalent of

38–380 mm (in 35 mm format, of course). The result is an integration of everything that goes into making a great picture, so you get just the image you want, under every lighting condition, even in prints up to 20" x 30".





The DX7590 is the ideal digital camera for anyone looking to bring together advanced functions and technology with the ease of a point-and-shoot. For more on the most advanced EasyShare camera yet, go to <a href="https://www.kodak.com">www.kodak.com</a>



PROCESSORS

# AMD Value CPU Is No Athlon

### NEW BUDGET SEMPRON CHIP UNDERPERFORMS ITS PREDECESSOR.

FRUGAL PC buyers have a new option in AMD's line of 32-bit Sempron chips. A downside: It's slower than the 32-bit Athlon XP it replaces.

In PC World tests, a machine with the new chip underperformed one with a comparable Athlon XP, but our Sempron-based test system did outgun a similarly configured PC with Intel's Celeron D value CPU. These chips all appear in PCs priced below \$1000, and even in some costing under \$500.

We tested a system provided by Monarch Computers, first with a 2-GHz Sempron 2800+ CPU and then with a 2.08-GHz Athlon XP 2800+ (the two chips use the same core). With the Athlon XP, the machine landed a WorldBench 5 score of 82, about 5 percent faster than the 78 score it



MONARCH COMPUTERS offers one of the first PCs using AMD's Sempron chip.

achieved with the Sempron. The AutoCAD and game tests followed this same general pattern (see chart). The difference is likely the result of the Athlon XP's 512KB L2 cache (the Sempron's is 256KB).

Both the Athlon XP and the Sempron outran Intel's 2.8-GHz 335 Celeron D chip (in a comparably configured PC) in our tests.

The eight current Sempron versions range from the 2200+ to the 3100+. Although the 3100+ is based on AMD's forwardlooking Athlon 64-bit core, the 64-bit feature is disabled in it. AMD has stopped selling Athlon XP models 2700+ and below, but it will still offer the 2800+, 3000+, and 3200+ into 2005, says Damon Muzny, company spokesperson. AMD uses different benchmarks to set its

model numbers, so you can't assume a Sempron 2800+ will perform the same as an Athlon XP 2800+, according to Microprocessor Report Editor in Chief Kevin Krewell.

For top performance in a value PC, consider one with the Athlon XP, while you can.

—Tom Mainelli

IN BRIEF

### Product Pipeline

TV/DVR TO GO: If you'd like to watch TV on your PC or laptop, ATI's \$100 TV Wonder USB 2.0 promises some of the highest-quality video images available from an external TV-tuner box. About the size of a pack of cigarettes, the squat gray unit connects at one end to a cable TV, composite, or S-Video input source; the other end plugs into a PC's USB 2.0 port, included software lets you record and play back TV shows in various MPEG formats and pause live TV. If you're a remote control addict, an included coupon gives you a discount on ATI's \$49 Remote Wonder, find. pcworld.com/44362



INK INTRODUCTION: HP's new dye-based Vivera inks promise owners of recent HP inkjet photo printers the brilliance and high quality of dye and the traditional longevity of pigment inks. From tests by ink permanence expert Henry Wilhelm and HP's own labs, the company projects that Vivera prints on HP Premium Plus Photo Paper will last 82 years when made with three- and four-ink printers, and 100 to 110 years with six- and eight-ink printers-life expectancles on a par with or better than the best we've seen for inkjet photos.

TEST REPORT

## **BUDGET CHIP SHOWDOWN**

IN OUR TESTS, ACROSS THE BOARD, a PC with AMD's aging Athlon XP processor still outran one with the company's new Sempron CPU and another system with Intel's Celeron D chip.

PROCESSOR	Street price (9/20/04)	L2 cache	Frontside bus	WorldBench 5	AutoCAD¹ (in seconds)	Return to Castle Wolfenstein' (frames per second)
2-GHz AMD Sempron 2800+	\$107	256KB	333 MHz	78	260	90
2.08-GHz AMD Athlon XP 2800+	\$135	512KB	333 MHz	82	234	94
2.8-GHz Intel Celeron D 335	\$113	256KB	533 MHz	73	338	85

FOOTNOTES: 'At 1024 by 768 and 32-bit color. <sup>1</sup>At 1024 by 768 and 16-bit color. HOW WE TEST: We tested both AMD CPUs using a center by system from Monarch Computers; we tested the Intel CPU with a PC World Test Center-owned system. Both PCs had 512MB of DDR400 SDRAM, an ATI Radeon 9600 Pro graphics card with 128MB of memory, an 80GB hard drive, and Windows XP Home. For more on WorldBench 5, go to www.worldbench.com. For AutoCAD, we time Autodesk User Group International's AUGI Gauge 15 tests, which run CAD tasks. In Return to Castle Wolfenstein, we measure frame rates during a recorded demo. Tests conducted by the PC World Test Center. All rights reserved. CHART NOTES: Higher is better on WorldBench 5 and on the game test; lower is better for AutoCAD. Bold denotes best score.

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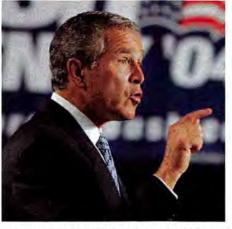
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# Tech 2004: Where the Candidates Stand

### WE UNCOVER THE CANDIDATES' VIEWS ON INTERNET TAXES. PRIVACY, AND OTHER TECH HOT BUTTONS.

BY NOW YOU'VE heard Republican President George W. Bush and Democratic nominee John F. Kerry stump on everything from the war on terrorism to Social Security. Their positions on tech differentiate them, too: Investigating their views, we found disagreement over the Patriot Act, privacy, and security. But they share opinions on such issues as Internet access taxes and Voice over IP regulation.

Other positions also stand out. For example, Kerry supports some degree of legal liability for hardware or software manufacturers if a customer suffers damages from a security breach due to a flaw in the





PRESIDENT BUSH (left) and Democratic nominee Kerry butt heads over the USA Patriot Act.

product. And to improve the health care system's efficiency and cut costs. Bush wants to make most medical records electronic and portable by 2014 (with privacy safeguards).

PC World asked both candidates' campaigns about where they stood on today's top tech issues. We received responses from Senator Kerry but not from President Bush. We also

scoured their official Web sites and other sites for news. speeches, and position papers to help discern their views.

### PRIVACY DIVIDE

PRIVACY MATTERS divide the candidates more than any other issue, especially as these concerns relate to powers granted to the government via the USA Patriot Act, which

Congress passed shortly after the September 11, 2001, attacks. The wide-ranging act amended several laws, and it created new federal crimes and penalties for acts such as harboring terrorists, and performing certain types of money laundering. It also made it easier for federal law enforcement agents to engage in surveillance and to get access to personal information and communications. Some of the act's provisions will expire unless renewed by Congress by next September.

Bush calls the Patriot Act an "essential" tool in the fight against terrorism, saying it has already led to the filing of hundreds of criminal charges and has made the country safer. He strongly urges Congress to renew the act as it exists.

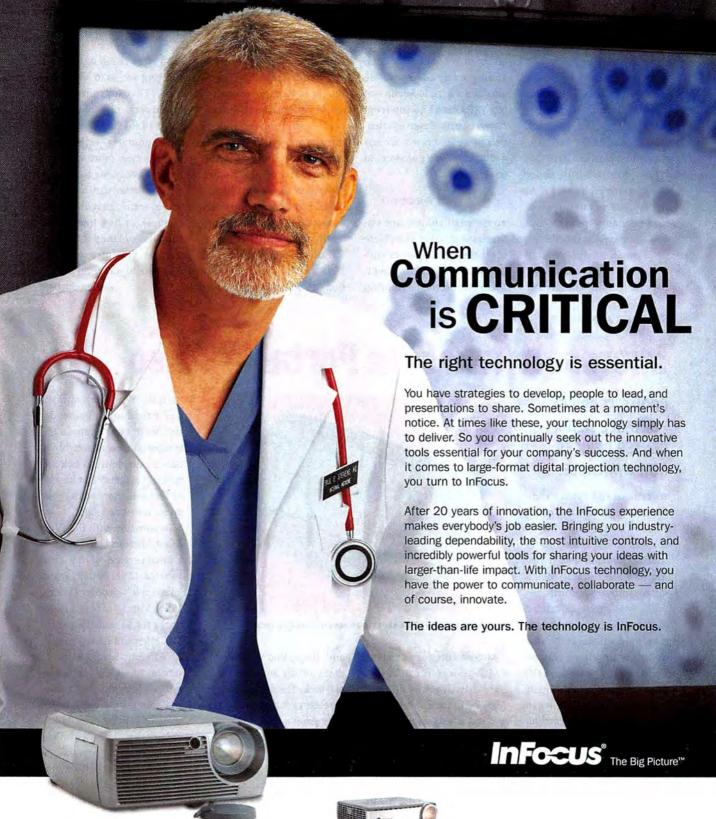
Kerry claims to be satisfied with 95 percent of the Patriot Act (which he voted for originally), but notes that it hasn't been a "cure-all for the intelligence failures exposed by 9/11." If elected, Kerry says, he will push for the passage of

TECH AGENDA

## **HEAD-TO-HEAD ON THE ISSUES**

THE CANDIDATES AGREE ON several major tech issues. Both are against taxes on Internet access, including broadband, and want to keep Internet telephone services lightly regulated (though Kerry is open to the possibility of more rules). Both also support the CAN-SPAM Act and the recent law creating harsher penalties for identity thieves. However, they differ on other critical tech topics.

TOPIC	President George W. Bush	Senator John F. Kerry		
USA Patriot Act	Favors renewal of the act as is.	Approves of most of it, but wants to pass an amendment that would (among other things) set limits on law enforcement access to library, medical, and other sensitive records of private citizens.		
Privacy	Wants to put most medical records in a portable electron- ic format by 2014, although these records would be pro- tected by some privacy provisions.	Favors closing the loophole that allows Internet service providers to snoop into any e-mail that is sent through their services.		
Spyware	No public statement on spyware; did not answer <i>PC</i> World's question on the topic.	Prefers more enforcement of existing laws (not new ones) to handle the spyware problem, combined with better education for users, broader use of anti-spyware tools, and more secure software.		



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the proposed Security and Freedom Ensured Act, which would amend the Patriot Act by setting limits on law enforcement's access to library, medical, and other records containing personal data.

Bush has said little about the spyware problem. Kerry, in response to our question, said new anti-spyware laws may ultimately be needed, but he prefers a solution grounded in anti-spyware technology, user education, and greater enforcement of existing laws, among other methods. He also said a legal loophole that lets ISPs read and intercept stored e-mail "deserves attention." (See find.pcworld.com/ 44382 for Kerry's answers to our questions.)

### COMMON GROUND

BOTH CANDIDATES are enthusiastic about curbing identity theft, and support extending broadband deployment. Bush has promised to bring broadband to "every corner of our country" by 2007. To do this, he proposes opening federal lands for laying fiber optic cable, reducing regulatory hurdles providers face, and permanently banning taxes on Internet access. Kerry was a sponsor of the law that established a moratorium on Net access taxes, and has consistently supported its renewal.

Bush and Kerry approved of 1998's Child Online Protection Act, which mandated that

Web sites check age before allowing access to adult content. (The Supreme Court voided some parts of the act.)

For all that we know about the candidates' tech views. there is even more we don't know. Neither one has clearly stated whether they trust electronic voting machines, for example, or how they would enact some of the policies they support. Complete answers may have to wait until 2005.

-Tom Spring

ENTERTAINMENT

# Microsoft Takes On Portable Video

### COOL BUT PRICEY PORTABLE MEDIA CENTER DEVICES NOW AVAILABLE.

HAVING MADE ITSELF comfortable on home and office PCs around the globe, Microsoft has now set its sights on mobile entertainment, releasing its new Portable Media Center software platform.

The PMC software, created to power a burgeoning class of handheld music and video devices, is already available on one shipping unit, the \$499 Creative Zen Portable Media Center. Devices using it can play audio and video (including TV shows and movies), and can display still images. Samsung and IRiver have promised to deliver their own similarly priced PMC units in time for the holidays. The software is based on Microsoft's Windows CE 5 mobile operating system, and offers digital media technologies found in the Windows XP OS and in XP Media Center Edition.



THE \$499 CREATIVE Zen boasts an easy-to-use interface.

Microsoft requires that all PMC devices must have a hard-drive capacity of 20GB (the size of the Zen's drive) to 40GB; a screen measuring 3.5 to 4 inches diagonally, with a 320 by 240 resolution; enough battery life to play 5 hours of video or 14 hours of audio on a single charge; and a "clean, simple design."

Via USB 2.0. PMC devices can download media from PCs with any type of Windows XP. As long as your media files are in a supported format (including .wmv, .wma, .mp3, and .jpeg), you can transfer them to the units for later playback. The devices have no wireless capabilities and cannot stream audio or video.

### HANDS-ON PLAY

I DOWNLOADED A 3-hour game from Major League Baseball's site (www.mlb.com) to my PC, and then in about 4 minutes I transferred it to the Zen (both MLB.com and CinemaNow. com provide PMC content). Using the Zen was easy-the interface is like that of Media Center Edition, and simple to

navigate. With a few clicks, I was watching my game; details were clear even on the smallish screen. At roughly 12 ounces, the device is twice as heavy as an IPod, but its added features more than make up for the extra weight.

To coincide with the PMC debut, Microsoft has launched a beta version of its longawaited MSN Music store. Like Apple's popular ITunes, MSN Music offers single tracks for \$1 and albums for \$10. Microsoft also has updated Windows Media Player to version 10, which sports a revamped interface and a dragand-drop feature that lets you transfer content directly to a PMC device. Both Media Player and PMC support the updated Windows Digital Rights Management technology, formerly code-named Janus, which lets users play music from a subscription service such as Napster for as long as the subscription is active-a scheme Microsoft hopes will spread to other services.

-Liane Cassavoy



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FUTURE TECH

# The Internet Reloaded

ABOUT FIVE minutes away from home, you voice-activate your VoIP-based mobile

phone, set your house's thermostat to a comfy 68 degrees. and preheat the oven. As you pull into the driveway, the garage door opens automatically;

the TV tunes to the ballgame (with the sound muted. just the way you like it).

Making these and other technological marvels possible is IPv6 (Internet Protocol version 6). Among other things (including improved speed and security), the 128-bit replacement for today's 32-bit IPv4 provides a vast amount (3.4 times 10 to the 38th power) of new IP numbers-a sufficient quantity to give every molecule on earth its own network address.

> We'll certainly need them: By the end of the decade, every new phone, appliance, and consumer electronics device will probably require

its own IP address. IPv6 necessitates an upgrade of routers and other Internet backbone equipment, which is already under way; we'll start enjoying the technology's benefits over the next four years as it spreads throughout the Internet and to consumer electronics. For more information see www.ipv6.org.

-Dennis O'Reilly

OUT IN JAPAN

# **High-Def Home Movies**

IF YOU'RE LOOKING for a way to liven up home movie night that doesn't involve inappropriate nudity or risk of injury, what about upgrading to high-definition video? Sony's first consumer-



oriented HD camcorder, already available in Japan, is slated for a November U.S. launch with a price tag of about \$3700.

The HDR-FX1 offers a 3.5-inch LCD screen and a 12X optical zoom. In HD mode, it can capture MPEG-2 video at 60 frames per second using the new HDV (high-definition video) compression format at 1080 by 1440 interlaced resolution. (HDV has support from major video-editing-software creators, including Adobe and Apple.) The camcorder provides two lower-resolution modes, as well. Video is stored on MiniDV cassettes. The bundled battery pack can power up to 65 minutes of continuous HD shooting; together, the camera and the battery weigh 5.1 pounds. -Paul Kallender

### THREE MINUTES

# The Craig Behind Craigslist



CRAIG NEWMARK, 51, is the founder and caretaker of Craigslist (www.craigslist.org), a Web site where nearly 6 million unique visitors in 57 cities (in the United States, Australia, Canada, and the United Kingdom) each month post and read free classified ads for everything from selling used toasters to dating. Before founding Craigslist nine years ago, Newmark worked as a software developer and architect for such companies as Bank of America, Charles Schwab, and IBM. Online auction powerhouse EBay recently purchased a 25 percent stake in Craigslist from a minority shareholder.

### With EBay now a part owner of Craigslist, are you guys going corporate?

When people say "corporate" like that, they mean the kind of corporate that gets dysfunctional and forgets to listen to customers. We've built into the Craigslist DNA the notion that Craigslist is completely focused on our customers. We read our feedback forums daily and give our customers what they want.

### What will EBay bring to Craigslist? Any changes in store?

EBay is going to help us deal with the bad guys and keep the trolls and ne'er-do-wells from becoming a nuisance. But the big news is, nothing is changing.

### What are the most popular sections of Craigslist?

Jobs, housing, for sale, and personals.

### Your site has no banner or pop-up ads. How do you keep Craigstist free?

We operate very efficiently with a staff of 14 employees. Secondly, we aren't entirely free. Employers have to pay between \$25 and \$75 to post their job listings in San Francisco, New York, and Los Angeles.

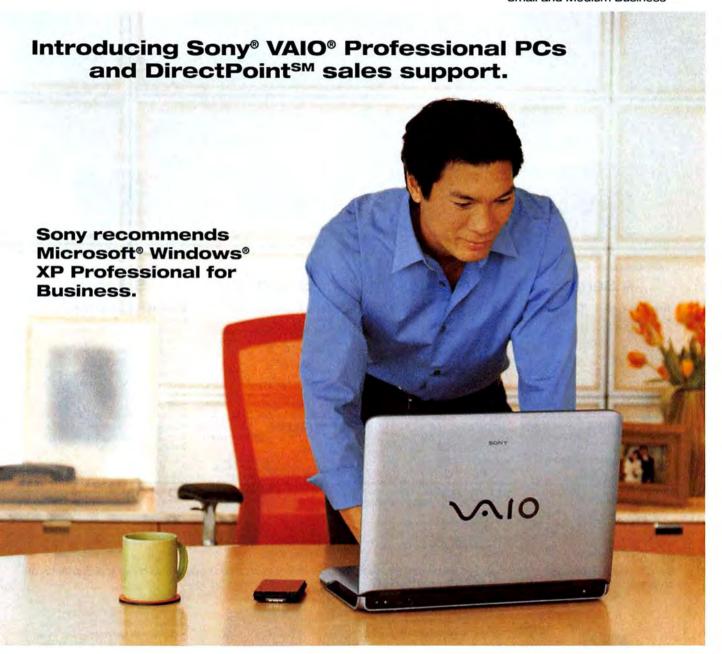
### What has Craigslist taught you about the Net?

If you give people an environment where they can trust each other and be fair, for the most part, then people almost always return that trust. That's what Craigslist is really all about.

(See find.pcworld.com/44380 to read an extended version of this interview.) -Tom Spring

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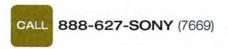
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# LETTERS

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AVOIDING HOTSPOT SEARCH HASSLES HOW TO BLOCK COOKIES IN IE 6 ULTIMATE END OF UPDATE MADNESS



TALK ON CELL PHONE PLANS

LAURIANNE MCLAUGHLIN'S article on cell phones ["Smart Talk," September] missed an issue no one seems to discuss.

As consumers, we are inclined to think of 600 minutes for \$60 (to take a simple example) as a fair rate of 10 cents per minute. But you get that rate only if you use the full 600 minutes.

If consumers reviewed their phone bills with an eye on periods of nonuse (like vacations), they would be alarmed at the real per-minute rate they are paying.

Sprint PCS's Fair and Flexible plan notwithstanding, I wonder why we can't simply pay by the minute, as with a land line. Rick Taylor, via the Internet

YOUR ARTICLE should have discussed phone warranties. Eighteen months ago, we switched plans because coverage in our area had deteriorated. We settled on Verizon as the best provider.

Recently, when my wife got caught in a thunderstorm, she found her phone was dead. She took it to the Verizon service center for warranty repair. The store manager told my wife the warranty was void because the unit had been "immersed," and pointed to red streaks on the battery that, the manager said, were signs that the phone had been underwater.

My wife explained about the storm, but was unable to get any relief.

Our lesson: Be sure to check out the cell phone's warranty. James Kemper Millard Lexington, Kentucky

# SPYWARE CURE

IN HIS "A Two-Pronged Spyware Defense" [Home Office, September], Steve Bass speaks of two miracle

workers—Spybot Search & Destroy and Ad-Aware—as the cure for spyware. I'd add a third: PestPatrol (www.pestpatrol.com). Ad-Aware and Spybot failed to detect 20 spyware apps that had been causing my system to load Explorer windows excruciatingly slowly and to freeze twice a day. PestPatrol found the culprits running in my Registry keys. Afterward, my computer ran as if it had been reborn.

Brooke Browne, via the Internet Editor's note: Computer Associates acquired PestPatrol in August.

# CELLULAR VS. WI-FI

REGARDING "Don't Get Burned Paying for a Hotspot" [Consumer Watch, September]: I'm skeptical about the concept of playing Wi-Fi hopscotch in search of free service or a service that is part of one's paid Wi-Fi plan. As a regular traveler, I prefer to use Verizon Wireless's service, which is based on its cellular network. The downside is expense (\$80 per month) and slower speeds than with Wi-Fi. But the upside is that I get a dependable connection just about anywhere.

B. Chris Brewster, via the Internet

#### **BACKING UP VIA BRIEFCASE**

JON L. JACOBI says that Windows' Briefcase syncing software "is useful, but limited. It only recognizes the files that have changed between syncs; it doesn't track file additions or deletions" ["Better Backups," September]. This is untrue. I use the Windows Briefcase to back up my personal files to a portable USB flash drive. This practice also lets me transport and modify these files more easily at school. I then sync the Briefcase on the USB drive to my computer and update the original files. The Briefcase always recognizes new files and deletions and gives me options for syncing each file.

Robert Eshleman, via the Internet

# IE 6 TRICK

IN SEPTEMBER'S Step-By-Step ["Cut the Clutter and Add Power to Your Browser"], Stan Miastkowski says that Internet Explorer doesn't allow selective acceptance or denial of incoming cookies; but it does. In IE 6, select Tools-Internet Options; click the Privacy tab and then the Advanced button; check Override automatic cookie handling; and select Prompt under 'First-party Cookies', 'Third-party Cookies', or both.

Lawrence Velázquez, New York City

# **KEYBOARD SHORTCUTS**

THANKS FOR THE "Clip & Save Bonus" foldout of keyboard shortcuts [September]. One error: <Ctrl>-<O> opens an existing document, not a new one. To

# Notice to Readers

PC WORLD HAS discovered that a screen saver included in the CD packaged with newsstand copies of the November issue—3D Solar Traveler—contains spyware, even though none was detected in an earlier version that we tested. We recommend that you do not install the screen saver. If you have already installed it, please visit find. pcworld.com/44086 for instructions on removing the spyware.

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open a new document, use <Ctrl>-N.

Here are a few more:

<Ctrl>-<Up Arrow> takes you to the beginning of the current or previous paragraph.

<Ctrl>-<Down Arrow> takes you to the beginning of the next paragraph.

<Ctrl>-<Left Arrow> takes you to the beginning of the current or previous word.

<Ctrl>-<Right Arrow> takes you to the beginning of the next word.

Charles Mize, Lincolnton, North Carolina Editor's response: Thanks for the additions. One clarification: We should have noted that our list of keyboard shortcuts applies primarily to Windows XP. -Dennis O'Reilly

#### THE UPDATE-GO-ROUND

I HAVE JUST downloaded yet another "critical" update for Windows XP. While I am extremely happy to see Microsoft fixing its glitches, I do have to wonder where all this update madness will end. Does Microsoft intend to supply me with a new hard drive once my current one is completely filled with updates?

Donna Crisp, Mt. Washington, Kentucky

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

OCTOBER'S Top 15 Desktop PCs should have listed the Dell Dimension 4700 as having 512MB of DDR2-400 memory.

In the October Next Gear article, "Video to DVD, Sans PC," the URL for YesVideo should have been listed as www.yesvideo.com.

In the October New Products review of the BenQ FP231W wide-screen monitor, the Find-it URL should have been find.pcworld.com/43748.

In September's Top 10 Digital Cameras, the Find-It URL for the Olympus C-5060 Wide Zoom should have been find.pcworld.com/39527.

September's Top 100 Spotlight on specialized notebooks should have said that JVC's Mobile Mini Note PC MP-XV841US has a fixed DVD-ROM/CD-R/RW combination drive.

PC World regrets the errors.



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# Intel's Missteps Delay New Gear

Plus: TiVo on the road, cell phones that speak Wi-Fi, and fast 3D on a budget.



What's Wrong With Intel?

The Buzz: Remember those supercharged notebooks I mentioned back in May? Well, the next-generation mobile Sonoma chips needed to power them won't be available until 2005. Nor will the 4-GHz Pentium 4 chip. Those are just a couple of missteps in a recent series that included Intel's owning up to flaws in two PC chip sets and a similar delay in releasing digital high-definition TV chips. Should consumers be looking elsewhere? Bottom Line: Not to worry. This qualifies as a slump, not a collapse. "It's mostly a case of bad luck," notes Nathan Brookwood of market research firm Insight 64. When Intel releases dual-processor cores on a single chip in 2005, the company should receive a big boost that will help it leave a difficult 2004 behind for good.

Home Broadcasts

The Buzz: You'll have to wait until the end of the year, but the \$249 SlingBox Personal Broadcaster will enable you to stream video from an audiovisual source (such as a set-top box, a TV, a DVR, or even a video camera) to a phone, a laptop, or any network-attached device that has a

screen. The SlingBox digitizes an analog signal, compresses it, and sends a dynamically optimized stream to you wirelessly or via the Net. The session is limited to a single stream, and it comes from a source you already pay for, so the device should satisfy the movie industry and its lawyers.

Bottom Line: Behold the birth of a brand-new product

category, and just in time for the holidays.

Wi-Fi-to-Cellular Handoff

The Buzz: Don't be misled by its plain looks. Motorola's CN620-part of a larger corporate telephone system-is an ex-

NAGGING QUESTION

# How Long Can a File Name Be?

BACK IN THE BAD old days of Windows, file names maxed out at 11 characters in 8.3 form (remember MTNG8~23.DOC?), File names

for current versions of Windows, Linux, and Macintosh can stretch out to a positively luxurious 255 characters, which (to give you some idea of length) is the number of characters, including spaces, in the sentence that you're reading just now. The file

system-not the operating system-sets the 255-character length. If you need more space than that, hire an editor.

tremely versatile little phone. A dual Wi-Fi (802.11a) and cellular (GSM) device, it uses Wi-Fi to make VoIP (Voice over IP) calls and should be able to switch seamlessly between the two networks without dropping a signal. The phone runs Windows CE, sports an HTML browser, and supports all of the corporate phone system basics. Due later this year, the CN620 will initially be offered by VoIP infrastructure

> vendor Avaya. No cellular carrier had been announced at press time. Bottom Line: As cost-saving VoIP takes off, so will demand for Wi-Fi/cellular combos. It's strictly a business play for now, but consumers should get a turn soon.

Mainstream Graphics Power

The Buzz: Earlier this year, dueling high-end graphics releases from rivals ATI (the Radeon X800) and NVidia (the GeForce 6800) broke new ground in game performance-for anyone with \$450-

plus to burn. Now the rest of us can enjoy much the same horsepower for \$200 or less. NVidia's GeForce 6600 series (based on the same architecture as the 6800) should be out in both AGP and PCI Express versions now; ATI's upcoming Radeon X700 will first be PCI Express only. Bottom Line: With the appearance of graphics-taxing games like Doom 3, Far Cry, and Half-Life 2, gamers are starting to need more oomph. Pat yourself on the back if you waited for this round of price drops. Then get shopping.

Contributing Editor Steve Fox covers buzzworthy products, ideas, and trends. Contact him at steve\_fox@pcworld.com. Visit find. pcworld.com/31643 for more Plugged In.



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# ONSUMER WATCH

ANNE KANDRA

THE PROS AND CONS OF INTERNET TELEPHONES

PRIVACY WATCH: WIRE-TAPS ON NET PHONES

ON YOUR SIDE: FAILED **EXCHANGE AT COMPUSA** 

# Should You Switch to a Net Phone?

Making calls over your broadband connection can save you some money.



IF YOU'RE LIKE ME, you've seen lots of ads for Internet phone services but met very few people who actually use one.

Dan Cistone, an Army staff sergeant based in Killeen, Texas, is living proof that those ads aren't purely hype. Cistone switched from a traditional Sprint landline to Vonage's broadband phone service several months ago, and he has never looked back. "I decided to give it a try when I realized that over half of my monthly phone bill was taxes and fees," he says. Cistone, who now pays about \$17 a month for 500 minutes of unlimited use, cites the extra features he gets as a

major plus of Voice over Internet Protocol (VoIP) service. "For that one fee, I get all the services I used to pay for, like voice mail, call waiting and forwarding, and caller ID, plus I got to choose my own area code," he says.

Cistone likes being able to use his Net phone wherever he has a broadband link. "It's great if you're in the military, because you can take the box with you."

Of course, VoIP service isn't exactly new; it's just gotten a lot better. Until recently, the technology was plagued with glitches and inconsistencies, and using it might entail firing up a PC and putting on a special headset just to call Aunt Marge. Worse, phone calls-when they went through at all-often sounded as though they were being routed through a Cub Scout's walkie-talkie.

# **BUG-FREE CALLING**

BUT INTERNET PHONING seems finally to be coming of age. Providers of the service-which include most major phone carriers and broadband services, along with a collection of specialized independent companies such as Vonage and Net2Phone-say that the bugs have been all but exterminated and that the service is ready for prime time. AT&T, literally the mother of all phone companies, recently stopped selling traditional phone service to regular consumers; but it got into VoIP service in a big way.

Communications research firm The Yankee Group expects there will be 1 million VoIP subscribers by the end of 2004, up from just 131,000 last year.

With most VoIP systems, you attach an adapter (many providers offer them for free) to your broadband connection, and then plug your telephone into the adapter. The adapter converts the phone's analog signal into a digital one that can travel over the Internet. You might need to make a few additional adjustments if you're running a Wi-Fi network; but you should be able to go online and talk on the phone at the same time, and your computer need not be turned on for you to make a phone call.

The most compelling reason to consider a Net phone is cost. In almost all cases, VoIP is cheaper-and sometimes a lot cheaper-than traditional landline

Instead of charging you à la carte for options such as voice mail, caller ID, call blocking, call forwarding, and conference calling, most Internet telephone services include all those features (and often more, such as voice—to—e-mail messaging and do-not-disturb protection) in one monthly rate. Rates and specific calling plans vary, but charges typically run between \$10 and \$40 a month.

Another plus, at least for now: National regulatory legislation for VoIP service hasn't been established yet, so you're less likely to be nickel-and-dimed with the surcharges, taxes, and service fees that bloat your regular phone bill. (However, some rules are already being established for VoIP, including wiretap regulations that

could limit the privacy of calls. See Privacy Watch below for details.)

Speaking of bills, wouldn't it be nice to get fewer of them every month? In addition to costing less for calls, VoIP service could help reduce or streamline your paper trail of telecommunications bills, consolidating some combination of your telephone, Internet, cable, and wireless charges into one statement.

#### THE DOWNSIDE

INEVITABLY, VOIP DOES have drawbacks. Probably the most troubling is that your telephone connection is only as good as your power and your broadband service, so if either one goes south, you're cut off until the juice starts flowing again. Many services, including Verizon's Voice-Wing, offer a call-forwarding feature that sends calls to a backup number during outages; just make sure that your backup is a cell phone or other system that does not require electricity to operate.

Still, it's disconcerting to think that unless you have a backup phone (or a power generator), your connection with the outside world depends on the efficiency of your service's repair crew.

If you ever find yourself in an emergency situation, you probably won't want to have to count on VoIP as your lifeline. As a rule, the services don't support traditional 911 emergency systems, though many offer a feature that connects you to local emergency services via a third party.

This workaround may be fine in some situations. But there's one important caveat: If you aren't at the address registered with your VoIP account when you call and you can't provide your location to the dispatcher, emergency responders won't know where you are.

Play it safe, and make sure you fully

PRIVACY WATCH



# Listening In to Net Phone Conversations

THE ABILITY TO MAKE PHONE CALLS over the Internet creates new communication options for all of us-including, unfortunately, criminals. Federal law enforcement officials want to make sure

that when bad guys use Net phones, the cops can listen in.

That's understandable. But giving police that option endangers the privacy of law-abiding citizens, no matter how it's done.

Many companies now offer Voice over Internet Protocol (VoIP) services, and in August the Federal Communications Commission proposed rules that would require these companies to make it easy for cops to tap Internet conversations in real time.

The rules are important to law enforcement officials, who view an untappable phone system as a magnet for miscreants.

Criminals go to great lengths to shield their telephone communications, according to U.S. Deputy Assistant Attorney General Laura Parsky. "If any particular technology is singled out for a special exemption from these [wiretap] requirements, that technology will quickly attract criminals and create a hole in law enforcement's ability to protect the public and the national security," Parsky says.

But with current technology, listening to an Internet phone conversation while it's taking place involves gathering lots more data than simply the back-and-forth between some gang members.

Part of the problem is that VoIP technology breaks voice calls into digital packets for transmission over the Internet. These packets don't always travel the same path, or arrive in the right order. Instead, software at either end reassembles the packets into some-

thing a human can understand. To capture an entire conversation in real time, law enforcement officers would have to wiretap as close as possible to either end of the conversation, where the packets get reassembled. And that means using devices that collect every bit of traffic from an Internet service provider's local outpost, through which an entire neighborhood's traffic might flow. So if you share an ISP with a nearby bad guy, copies of your e-mail messages to your cousin and of your daughter's latest music download could be swept up in the government dragnet.

## **BUILT-IN BUGS**

THERE IS A WAY AROUND the problem, but the fix raises other privacy issues. The FBI is asking Net phone providers to put wire-tapping code into their software, so agents can listen in on just the conversations they want to hear, while filtering out other traffic.

Though this would protect some people's privacy, it would also create a security vulnerability that hackers might exploit to eavesdrop on your Internet calls, according to the Electronic Frontier Foundation, a nonprofit group concerned with protecting consumers' digital rights. "If we applied the FBI's logic to the phone system, it would state that every individual phone should be designed with built-in bugs," an EFF statement argues.

For the time being, the problem seems to defy acceptable solution. The law enforcement community needs the ability to listen in on some VoIP calls, but the rest of us need our privacy protected. It's a dilemma that can only be solved by better technology.

-Andrew Brandt

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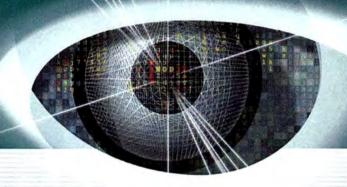




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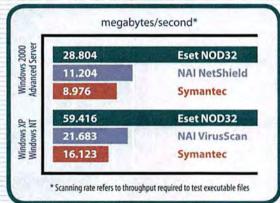
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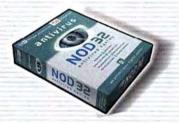
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# Exchange Program Doesn't Deliver

I BOUGHT A PALMONE ZIRE 31 PDA from CompUSA, along with the store's Express Exchange PDA Plan. For \$60, the plan entitles me to a replacement unit should mine stop working. When the handheld began having problems two months after purchase, a CompUSA representative told me to return the unit and said the company would provide me with a replacement within two days. After two weeks without receiving a replacement, I contacted CompUSA again and a rep said that the store had no replacement units in stock and didn't expect to receive more. When I

asked about replacing my PDA with another Zire model, the rep stated that CompUSA wouldn't be receiving any of those either. CompUSA also declined to give me a refund. I want either a replacement unit or my money back.

Michael Smith, High Point, North Carolina On Your Side responds: After we contacted CompUSA, the company sent a replacement Zire 31 to Smith's local CompUSA store. It also gave Smith a CompUSA gift card for his trouble. The company declined to comment on why the agent Smith spoke to did not offer him a replacement.

-Stephanie Layton

understand how your VoIP provider handles emergency service calls before you sign on. And make sure you have an emergency backup system. Many new cell phones include GPS technology that can locate you when you call 911.

Other services that most VoIP companies don't support include 411 directory assistance and text-telephone relay (TTY) service for the hearing-impaired. Many of the services don't offer published phone directories. And don't count on being able to send or receive faxes on a VoIP connection (though a few services are starting to offer fax capability). Another consideration: Many Net phones don't work with home security services or satellite TV systems that connect to a telephone line.

While most VoIP services proudly tout the ability to transfer your current phone number to your new service, some readers have complained to us that this process can take weeks or months to complete (see find.pcworld.com/44078 for details). Not all VoIP companies offer the service in every area yet, and wireless numbers and the number on the telephone line that you use for a DSL connection usually can't be transferred to VoIP.

Finally, if you plan to transfer your current number to a VoIP account, don't cancel with your previous phone service provider yourself. Premature cancellation could cause you to lose the number.

Not sure whether you're ready to commit to a VoIP plan? Many companies, like Verizon, make you agree to an annual contract; and many will hit you with a hefty fee if you bail out early. But some, such as Net2Phone, let you purchase a prepaid plan that doesn't establish a longterm contract. Others, like Vonage, let you try the service for a limited time with a money-back guarantee.

A final word about sound quality: VoIP has come a long way since the days of walkie-talkie quality, but it still isn't perfect. Network congestion and other factors can affect sound clarity and service speed, so if crystal-clear sound and rocksolid service are important to you, VoIP might not be the way to go-yet.

On the other hand, if you travel extensively, need sophisticated features, or simply want to save a few bucks each month, VoIP may be the answer.

Anne Kandra is a contributing editor, Andrew Brandt is a senior associate editor, and Stephanie Layton is an editorial assistant for PC World. You can send them e-mail at consumerwatch@pcworld.com. If you would like to read previously published Consumer Watch or On Your Side columns, visit find. pcworld.com/31703 or find.pcworld.com/ 31709, respectively.

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I can say without reservation that I have never received better support. Everything you did was timely and error-free. - Bob

I just wanted to tell you how pleased I am with the software, training, and speed. It was much easiier than I thought, and I could not be happier! Thanks! - David

I'm really impressed with the fast service you guys provide and the polite way you deal with what must seem very basic questions to you. Brilliant service! Thanks! - Sarah

I now have a few sites with you guys and believe me, I know the quality of your service, and it is a pleasure dealing with you. Your company is tops. Thank again. - Dusty



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# New Tricks With Images and Videos

# Make your point crystal clear with free pictures and movies off the Web.

HAVE YOU SEEN the hilarious video of the airliner landing on the I-405 freeway in Los Angeles? You would have if you had attended the recent Rotary club meeting I spoke at. I've used videos and images in my presentations for years, and I've uncovered some great tools for finding and managing them. (Go to find.pcworld. com/43942 to see "405: The Movie.")

I really enjoy viewing things that make me laugh out loud. And after over 20 years running a user group, I know that showing a funny video or image grabs an audience by the collar.

But more important than simply getting attention, pictures go a long way in helping to get your point across.

At the Rotary club, I used "405: The Movie" to show why some PCs can't play certain videos. (It's usually a codec problem; visit find.pcworld.com/43944 for an explanation.) Another example: To explain her job in risk management, my friend Elaine sprinkles her PowerPoint presentations with images of workers standing on three stacked buckets to paint a ceiling and doing other amazingly risky things. Go to find.pcworld.com/43948 to peruse the U.S. Navy Safety Center's spellbinding collection of accident photos.

To import images in PowerPoint, choose Insert. Picture. From File, browse to and select the image, and click Insert. Or just drag and drop the photos into your presentation. For videos, select Insert. Movies and Sounds, and then click either Movie from File or Sound from File. To make a photo album fast, click Insert. Picture. New Photo Album, choose File/Disk, and navigate to and select the pictures you want to import. Click Insert, and the images load automatically with your



moniker and "Photo Album" on the first slide.

I've accumulated a mountain of images and videos (my wife calls me Steve "Pack Rat" Bass). Good thing I've also accumulated a satchel full of tricks and free tools that help me find and manage them.

# PICTURE POWER

IF I'M LOOKING FOR a specific image, I use Google's Advanced Image Search site (find.pcworld.com/43950). It's remarkably comprehensive, if you use it correctly. Searching for long phrases doesn't do well, but searches for single words give you too many responses. As Goldilocks might say, experiment to get it just right. For instance, if you're looking for an image of a rotary phone, "phone" is too broad and "rotary phone" is better, but "vintage rotary phone" (entered in the 'related to all of the words' field) is best.

To avoid objectionable images, click use strict filtering under SafeSearch. If you have a Web site and don't want it included in Google's Image Search, browse to find.pcworld.com/43952 to remove it.

I use a supercool freebie called Picasa

for viewing, editing, and managing my image files. It's handy for cropping, rotating, red-eye removal, and other minor changes, and it prints and e-mails images. It also helps you manage and view your videos: Click Tools. Options-File Types, and check Movies. Browse to find.pcworld.com/43954 for the spyware-free download.

A Google search for "funny video"

brings up roughly 5 million site links (I was expecting at least 100 trillion). Fair warning: Many of the sites offer videos as a way to coerce you into buying something, or as a ploy to get your e-mail address. Some of the sites have adult humor, while many others get your attention (and maybe your goat) with popups. I use Google's Toolbar to block 'em -visit find.pcworld.com/43956 to get your copy. And browse to find.pcworld. com/43958 for a (mostly) safe video site.

You may find a Web site with a single video or image you want to quickly download. If you click the link, your browser opens the image or sends the video to your player. Instead, right-click the link (or the image), choose Save Picture As (or Save as), navigate to the folder you keep your images in, and click Save.

To download several large files at once, try the free FlashGet utility from Amaze Software—it scarfs up ten such files at a time. Go to find.pcworld.com/43960 for your copy. (Pay \$30 to remove ad banners and shareware reminders from the program.) A freebie that's almost as good is FreshDevices' Fresh Download (find. pcworld.com/43962). Get the picture?

Contributing Editor Steve Bass is the author of PC Annoyances, published by O'Reilly. Contact him at homeoffice@pcworld.com.



MagicTune™ on-screen image control

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# Squash a Privacy Bug in Outlook Express

Plus: A worm turns Webcams into spycams; malicious skin threatens Winamp.



I HATE THE IDEA of some-

one looking over my shoulder.

So when I hear of intrusive

bugs, I get annoyed and jittery

at the same time. An epidem-

ic of privacy holes revealed

this month can leave your

A hole in Outlook Express 6

can reveal the e-mail address-

es copied in the "blind carbon

PC-and you-exposed.

copy" (BCC) field. The problem occurs when you use OE 6, but the bug resides in IE 6, and the message has to be so big that OE must divide it into parts before transmitting it.

Fortunately, people must go through several steps before they can see the BCC recipients. To request the hot fix for this bug, visit find. pcworld.com/44136.

# PEEPING CAM

DON'T LOOK NOW, but if you have a Webcam

and a microphone connected to your PC, someone could use a worm to spy on you, observing through your camera, listening to what you say, and even stealing passwords and product keys. Named for its intent to turn your PC into a cracker's robot. Rbot-GR can send video from your Webcam and audio from your microphone back to a voyeur, says security firm Sophos.

Although Rbot-GR isn't the first worm to use Webcams as peepholes, it uses more complex attack strategies such as spreading via a network and exploiting other Windows vulnerabilities. For updates and virus removal instructions. visit find.pcworld.com/44138.

# **GETTING UNDER YOUR** WINAMP SKIN

WHO WOULD have thought that simply changing the appearance of your media player could compromise your computer's security? Nullsoft, maker of Winamp, has recently patched just such a vulnerability in its popular media player. Security firm Secunia (find.pcworld.com/44142) reported a hole in Winamp versions 3.x through 5.04 that can enable hackers to hide their own attack program in a user-downloaded skin.

A malicious skin can let the bad guys control your PC, including reformatting your hard drive. According to Secunia, some Winamp users have reported being hit with spyware as well. Get the latest version of Winamp, 5.05, at find.pcworld.com/44134.

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

IN BRIEF

# Printer Recall

DELL, IBM, and Lexmark are recalling several laser printers (including Dell's 1700; IBM's Infoprint 1412; and Lexmark's E232, E330, and E332n) due to potential shock hazards. For details on getting a replacement, go to find.pcworld.com/44294.

# WinZip Patch

THE NEW Service Release 1 for WinZip 9 patches several security holes, including potential buffer overflows. Improvements include displaying messages that warn users if the zipped file contains a virus. Download SR-1 at find.pcworld.com/44284.

# Siemens Cell Phone Warning

A LOW-BATTERY disconnection warning melody that plays too loudly in Siemens' 65 series phones can damage hearing. Users should end a call as soon as they hear the low-battery signal. Visit find.pcworld.com/ 44182 or call 888/777-0211 for more information.

# BUGGED?

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

# FIX KINKS IN MICROSOFT OFFICE 2003

IF YOU USE OFFICE 2003, now's the time to install the newly released Service Pack 1 for the suite. It bundles previous hot fixes up through the end of May 2004. It also does away with a litany of annoying and sometimes unpredictable program behaviors.

For instance, one fix eliminates the problem of losing the zip code field when you perform a mail merge in Word 2003 using an Outlook 2002 contacts list. Another fix corrects a problem that may cause Outlook 2003 to hang when you open a form. Head to find.pcworld.com/44144 for a complete list of fixes, and go to find.pcworld.com/44146 to download the service pack.

{MOBILE PCs}

# CuttingCord

Toshiba Satellite M35X-S349: 512 MB of memory, 15.4" active matrix screen, and a spacious 80-GB hard drive.

When it comes to wireless network and computing needs, Best Buy™ is a one-stop shop

>> Once upon a time, the length of the phone cord governed the mobility of telephone users, a fact that now seems like ancient history. Today, many computer users suffer the same restrictions, limiting their network computing or Web



Linksys SpeedBooster 802.11g Wireless Router: Surf, play, share, and download at blinding speeds up to 54 MB/sec.

surfing to the vicinity of their desktop.

The truth is, it has never been easier to cut the cord and enjoy a life of anytime, anywhere computing offered by wireless networks. And Best Buy (www.BestBuy.com™), a specialty retailer of consumer electronics, personal computers, entertainment software, and appliances, offers everything wireless you need to enter the world of computing.

The heart of any wireless network is a high-quality, reliable wireless router, which is the link between wireless-enabled devices and a shared, high-speed Internet connection. Think of the router as a sort of traffic cop, directing data from computers to printers or scanners, or to other computers on the wireless network and beyond.

When it comes to wireless routers, the Linksys Speed-Booster 802.11g Wireless Router is a true all-star, allowing users to surf, play, share, and download at blinding speeds up to 54 MB/sec—or up to five times faster than the speed of most 802.11b wireless routers. With the Linksys SpeedBooster 802.11g Wireless Router, Best Buy makes it easy for users to share their cable, DSL, or other high-speed Internet connection with or without wires. The router's set-up wizard automatically detects and configures the best Internet connection. And the Linksys SpeedBooster 802.11g offers superb wireless data security with its true firewall with SPI and NAT protection.

Once the wireless router is up and running, it's time to start unplugging the wires from computers and print-

ers and realize the joys of mobile computing. If you have existing PCs or notebook computers that aren't wireless-enabled, that's no problem. Best Buy has a wide variety of affordable, easily installed wireless cards that instantly allow these devices to tap into your wireless network.

If you are in the market for a world-class notebook computer that is completely wireless-ready right out of the box, Best Buy offers the Toshiba Satellite M35X-S349, a powerful and versatile unit powered by Intel Centrino Mobile Technology. A multitasking dynamo equipped with 512 MB of memory, the Satellite S349 sports a big and bright 15.4" active matrix screen with TruBrite screen technology. A spacious 80-GB hard drive is perfect for those big multimedia files, and the Satellite S349's three plug-and-play USB ports make it easy to plug in your favorite peripherals. With Microsoft Windows XP Home Edition preinstalled, this 802.11g integrated machine is

the perfect addition to the wireless network.

No network is complete without printers, scanners, copiers, and fax machines. But why purchase multiple machines when Best Buy offers the Hewlett-Packard PSC 2710—



Hewlett-Packard PSC 2710: Printer, copier, scanner, and fax in one unit.

a printer, copier, scanner, and fax in one compact, intelligent unit, which allows sharing of its capabilities and output with multiple home PCs wirelessly. The HP PSC 2710 is wireless-ready with built-in Ethernet connectivity. This powerful machine can print 30 black-and-white pages per minute or 20 color prints with a stunning 4800x1200 dotsper-inch resolution. It can also crop, zoom, and control redeye on photos and make borderless prints on standard-sized photo paper. The HP PSC 2710 offers 48-bit color scanning with resolution up to 2400x4800 and comes with HP photo and imaging software.



Now is the time to cut the cord and exploit the fast-growing world of wireless computing. Best Buy makes it a snap to lose those wires forever.

■ For more information, visit www.BestBuy.com<sup>™</sup>.





Upwardly Mobile

In the push for "total mobility," make sure you practice safe computing



have snuck at least a peek—if not a lot more—at someone else's laptop. That is one key finding of a study by Kelton Research in its annual snoop survey.

With the proliferation of ever-wider laptop screens, it is easier than ever for someone to peek at and read a screen from any angle in front of the screen. That is why privacy experts today strongly recommend mobile professionals equip their laptops with privacy filters. And no one makes more or better filters than the 3M Optical Systems Division (www.3M.com/computerfilters).

This will be welcome news to today's business users, who have to pay more attention to data privacy and security due to the rising tide of information privacy legislation. Also, the rapid proliferation of wireless hotspots is making public, ubiquitous computing more practical, exposing what's on the screen to a far greater number of potential intruders.

That is where 3M's technology shines. Consider for example 3M's newest filter, the Notebook Privacy Filter PF15.4, designed specially for widescreen notebook computers that offer so much viewing—and potential snooping—area. As the first filter maker to offer widescreen privacy filters, 3M makes its notebook filters to fit securely and easily right in the bezel next to the LCD screen.

The PF15.4 offers patented blackout privacy protection so users can compute even in public in complete confidence. Like a good camera filter, the PF15.4 also protects the sensitive LCD screen from scratching while reducing glare and improving contrast.

hether the applications include remote user support, LAN networking, hands-free "wearable" computers, or many others, wireless and mobile solutions have emerged as a key element in the business world today, and increasingly in the consumer realm as well.

The growth in mobile computing is stunning. Millions of devices destined to be the next end-user computing platforms of choice are flooding businesses and homes. For example, consider that new sales of wireless devices, including PDAs, smart phones, palmtop computers, and wireless-enabled laptops, will exceed 140 million this year in North America, according to IDC. That's one new mobile device for every two people.

This hypergrowth is being propelled by end users who want to take their computing with them wherever they go, and be able to leverage the Internet and expanding wireless networks to do all their computing on the go. Further, IDC maintains that user attitudes are changing in regards to wireless and mobile applications, with wireless applications now penetrating beyond traditional vertical markets and moving into the enterprise, small business, and burgeoning telecommuter markets, as well as into the home.

# Dupe the Snoops!

But buyer beware! The mobile world is not exactly like the friendly confines of an office or home setting. On the contrary, there's potential trouble lurking out there.

For example, next time you fire up your wireless laptop in a coffee shop or airport terminal, look around. Three of the four people you see around you probably

For more information, visit www.3M.com/computerfilters.



# INTRUDER ACCESS DENIED.



Your notebook computer lets you work nearly anywhere. But what happens if your sensitive information gets into the wrong hands? 3M<sup>™</sup> Notebook Privacy Filters limit the field of view so that only persons sitting directly in front of the monitor can see on-screen data. Prying eyes on either side just see a dark black screen. 3M Privacy Filters are a low-cost, easy to implement solution that can help you comply with current privacy legislation. Available in styles and sizes to fit most desktop LCD, CRT or notebook monitors. Look into 3M Privacy Filters at www.3M.com/computerfilters or call 1-800-813-4792 ext. PCW11. Call now and receive a FREE pad of Post-it® Super Sticky Notes!

**3M** Innovation





# NEW PRODUCTS

EDITED BY TOM MAINELLI

# New Players Challenge IPod

We tested three portable digital music players and discovered that Apple no longer maintains a monopoly over coolness.



Apple to get a high-quality MP3 player. It's true that the company's exceptionally well-designed IPod and IPod Mini have become the standard by which all portable players are judged, but they're far from the only game in town.

And there's at least one distinct advantage to avoiding the IPod bandwagon: flexibility. All three players I tested support MP3 and WMA. Most of the major online music stores (aside from Apple's ITunes, which is just about your only online store option if you use an IPod) offer downloads as WMA files. In addition, firmware upgrades for all three players will support Micro-

soft's new Windows Media Digital Rights Management technology, which will enable users to move subscriptionbased content from their PCs onto their portable players.

Creative Zen Touch.

### MUSIC IN A FLASH

FLASH DRIVES have no moving parts, so they're ideal for active music fans. Rave-MP's crimson, pager-size AMP 128 weighs a mere 1.8 ounces, and yet it comes with 128MB of flash storage, an FM receiver, a voice and FM recorder, an SD/MMC card slot for additional

storage, and an AAA battery.

The device—plus a USB cable, hook-on earphones, a belt clip, and an armband—costs only \$99 (a 256MB version runs \$129). It sounds like a good deal—and overall, it is.

Accompanying the player is a disc containing free Windows Media Player 9 desktop software for file transfers; but since the device appears as a drive when you use the USB cable to plug it into a PC, I simply dragged and dropped files to my preproduction unit.

The AMP 128 player seems ideal for runners: It's so light that I had no trouble adjusting to having it attached to my arm. I loaded 21 MP3 songs onto the device, each encoded at 192 kbps (Rave-MP says that the AMP 128 can accommodate up to 4 hours of WMA tunes encoded at 64 kbps). The unit exhibited strong battery life, turning in 17 hours, 13 minutes of run time on a single alkaline AAA battery.

Still, there are a few things not to like: The AMP 128's construction feels a bit flimsy, and the device takes too long (over 24 seconds) to power up. The reverse-contrast monochrome screen can be hard to see in bright sunlight, and the volume seemed a bit weak, even when set to maximum.

Overall, though, I enjoyed using the AMP 128. And at less than \$100, it's a player you won't mind sweating all over.

# NO CARBON COPY

A STEP UP in capacity and price from the AMP 128, Rio's new 5GB Carbon is the sleekest MP3 player I've ever laid eyes

- **60 PORTABLE MUSIC PLAYERS** Rave-MP AMP 128, Rio Carbon, and Creative Zen Touch
- 62 PRODUCTIVITY SOFTWARE Microsoft Works 8 ANTI-SPYWARE SOFTWARE Ad-Aware SE NOTEBOOK Panasonic Toughbook Y2
- AUDIO SOFTWARE Musicmatch Jukebox 9

- **68 EXTERNAL STORAGE** Seagate USB2 Pocket Hard Drive **NETWORK CAMERA** D-Link Securicam Network DCS-5300G Internet Security Camera
- DIGITAL CAMERA Pentax Optio MX IMAGE EDITING SOFTWARE Jasc Paint Shop Pro Studio
- 72 PDA T-Mobile Sidekick II

72 BACKUP SOFTWARE Acronis True Image 8

74 NOTEBOOK HP Pavilion Dv1000 **OPERATING SYSTEM** Xandros Desktop OS Deluxe 2.5



on. Happily, the \$249 device isn't just about looks: A simple interface and amazing battery life mark it as a definite contender for the mini crown now held by Apple's comparably priced 4GB IPod Mini.

The Carbon's wedge-shaped design makes the unit easy to slip into a shirt, pants, or jacket pocket (even when enclosed in its simple case). A smoothoperating directional pad up front and a clickable dial and menu button on the right side streamline navigation. Rio keeps other buttons and ports to a minimum: In addition to a power-on button, there is a headphone jack, a USB 2.0 port, and a built-in microphone for recording memos.

The USB 2.0-based Carbon appears as a drive when you plug it in, or you can use Rio's solid Music Manager app to transfer songs. I loaded 906 MP3 songs encoded at 192 kbps into my preproduction unit (Rio claims the device can hold up to 160 hours of WMA music encoded at 64 kbps). Both the unit's sound quality and its volume were good.

The Carbon lets you select

# Sizing Up Today's MP3 Players

PLAYER	Capacity	Battery type	Run time
Creative Zen Touch	20GB hard drive	Integrated rechargeable	26 hours, 11 minutes
Rave-MP AMP 128	128MB flash	Standard AAA	17 hours, 13 minutes
Rio Carbon	5GB hard drive	Integrated rechargeable	20 hours, 37 minutes

songs by album, artist, genre, or track-or by when you last heard them (in increments of a day, week, or month). The Carbon's greatest weakness: It doesn't let you generate your own on-the-fly playlists.

In my informal tests, the rechargeable lithium ion battery ran for an admirable 20 hours, 37 minutes-dramatically better than the 8-hour maximum that Apple's similar-size IPod Mini is rated to last.

I would recommend this truly impressive MP3 player to anyone who'd be satisfied with 5GB of storage.

# CREATIVE'S TOUCH

IF YOU PREFER to bring along most or all of your music collection, you might consider moving up to Creative's \$270 Zen Touch. A legitimate

alternative to Apple's slimmer and lighter 20GB IPod, the Zen Touch has a more durable exterior and dramatically better battery life than Apple's player. Nevertheless, while the Zen Touch may please buyers new to the Creative line, the latest player may disappoint fans of previous Zens.

I fall into the second camp. I had anticipated that Creative would build on the strength of earlier players such as the Zen NX and the Zen Xtra. Though larger than competing products, they justified their size with greater storage capacity, a user-replaceable battery, more playlist options, and (often) dramatically lower prices.

Regrettably, the Zen Touch does away with most of those advantages. At launch, there's only a 20GB version (Creative plans to release larger versions later); and though it's priced much less per gigabyte than the Rio Carbon, the Zen Touch costs just \$30 less than Apple's more polished IPod.

In my tests of a shipping unit, the rechargeable lithium ion battery lasted for a superb 26 hours, 11 minutes between charges (more than double the battery life of the latest IPod), but you can't replace it.

And while the new touchpad works well, it's not as slick as the IPod's scrollwheel.

# ONE HAND CLAPPING

CURRENTLY the Zen Touch doesn't appear as a drive when plugged into a PC's USB 2.0 port, so I used Creative's MediaSource application to move 3597 MP3 files encoded at 192 kbps onto the unit (Creative says the player can hold up to 10,000 WMA songs). Creative includes its Nomad Explorer utility for transferring other types of files to the player.

The Zen Touch retains the fine sound quality of previous Zens; but in simplifying the menus, it loses some good features (particularly in playlists).

The Zen Touch is a wellmade MP3 player with excellent battery life. Unfortunately, in trying to compete with the IPod, Creative dropped some of the very features that could have made it superior.

-Tom Mainelli

# **AMP 128**

Rave-MP

\*\*\*

Inexpensive flash player could be sturdier, but does the job.

Street: \$99

find.pcworld.com/44234

# Carbon

Rio

# \*\*\*\*

Impressive 5GB player looks great and works even better.

Street: \$249

find.pcworld.com/43870

## Zen Touch

Creative

\*\*\*

Good player with great battery life lacks previous Zens' features.

Street: \$270

find.pcworld.com/44238

#### PRODUCTIVITY SOFTWARE

YOU WOULDN'T use a sledgehammer to hang a picture frame, so why would you sink hundreds of dollars into an office software suite with scores of features you'll never use?

Microsoft's trusty, \$50 Works 8 gives you all the word processing, spreadsheet, database, and scheduling features you're likely to need, without the triple-digit price of its bigger sibling, Microsoft Office. You can even open and save files in Word's .doc. in Excel's

Works 8

Microsoft \*\*\*

Meets the applications needs of most PC users, at a bargain price. List: \$50

find.pcworld.com/44174

.xls, and in other popular Office file types, as well as in the standard Works file formats.

I tested a shipping version of the package, and found the updated word processor more than adequate for most writing chores. It even includes a new dictionary and thesaurus with parental controls.

shareable calendars that you can post to the free ICalShare Web site, and automatic file backups that save your open documents every 10 minutes.

In a world of never-ending up-sell, it's nice to know that you can still get the productivity apps you need-and only the ones you need-without spending a lot of money.

-Dennis O'Reilly

Other noteworthy features:

ering new features and faster performance than previous versions. As in the past, the company offers several choices: a free Personal version (available for downloading at PCWorld.com), a Plus version (\$27), and a Professional version (\$40). All provide in-depth system scanning, and in addition the Plus and Pro versions deliver improved real-time monitoring. find.pcworld.com/44236

QUICK TAKES

Ad-Aware

Lavasoft Updates

SPYWARE isn't getting any

dumber, so the software you

use to keep it off of your PC

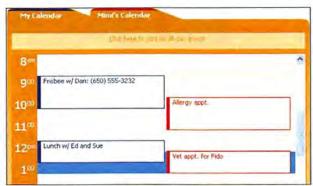
has to continue evolving, too.

The new Ad-Aware SE from the

pioneering spyware buster

Lavasoft does just that, deliv-

-Tom Mainelli



MICROSOFT WORKS 8 lets up to four family members create and merge their own color-coded calendars so everyone is up to speed.

# Panasonic's Tireless Little Toughbook

# NOTEBOOK

GEARED TOWARD users who often work outdoors in extreme conditions, Panasonic's ruggedized Toughbook Y2 must be the unofficial notebook of the Energizer Bunny. Vendors always overpromise on battery life, but the ultraslim Y2 actually ran past the 4 hours Panasonic vouches for. It just kept going and going and going, before finally using up its juice

Toughbook Y2

Panasonic

\*\*\*\*

Handsome, rugged laptop offers excellent battery life and performance.

Street: \$2550

find.pcworld.com/44320

at 4 hours and 53 minutes.

Great battery life isn't the \$2550 Y2's only strength. I kept expecting to run into one of the gotchas that so often accompany sub-4-pound notebooks, but I never found one.

Performance was no embarrassment. The unit's 1.3-GHz Low Voltage Intel Pentium M 713 processor helped power the Y2 to a respectable World-Bench 5 score of 61, despite a relatively meager 256MB allotment of RAM. The screen-a crisp 14.1-inch, 1400-by-1050 SXGA antiglare TFT-did its job handsomely, displaying gorgeous graphics under most light-

ing conditions. And

connectivity was well

PANASONIC'S Toughbook Y2.

served: The Toughbook Y2's 802.11g antenna clamped tenaciously onto even weak signals.

Surely they skimped on the design, then? Nope. The unit's full-size, 87-key keyboard was one of the most comfortable

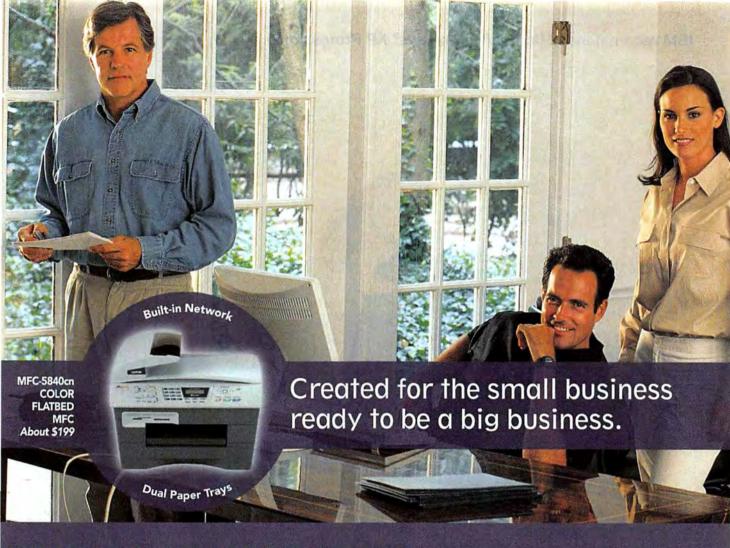
that I have used on any notebook. And I found the Toughbook's DVD/CR-RW combo drivewith its clamshell door integrated into the front of the

wrist rest-distinctly easier to use than the slide-out tray that most notebooks have.

Well, maybe the gotcha has to do with Panasonic's assertion that the unit is ruggedized? The case does feel like cheap toy plastic. But the surprisingly resilient material envelopes a sturdy magnesium alloy case, and the 40GB hard drive is shock-mounted.

> I couldn't find anything to cause me to think twice about the shipping unit I tested. With its solid performance, good battery life, durable chassis, high-quality keyboard and screen, and powerful Wi-Fi signal, the Toughbook Y2 is one gotcha-free notebook.

-Michael S. Lasky



# Multi-Function Center® models that are designed with exactly your needs in mind.

When it's your company, it's your hard earned money. So everyone and everything has to exceed the expected.

Which is exactly the philosophy behind our all-in-one models. They're designed to give you the ability to effortlessly print, copy, fax, scan, and more. Plus they're available with either color inkjet or laser technology, as well as flatbed or sheetfed. Some models also have unique features like networkability and the ability to handle digital media. Most importantly, they're designed to address your needs for the long term.

And with over a dozen PC & Mac\* compatible models to choose from, finding one with the features, performance, and value you're looking for will be every bit as easy as using it to take your business to the next level.



A VARIETY OF MODELS AVAILABLE AT: Office Depot, OfficeMax, Staples, J&R ComputerWorld, Global Computer Supplies, MicroCenter, Fry's, PC Connection, CDW, Insight, PC Mall, Zones, Quill, Viking, Dell, Tiger Direct, PC Nation, Amazon.com, Gateway.com, Buy.com, and Tech Depot.com



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# IBM recommends Microsoft® Windows® XP Professional.



# GO with IBM Think Express Program

IBM Think Express models are designed, configured and priced with small to medium-size businesses in mind.

CNET Editors Choice Award, March 2004 IBM ThinkPad X40

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# IBM ThinkPad R51

Ultimate Value

#### Distinctive IBM Innovations:

- IBM Embedded Security Subsystem 2.0° Strongest security as a standard feature
- IBM Access Connection Helps reduce wireless helpdesk calls

# System Features:

- · Intel® Centrino™ Mobile Technology
- Intel Pentium M Processor 715 (1.50GHz)
- . Intel PRO/Wireless Network Connection 802.11b/g
- . Microsoft Windows XP Professional
- 14.1 XGA TFT display (1024x768)
- 256MB DDR SDRAM\*
- . 30GB hard drive
- · Ultrabay™ Enhanced CD-RW/DVD-ROM combo
- IBM UltraConnect™ Antenna for increased signal strength
- . 1-yr system/battery limited warranty

NavCode 28838QU-M419 THINK EXPRESS MODEL PRICED AT:

\$1,299\*

ServicePac® Service Upgrade:
3-yr Depot Repair #30L9192 \$132

# IBM ThinkPad X40

Our thinnest and lightest

#### **Distinctive IBM Innovations:**

- IBM Embedded Security Subsystem 2.0 Strongest security as a standard feature
- IBM Rescue and Recovery<sup>™</sup> –
   One-button recovery and restore solution

### System Features:

- · Intel Centrino Mobile Technology
- · Intel Pentium M Processor ULV 1GHz
- Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1 XGA TFT display (1024x768)
- · 256MB DDR SDRAM
- · 20GB hard drive
- . Integrated Gigabit Ethernet and modem
- . Legendary IBM full-size keyboard10
- · Only .94" thin"
- · 2.7-lb travel weight"
- . 1-yr system/battery limited warranty

NavCode 23861CU-M419

THINK EXPRESS MODEL PRICED AT:

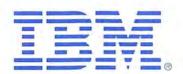
\$1,499

# It makes managing wireless access easier from almost anywhere. These IBM

ThinkPad notebooks come equipped with Intel Centrino Mobile Technology, so users can work wirelessly when they're, well, far away from the office. But they're also equipped with something that only IBM has — Access Connections. It makes switching between different network connections easier than ever. Once a connection profile's been created, simply select a location and it all happens automatically. There's no need to manually reconfigure settings or reboot each time the location changes. When it's easier for users to connect to a network on their own, a funny thing happens. It's also easier to disconnect from the help desk. To see a demo, go to ibm.com/shop/m511 Houston, we have a connection.

Secure wireless. Only on a ThinkPad.

1 866 426-7313 ibm.com/shop/m511



business, professional or trade purposes, rather than personal, family or household purposes. Service period begins with the equipment date of purchase, Service levels are response-time objectives and are not guarantees. If the machine problem turns out to be a Gustomer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. For ThinkPad notebooks requiring LCD or other component replacement. IBM may choose to perform service at the depot repair center. Calls must be received by 5pm local time in order to qualify for Next Jonathy and provided the part of th

# Take a look at some of our latest models. And get connected.



#### Why IBM ThinkPad Notebooks?

To make IBM ThesePad investor we even than 190 appearance that there was because the officiary, productively and edge you recent and carries with all the following These Variage 1 for housings.

IBM Active Protection System; Faith-timper uniter Sance IBM ThinkEart orbitabacks and model (use artising the feetinology to being protect) your hand drive from some damage.

# NEW! Rescue and Recovery with Rapid Restore:

Cause of the direct and yells

cold year than because of a sitting create or very? Record or course saved data or remotes with a me purior volumer.

# Access Connections:

Switch between wind and wrong connections.

#### Embedded Security Subsystem 2.0:

Hickers and theyes, beware Our combined hardware and software and software in designed to protect user data and wrop it provide.

## Access IBM:

Tail the body of the expension of the factor of your Principal and the expension of the exp

#### IBM ThinkPad R51

## System Features:

- . Intel® Centrino™ Mobile Technology
- Intel Pentium<sup>®</sup> M Processor 715 (1.50GHz)<sup>2</sup>
- Intel PRO/Wireless Network Connection 802.11b/g<sup>1</sup>
- Microsoft Windows XP Professional
- 15" SXGA+ TFT display (1400x1050)
- 256MB DDR SDRAM
- . 40GB hard drive
- · Integrated Ethernet and modem
- IBM Ultrabay™ Enhanced CD-RW/ DVD-ROM combo
- IBM UltraConnect<sup>™</sup> Antenna for increased signal strength<sup>™</sup>
- 1-yr system/battery limited warranty

NavCode 1836H8U-M419

PRICED AT

\$1,499\*

With Microsoft Office Small Business Edition 2003: \$1,739



### IBM ThinkPad T42

#### System Features:

- . Intel Centrino Mobile Technology
- . Intel Pentium M Processor 1.50GHz
- Intel PRO/Wireless Network Connection 802.11b/g
- · Microsoft Windows XP Professional
- 14.1° XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 256MB DDR SDRAM
- . 30GB hard drive
- . Integrated Gigabit Ethernet and modem
- . IBM Ultrabay Slim DVD-ROM
- IBM UltraConnect Antenna for increased signal strength
- . Only 1° thin, 4.5-lb travel weight
- · 1-yr system/battery limited warranty'

NavCode 2378DTU-M419

THINK EXHRES S MODEL

\$1,499

With Microsoft Office Small Business Edition 2003: \$1,739

ServicePac Service Upgrade: 3-yr Depot Repair #30l 9192 \$132



### IBM ThinkPad T42

#### System Features:

- · Intel Centrino Mobile Technology
- · Intel Pentium M Processor 1.50GHz
- Intel PRO/Wireless Network Connection 802.11b/g
- . Microsoft Windows XP Professional
- 15" XGA TFT display (1024x768)
- . 32MB ATI Mobility RADEON 7500 graphics
- 256MB DDR SDRAM
- . 40GB hard drive
- . Integrated Gigabit Ethernet and modem
- · Ultrabay Slim CD-RW/DVD-ROM Combo
- . Only 1° thin, 5-lb travel weight
- 1-yr system/battery limited warranty¹
   NavCode 2378DWU-M419

PROVE EXPINE US MODES

PRICES AT

With Microsoft Office Small Business Edition 2003: \$1,889

\$1.649

ServicePac® Service Upgrade: 2 2-yr Onsite Repair/9x5/Next Business Day Response #30L9189 \$197



# IBM ThinkPad X40

#### System Features:

- Intel Centrino Mobile Technology
- Intel Pentium M Processor LV 1.20GHz
   Intel PROWireless Connection 802 11b
- Intel Pho/wireless Connection 802 11
- Microsoft Windows XP Professional
   12.1° XGA TFT display (1024x768)
- Intel Extreme Graphics 2
- 256MB DDR SDRAM
- · 40GB hard drive
- . Integrated Gigabit Ethernet and modem
- . Legendary IBM fullsize keyboard"
- . 7.5hr Li-lon battery15
- . 1-yr system/battery limited warranty

NavCode 23866GU-M419

THINK EXPRESS MODEL PRINCED AT

\$1,699

With Microsoft Office Small Business Edition 2003: \$1,939

ServicePac Service Upgrade: 3-yr Onsite Repair/9x5/Next Business Day Response #30L9195 **\$243** 

# IBM ThinkPad T42

#### System Features:

- · Intel Centrino Mobile Technology
  - Intel Pentium M Processor 735 (1.70GHz)
- . Intel PRO/Wireless Network Connection 802.11b/g
- · Microsoft Windows XP Professional
- 14.1 XGA TFT display (1024x768)
- 32MB ATI Mobility RADEON 7500 graphics
- 256MB DDR SDRAM
- 40GB hard drive
- · Integrated Gigabit Ethernet and modem
- . IBM Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- . 1-yr system/battery limited warranty

NavCode 2378FTU-M419

THINK EXPRESS MODEL
PRICED AT

With Microsoft Office Small Business

Edition 2003: \$1,989 ServicePac Service Upgrade: 4-yr Depot Repair #69P9195 **\$249** 

# IBM ThinkPad T42

# System Features:

- Intel Centrino Mobile Technology
- Intel Pentium M Processor 735 (1.70GHz)
- Intel PRO/Wireless Network Connection 802.11b/g
- Microsoft Windows XP Professional
- 15° SXGA+ Flexview TFT display (1400x1050)
- 64MB ATI Mobility RADEON 9600 graphics
- 512MB DDR SDRAM
- 60GB hard drive (7200 RPM)
- · Integrated Gigabit Ethernet and modern
- IBM Ultrabay Slim CD-RW/DVD-ROM combo
- IBM UltraConnect Antenna for increased signal strength
- 3-yr system/1-yr battery limited warranty

NavCode 2379DXU-M419

THINK EXPRESS MODE PROCEDUAT

ServicePac Service Upgrade: 4-yr Onsite Repair/9x5/Next Business Day Response #69P9198 \$299

# IBM ThinkPad X40 Solution Pack

# IBM ThinkVantage Technologies: • Longest standard battery life of any

 Longest standard battery life of any leading-brand notebook

# System Features:

- Intel Centrino Mobile Technology
  - Intel Pentium M Processor LV 1.20GHz
- Intel PRO/Wireless Network Connection 802.11b
- Microsoft Windows XP Professional
- 12.1" XGA TFT display (1024x768)
- 256MB DDR SDRAM
- · 40GB hard drive
- . Integrated Gigabit Ethernet and modem
- 7.5-hr Li-lon battery
- 3-yr system/1-yr battery limited warranty

# Accessories Included:

ThinkPad X4 UltraBase Dock

IBM Ultrabay Slim CD-RW/DVD-ROM combo

NavCode 23826UU-M419

THRIK EXPRESS MODEL

\$2,199

ServicePac Service Upgrade: 5-yr Onsite Repair/9x5/Next Business Day Response #69P9200 **\$449** 

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\$2,399

\*Availability: All offers subject to availability: All offers subject to availability. IBM reserves the right to after product offerings and specifications at any time, without notice. IBM is not responsible for photographic or typographic errors. \*Pricing: does not include tax or shipping and is subject to change without notice. Reseller prices may vary. Warranty: For a copy of applicable product varranties, write to. Warranty Information, P.D. Box 2195, RTP, NC 27799, Attributed by the processor of the product of the product of the product varranties, write to. Warranty Information, P.D. Box 2195, RTP, NC 27799, Attributed varranty regarding third-party products or services. Footnotes: (1) Embedded security system: requires software download, (2) Mobile Processors: Power management reduces processor speed when in battery mode. (3) Wireless 11a, 11b and 11g: based on IEEE 802 11a, 802.11b and 802.11g, respectively. An adapter with 11a/b, 11b/g on 11a/b/g on communicate on either or any of these listed formats respectively; the actual connection will be based on the access point to which it connects. (4) Included software: may differ from its retail version (if available) and may not include user manuals or all program functionality. License agreements may apply, (5) Memory: For PC (b) Memory: For PC (c) Memory: For PC (c

# IBM recommends Microsoft® Windows® XP Professional.



(Monitor not included)

#### Why IBM ThinkCentre PCs?

Only IBM offers these features to protect your users, connect them, and keep them working. Each ThinkCentre<sup>31</sup> desktop featured here can give them the efficiency, productivity and edge they need with the following ThinkVantage Tochriologies:

# Rescue and Recovery with Rapid Restore:

Lost your data because of a software crash or virus? Recover previously saved data in minutes with our one-button solution.

#### Access IBM:

Get the help you need, when you need it. One button on your ThinkCentre desktop brings you a world of resources and assistance

#### ImageUltra™ Builder:

Need to roll out new systems? Image and copy your operating system across your network in a flash. (Order separately)

#### IBM ThinkCentre A50

#### System Features

- . Intel® Pentium® 4 Processor with HT Technology 3.0GHz
- . Microsoft Windows XP Professional
- · Tower form factor
- 256MB DDR PC3200
- . 40GB hard drive . CD-ROM
- . Integrated 10/100 Ethernet
- . Norton AntiVirus™ with 90 days of virus definition updates
- . Lotus SmartSuite Millennium license
- . 1-yr parts limited warranty with 1-yr limited onsite service

NavCode 814821U-M419

THINK EXPRESS MODEL PRICED AT:



(Monitor not included)

# IBM ThinkCentre A50

#### System Features:

- · Intel Pentium 4 Processor with HT Technology 3.0GHz
- · Microsoft Windows XP Professional
- · Small form factor 62% smaller than a standard desktop"
- 256MB DDR PC2700
- · 40GB hard drive · CD-ROM
- . Integrated 10/100 Ethernet
- . Norton AntiVirus with 90 days of virus definition updates
- · Lotus SmartSuite Millennium license
- · 3-yr parts limited warranty with 1-yr limited onsite service17

NavCode 841943U-M419

THINK EXPRESS MODEL PRICED AT

ServicePac Service Upgrade: 4-vr Onsite Repair/9x5/Next Business Day Response #69P9158 \$198

# **IBM ThinkCentre A50**

### System Features:

- · Intel Pentium 4 Processor with HT Technology 3.0GHz
- · Microsoft Windows XP Professional
- . Tower form factor
- 256MB DDR PC3200
- . 40GB hard drive . CR-RW
- . Integrated 10/100 Ethernet
- . Norton AntiVirus with 90 days of virus definition updates
- · Lotus SmartSuite Millennium license
- . 1-yr parts limited warranty with 1-yr limited onsite service"

NavCode 814822U-M419

THINK EXPRESS MODEL PRICED AT.



(Manitar not included)

# **IBM ThinkCentre A50** Ultra small form factor

#### System Features:

- . Intel Pentium 4 Processor with HT Technology 3.0GHz
- . Microsoft Windows XP Professional
- · Ultra small form factor 74% smaller than a standard desktop<sup>18</sup>
- 256MB DDR PC3200
- . 40GB hard drive . DVD/CD-RW combo
- . Norton AntiVirus with 90 days of virus definition updates
- · Lotus SmartSuite Millennium license
- . Integrated 10/100 Ethernet
- . 1-vr parts limited warranty with 1-yr limited onsite service'

NavCode 809022U-M419

With Microsoft Office Small Business Edition 2003: \$1,089

ServicePac Service Upgrade: 3-yr Onsite/9x5/Next Business Day Response #54P1861 \$132

#### IBM ThinkCentre A51p (model not shown)

# System Features:

- Intel Pentium 4 Processor 530 with HT Technology
  - · Processor speed 3.0GHz
  - · 800MHz FSB
- . Microsoft Windows XP Professional
- . Tower form factor
- 512MB DDR2 PC3200
- . 80GB hard drive . DVD/CD-RW combo
- . Gigabit Ethernet-integrated
- . 64MB ATI RADEON x300 Pro
- . 1-yr parts limited warranty with 1-yr limited onsite service

NavCode 842722U-M419

With Microsoft Office Small Business Edition 2003: \$1,289 ServicePac Service Upgrade: 3-yr Onsite/9x5/4-hr Response #54P1862 \$239



IBM Think Express Program: We've designed and priced many small and medium businesses. And best of all, they're available direct from IBM or through select IBM Business Partners.

# **IBM ThinkPad Accessories**

22P7127 **520** 

Targus Wireless Optical Mini Mouse

IBM ThinkPad Carrying Case\* - Expander 73P3597 \$59

ThinkPad 72W AC/DC Combo Adapter #22P9010 \$99
ThinkPad Port Replicator II #74P8733 \$179

# IBM ThinkGentre Accessories

3477 599

xmark X2250 All-in-One Printer 2P8810 \$100

IBM ThinkVision<sup>®</sup> L150 15° Flat Panel Monitor with system purchase #W9SPAB1 \$379



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Internet or telephone (toll charges may apply). (10) Thinness: may vary at certain points on the system. (11) Travel weight: includes battery and optional travel bezel instead of standard optical drive in Ultrabay bay, if applicable; weight may vary due to vendor components, manufacturing process and options. (12) ServicePac services: are available for machines normally used for business, professional or trade purposes, rather than personal, family or household purposes. Service period begins with the equipment date of purchase. Service levels are response-time objectives and are not guarantees. If the machine problem turns out to be a Customer Replaceable Unit (CRU), IBM will express ship the part to you for quick replacement. Onsite 24x7x2-hour service is not available in all locations. For ThinkPad notebooks requiring LCD or other component replacement, IBM may choose to perform service at the depot repair center. Calls must be received by 5pm local time in order to qualify for Next Business Day Service. (13) Public network access limited; Subscription may be required and fees may apply. (14) Full-size keyboard: As defined by ISO/IEC 15412. (15) Battery: These model numbers achieved the Ziff Davis Media. Inc.'s Business Winstone® 2002 BatteryMark™ Version 1.0 Battery Rundown Time of at least the time shown. This test was performed without independent verification by the VeriTest testing division of Lionbridge Technologies, Inc. ("VeriTest") or Ziff Davis Media, Inc.; neither Ziff Davis Media, Inc., nor VeriTest makes any representations or warranties as to these test results. Winstone is a registered trademark and BatteryMark is a trademark of Ziff Davis Publishing Holdings, Inc., in the U.S. and other countries. A description of the environment under which the test was performed is available at ibm.com/pc/ww/thinkpad/batterylife. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. (16) Size claims: are based on a comparison of chassis volume to the volume of IBM's standard desktop chassis. (17) Systems with limited onsite service: are designed to be repaired during the applicable warranty period primarily with customer-replaceable parts provided by IBM. IBM will only send a technician onsite to perform a repair if (a) remote telephone diagnosis and/or customer part replacement are unable to resolve the problem, or (b) the part is one of the few designated by IBM for onsite replacement. For a list of onsite replaceable parts, contact IBM. Support unrelated to a warranty issue may be subject to additional charges. (18) Certain IBM logo products: are not manufactured, warranted or supported by IBM, IBM logos and trademarks used under license. Contact IBM for details Trademarks: The following are trademarks or registered trademarks of IBM Corporation: IBM, the IBM logo, ImageUltra, Lotus, NavCode, Rapid Restore, Rescue and Recovery, SmartSuite, ThinkCentre, ThinkPad. ThinkVastage, ThinkVision, UltraConnect, UltraBase, UltraBay and UltraNav. Microsoft and Windows are registered trademarks of Microsoft Corporation. Intel, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Intel Centrino logo, Intel SpeedStep and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other company, product and service names may be trademarks or service marks of other companies, © 2004 IBM Corporation. All rights reserved. Visit www.ibm.com/pc/salecomputing periodically for the latest information on safe and effective computing.

#### MUSIC SOFTWARE

supermarket—where a pharmacy, a bank, and a hardware store lurk amidst the eggs and Cheerios—you'll probably like Musicmatch's Jukebox 9. The new music player offers onestop shopping for listening to, buying, and streaming music.

Once a simple application for playing back digital music, Musicmatch introduced music purchasing capabilities in Jukebox 8. Now version 9 unveils On Demand, a monthly broadband subscription service that lets you stream any of

### Jukebox 9

Musicmatch ★★★☆☆

Convenient one-stop shop, but sluggish interface is annoying. List: Jukebox 9 free; On Demand service \$10 per month

find.pcworld.com/44178

700,000 tracks—anytime you like—for \$10 per month.

Jukebox 9 does a fair job of combining various elements. For example, besides identifying the tracks you own, Jukebox 9 lists the links you have saved to streaming files maintained at the Musicmatch site.

To my ears, Jukebox (which streams music at 64 kbps in the MP3PRO format) sounded slightly muddier than did Rhapsody (Real Networks' subscription service, which streams at 128 kbps in WMA), but the difference isn't great. My biggest quibbles: Musicmatch's OnDemand interface was sluggish, and the service suffered from a shortage of classical music tracks.

In the end, despite the convenience of Jukebox 9's all-inone interface, I'd rather swap between using Apple's ITunes cleaner music player interface to play my own music and using Rhapsody's more balanced catalog for streaming.

-Edward N. Albro



MUSICMATCH JUKEBOX 9 includes On Demand, the company's new broadband, subscription-based music streaming service.

# Seagate's Big Little Hard Drive



SEAGATE'S 5GB USB2 Pocket Hard Drive looks like a silver hockey puck. Equipped with a short wraparound cable that's most suitable for use with a notebook, the 2.2ounce unit is light in your pocket, but it can store more data than any other 1-inch drive that's available today. For \$199 the company also supplies software that enables you to view files; configure a secure, passwordprotected area; and create a bootable FreeDOS OS drive. find.pcworld.com/44088

-Narasu Rebbapragada

# **D-Link's Network Camera**

# SECURITY

AS CONCERNS about security climb, more small businesses are resorting to networked video cameras for an additional level of protection. In testing D-Link's new Securicam
Network DCS-5300G Internet
Security Camera, I found the
\$549 unit's features interesting, but its image quality at
times quite poor.

You can install the DCS-5300G on a wired ethernet network or on a fast 802.11g wireless network. After plugging the unit into your wired network, you run a little app on your PC

that searches the network to locate the camera. Once you are logged in and receiving a live image, you can manipulate on-screen controls to pan and tilt, and to zoom digitally to a magnification of up to 4X.

The camera's tools for remote monitoring include an FTP client that lets you regularly upload scheduled images to a Web server. Alternatively, you can set the camera to send images anytime it detects motion. When connected via ethernet, the camera supported video at 20 to 30 frames per second through my 384-kbps upstream DSL connection.

Despite its many features, however, the DCS-5300G falls short in one important area: image quality. In daylight settings, the camera's still shots were adequate, but video often looked blocky and pixelated. And though D-Link promotes the camera's ability to operate in poor lighting conditions, both video and still shots were hard to make out when I reduced the available lighting.

The DCS-5300G has some nice features, but its less-thanstellar image quality makes it harder to recommend.

-Andrew Brandt

# Securicam Network DCS-5300G Internet Security Camera

D-Link

\*\*\*

Feature-rich network camera falls a bit short on image quality. List: \$549

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So slim. So sleek. So stylish. So what are you waiting for? EXILIM, created by CASIO. Where innovation is the inspiration behind everything we do. CASIO was one of the first manufacturers to create a consumer digital camera with an LCD screen. We are experts in all things compact and captivating. And the result is EXILIM. A camera you can take with you anywhere. Shooting and sharing pictures has never been easier. It's the all-around coolest camera there is. It's EXILIM. It's CASIO. It's the camera for you.









EX-P600 6.0 MEGAPIXELS

\*2.5 times the battery life of current CASIO cameras (comparison between EX:Z4U and EX:Z4O)
\*CIPA standard for battery life indicates 360 photos on a single charge, Image on camera LCD simulated



# PHOTOGRAPH: RICK RIZNER

# Camera Has Video Smarts

#### DIGITAL CAMERA

PENTAX'S Optio MX is an eccentric in a field of look-alike point-and-shoot digital cameras. Though its features are strongly rooted in still photography, its shape is reminiscent of a video camera; it captures both stills and video nicely.

A versatile camera with numerous exposure controls, the \$400 Optio MX features a 1.8-

### Optio MX

Pentax

Not rated, pending Top 100 tests Good camera for people who seek both still and video options. Street: \$400

find.pcworld.com/44098

inch LCD that can flip up and rotate. The images I took with a shipping unit wouldn't satisfy fine-art standards, but they were more than adequate for a family photo album.

While stills reproduced colors well, I found their exposure accuracy somewhat erratic, especially in high-contrast outdoor shots. The sharpness of my photos was average for a 3.2-megapixel camera. You won't want to crop and enlarge the MX's images; but on longdistance shots, the camera's 10X zoom does compensate for its lower resolution.

My biggest gripe: The fourway selector is so diminutive

(the size of a small shirt button) that adjusting settings was difficult. Working with the selector was hardest when I attempted to alter the unit's aperturepriority, shutter-priority, and

If you like to shoot video clips occasionally, you'll enjoy using the MX. It supports the MPEG-4 video format, which lets you pack in more minutes of video than does the typical Motion IPEG format that most still cameras use.

manual exposure settings.

The MX's grip has two buttons: the usual trigger button, and a second one dedicated to recording movies. This setup

THE UNIQUE Pentax Optio MX. makes switching between vid-

eo and stills instantaneous. The autofocus seemed a bit slow in the videos I took, but the clip played back smoothly with no dropped frames.

Once you get beyond the control issues, the Optio MX is a solid still camera with a dash of video smarts that will appeal to auteurs who want a little of both worlds.

-Tracey Capen

# Jasc Eases Image-Editor Learning Curve

### IMAGE EDITING

SELECTING AN image editor usually means choosing between power and simplicity. Jasc tries to strike a balance with its new Paint Shop Pro Studio, a \$79 program that borrows from the more advanced (and pricier) Paint Shop Pro 9 but throttles back on the complexity that beginners often find overwhelming.

Studio has all the basics: cropping, rotating, color correction, clone brushing, and automatic exposure improvements. But Jasc also throws in most of the best stuff from

Paint Shop Pro 9. The beta Studio software I tested included layer support, which lets you produce composite images that have varying levels of opacity. Jasc's outstanding background eraser is here, too; with it you can knock out backgrounds from portraits, leaving just the subject. In addition, you can use the magic wand or any of several freehand tools-including one that locks on to edges as you trace-to make selections.

Holding these tools together is a solid help system that lives in a pane on the side of the screen. You can easily find instructions for such tasks as combining two photos and removing backlight; and help includes links that immediately open the tools you need.

Even so, Studio doesn't always succeed in bringing its most sophisticated features to to a novice's level. Many tyros will still find the densely populated options palettes and the overstuffed Objects menu intimidating. At the same time, regrettably, Jasc has removed a few image-editing essentials such as level, curve, and histogram adjustments.

Nevertheless, the company has achieved something good with this program. If you have no need to create scripts for batch editing, design animated GIFs, or use the hyperrealistic brushstrokes found in Paint Shop Pro 9, Paint Shop Pro Studio could be the image editor that wins you over.

-Dave Johnson

# Paint Shop Pro Studio

Jasc

\*\*\*\*

Superb image editing program eliminates most of the complexity. List: \$79

find.pcworld.com/44124



PAINT SHOP PRO STUDIO'S LEARNING CENTER puts essential photo-editing tasks at your fingertips.



Award-winning and now even more affordable, magicolor' 2300 laser printers from KONICA MINOLTA bring color to every desktop. These printers are easy to use, have a compact design that saves desk space, and deliver high-quality, attention-getting pages for just pennies a print, KONICA MINOLTA magicolor 2300 color laser printers-great color at a great price.



### **Ethernet equipped**

- 4 ppm color; 16 ppm b&w
- = 2400 x 600 dpi
- Windows\* XP/2000/NT4/Me/98/95
- Ethernet, USB & parallel







#### Personal color laser

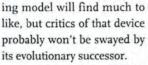
- 4 ppm color; 16 ppm b&w
- 1200 x 600 dpi
- Windows XP/2000/Me/98SE/95
- USB & parallel interfaces



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PDA

THE FIRST Sidekick revolutionized mobile Web access by offering users a decent-size screen, a usable keyboard, and solid applications. Two years later (an eternity in tech time), the Sidekick II is finally here. Fans of the original, trailblaz-



Offered by cellular provider T-Mobile and co-developed by Danger and Sharp, the \$300 Sidekick II addresses many user complaints about the first device, notably the fact that it was a lousy cell phone.

The Sidekick II is a much improved phone, offering voice quality comparable

to that of most dedicated cell phones (although its flat form did feel awkward against my ear).

T-MOBILE OFFERS the new Sidekick II. But dialing numbers manually remains a clumsy endeavor.

Exhibiting a more refinedlooking design than its predecessor, the unit combines a comfortable keyboard with numerous user-programmable buttons. The built-in 640-by-480-pixel camera includes a flash and is perfect for fun, throwaway shots, but not for photo-album keepers.

The Sidekick II excels at instant messaging and e-mail, providing easy access to AOL, IMAP, and POP3 e-mail, plus AOL Instant Messenger and Yahoo Messenger.

But Danger didn't address all of the original model's failings. There's still no way to connect the unit to a PC physically, although T-Mobile now offers an optional service that permits you to sync Outlook or Exchange contacts, appointments, and to-do items, using its network. As before, you can't sync to Outlook or Lotus Notes e-mail. And the device still lacks a memory card slot, Bluetooth, or infrared port.

The Sidekick II does most things right, though, and it's a pleasure to use. If you're the type who needs to be connected all the time, this may be the handheld for you.

-Grace Aquino

# Sidekick II

T-Mobile

\*\*\*

Simple, fun, and affordable Webenabled handheld still lacks a few features you'd expect from a PDA/cell phone hybrid. List: \$300 (plus a monthly T-Mobile service fee) find.pcworld.com/43862

# **Acronis Revs True Image**

#### BACKUP SOFTWARE

2" 3" 4" 5" 6" 7" 8" 9" 0"

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THE NEW Acronis True Image 8 feels more like a maintenance release than a major upgrade over version 7. It does, however, boost the backup application's performance to levels comparable to those of Symantec's recently launched (and quite speedy) Norton Ghost 9.

Both programs create sectorby-sector snapshots of your hard drive for easy recovery after a system crash; but in tests conducted for our recent re-

### Acronis True Image 8

Acronis

\*\*\*\*

An affordable, full-featured imaging program; but it feels a bit like a maintenance patch. List: \$50 full, \$30 upgrade find.pcworld.com/44092

view of Ghost 9 (find.pcworld. com/44244), it performed dramatically faster than True Image 7 did, producing smaller images. Like Ghost 9, True Image 8 skips the re-creatable swap and hibernation files, yielding similar speeds and even smaller image sizes.

In my informal tests, Ghost 9 imaged a 3.2GB partition in 1 minute, 25 seconds, generating a 1.4GB image file. My shipping copy of True Image 8 completed an image of the same file in 2 minutes, 42 seconds, but it produced a smaller, 1.2GB file. (True Image 7 took 5 minutes, 34 seconds, making a 2.5GB file.)

Though Ghost 9 is speedier at creating images, True Image 8 is much faster at booting from the recovery disc. In my tests, Ghost 9 took a whopping 2 minutes, 25 seconds to launch, while True Image 8 took only around 15 seconds.

New tweaks in True Image 8 enable you to verify images before restoring them; and depend on Microsoft's .Net framework the way its competitor does, and its full version is \$20 less expensive.

The worst drawback of True Image 8: Owners of previous versions have to pay \$30 for



TO RESTORE
your PC using
Acronis True
Image 8, you
first select the
correct backup
file from among
your archived
images.

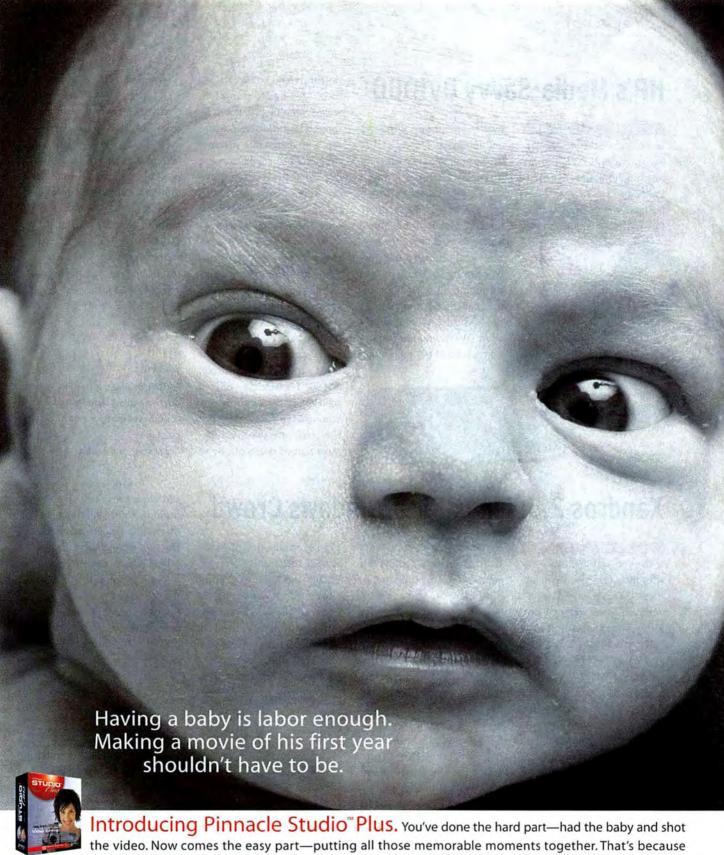
like version 7, version 8 can create incremental backups.

True Image 8 enjoys some clear advantages over Ghost 9. It works with any version of Windows (Ghost 9 works only with XP and 2000), it doesn't

this decidedly minor upgrade.

That said, if you're looking for a solid-performing, reasonably priced drive-imaging application, Acronis's latest True Image is a good choice.

-Jon L. Jacobi



the video. Now comes the easy part—putting all those memorable moments together. That's because Pinnacle Studio Plus has delivered a simple, powerful tool that will have you making movies within minutes. And it can work with a digital or analog camera. When you're finished, just use the Studio Plus DVD maker to burn a masterpiece that's ready to be shared with the world. Little wonder Pinnacle is the leader when it comes to home video editing solutions. To learn how to make a great birthday video of your own and to download a valuable Pinnacle Studio Plus coupon, visit

www.StudioHowTo.com/3

#### MOBILE COMPUTING

IF YOU LOVE the idea of playing music and DVD movies on your notebook, Hewlett-Packard's Pavilion Dv1000 is the portable you've been waiting for. With this laptop you can

bypass booting up Windows and immediately view a DVD movie or enjoy some tunes.

To play a DV or an audio CD with the notebook turned off, you simply press either the DVD button or the Music button located above the keyboard and pop in a disc. Nearby buttons let you navigate through tracks or adjust volume; at the bottom right of the keyboard, other controls allow DVD menu navigation.

I tested a \$1449 preproduc-

tion unit and found its 14inch. 1280-by-768-resolution wide-screen display good, although its reflective coating was a bit distracting (I sometimes had to reposition the display). Its two built-in speakers were adequate, and HP helpfully labels the unit's copious ports and media slots.

Ideal for a working vacation, the notebook weighs just 5.5 pounds (6.4 pounds with its AC adapter), and it lasted a respectable 4 hours in our battery tests. My test unit-which included a 1.5-GHz Pentium M 705 processor, 512MB of RAM, an 80GB hard drive. and 802.11g wireless-offered solid application performance, scoring 64 in our WorldBench 5 tests (comparable to similarly configured notebooks we've reviewed in recent months).

Of course, when your everyday work beckons, you can readily leave the movie enjoyment behind and return to Windows. Simply press the power button twice-once to exit the Quick Play mode, and again to launch Windows.

The biggest downside to the Dv1000: You'll enjoy watching movies on it so much that you might be tempted to forget you have work to do.

-Kalpana Ettenson

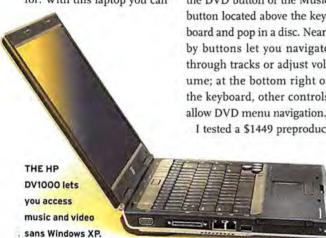
### Pavilion Dv1000

HP

\*\*\*\*

Portable delivers multimedia playback without Windows, and you can even use it for work. List: \$1449

find.pcworld.com/44084



# Xandros 2.5: Linux for a Windows Crowd

### OPERATING SYSTEM

WANT TO GIVE Linux a try with little fuss and bewilderment? Xandros may have just what you're looking for. I took a shipping version of Xandros Desktop OS Deluxe 2.5 for a spin and was pleased to find that everything just plain worked.

Installation is a snap, and the tasks of connecting to a Windows network and outputting to its printers (almost always a chore in Linux) are as easy as on a Windows PC. I accessed Flash and RealPlayer

Xandros Desktop OS Deluxe 2.5

Xandros

\*\*\*

Slick Linux distribution should appeal to nongeeks, too. List: \$89

find.pcworld.com/44090

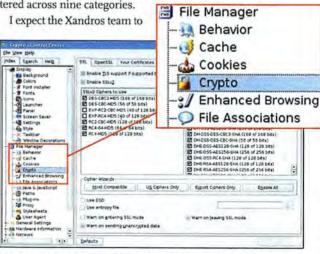
content as I traveled the Web. In the lower-right corner is an application-launching menu, plus a taskbar and a system tray. Strange surroundings for a Windows expatriate? Hardly.

Xandros provides a fantastic utility that not only handles online updates but also lets you seek out and download lots of goodies from the world of Free Software. The Open-Office.org suite is included, as is CrossOver Office, a commercial product that lets you run certain Windows applications, including Microsoft Office and Photoshop.

Not everything is perfect. Interface fonts are inconsistent between programs. Also, when I drag a file out of the File Manager and onto the desktop, I want the icon to appear where I dropped it, instead of scampering up to the top-left corner of the screen. Finally, the Xandros Control Center (think Windows XP's Control Panel) is a labyrinthine nightmare, with some 67 configuration applets scattered across nine categories.

add more polish to its distribution in future versions, addressing some of these issues. But as it stands, this is an excellent bridge product for people who are comfortable with the Windows way of doing things but want to move away from Windows itself.

-Matthew Newton



NOT ALL OF THE THOUSANDS of options that reside in Xandros Desktop OS Deluxe 2.5's Control Center are user friendly.

I am now the fastest. digital photographen on the planet.





My Fujifilm E550. Because great shots don't wait for slow cameras.





www.fujifilm.com/digitalcameras

# E550 Digital Camera

- Fujifilm's exceptional image processor for ultra-fast start-up and frame to frame, so you're always ready.
- \_ Virtually no shutter lag-time, so you get what you see.
- Fujifilm's patented Super CCD HR 6.3 effective megapixels for excellent picture quality.
- Fast Fujinon 4x Optical Zoom Lens for quick response and superb image quality.
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Fujifilm means digital cameras. The E550 means you'll get the picture.

# Special when business or husers go with today cyber Post Office post of the pact is absolute.

**Productivity soars** when business or home users go with today's

ou are in the office or at home, and you are responsible for getting some important packages into the mail. But you don't have postage for some of them or mailing labels for others. Also, you are pretty busy and are debating whether taking them to the local Post Office is worth giving up your midday jogging routine.

So these important parcels just sit. Does this have a familiar ring to you? If you answer "yes" then you haven't clicked on usps.com lately. If you had, you'd realize that you almost literally have a virtual Post Office right on your desktop, thanks to the ever-widening array of services businesspeople and individuals can access from a PC.

Let's return to that pile of packages awaiting transport to the Post Office. With a few simple clicks on the Click-N-Ship® section of the home page, you can quickly and effortlessly print shipping labels with nothing more than a standard ink-jet or laser printer. You can use self-adhesive labels, or just print right on plain paper.

No stamps? No problem. With Click-N-Ship online service, you can also purchase postage online with your credit card, directly from the Web site.

## Insuring Satisfaction

Many aficionados of Internet-based shipping services have expressed worry about their packages being lost, damaged, or pilfered. For them, the good news is that USPS® Insurance can now be purchased online for Express Mail® and Priority Mail® packages-up to \$200 worth.



A barcode reflecting the addition of insurance will print directly onto the electronic shipping label generated by the Click-N-Ship service when postage is purchased online, so that extra labels, forms, or stickers are not required. Fees for this online Insurance start at \$1.30 to insure up to \$50 and top out at \$3.20 for packages valued from \$100 to \$200. And in the event a user needs to make a claim, forms for doing so are available quickly and easily online

Once you're set with labels, insurance, and postage, there is still the matter of "schlepping" the packages to the Post Office, right? Wrong! That is not the case if you just click on carrier pickup. You can not only notify the Post Office to direct your carrier to pick up your packages during his or

her regular route, you can also leave special instructions, including the exact location where you want to leave the packages. In addition, this service is absolutely free, regardless of the

> number of packages you have. In case you need them picked up immediately, the Postal Service™ offers Pickup On Demand for a reasonable flat fee covering up to 70 pounds per package.

> So in the space of a few minutes and a few clicks, your packages are ready to leave the office or your home and you can be off jogging. Still, you want to make sure these arrive as planned. Here is where you can harness the services now available on usps.com to track and confirm your package delivery. Simply enter a tracking number and immediately learn the status of your shipments.

### Valuing Your Time

"We understand how busy our customers are and we value their time," says Robert L. Otto, chief technology officer for the U.S. Postal Service®. "Providing state-of-the-art technology solutions-such as our suite of quick, easy, and convenient services which include Click-N-Ship and carrier pickup on usps.com-makes it easier than ever for Postal customers to conduct business with us anywhere at any time."

What most new users soon discover about the broad array of services available at usps.com is that these services are remarkably easy to use, producing quick action on tasks that used to take time and effort.

To begin taking advantage of all that usps.com has to offer, visit the Web site today.



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Alicia Tutt Falls Church, Virginia

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# Places to B

We surveyed nearly 3500 readers and shopped 15 stores and sites to find out which ones have the smartest salespeople, lowest prices, and widest selection. By Anne Kandra

SOONER OR LATER it's going to happen. You'll decide that you can't watch another pay-per-view movie without a wide-screen HDTV or download another MP3 without a wireless digital sound system. Or maybe your work PC will go AWOL and you'll need a bigger, beefier replacement. Whatever the reason, eventually you're going to have to go shopping.

And while using tech gear may be getting easier, buying it has gotten a lot tougher. The convergence of PC and entertainment technologies can be terrificjust ask anyone who has a high-definition wide-screen TV, a TiVo, and a comfy chair. But it also means that you need more information than ever to make the right buying decision. And it means that stores are broadening the categories of products they sell. These days, CompUSA hawks plasma TVs, and The Apple Store and Staples sell digital cameras.

Web sites, user reviews, and even humble technology magazines are critical tools for smart shoppers. But sometimes there's no substitute for an informed salesperson. Suppose that you've carefully researched HDTVs, but you can't find a local store that carries the one you want. If you don't have time to wait, you need to be able to ask a store employee about alternatives. And if you're buying a type of product you're unfamiliar with, a well-informed salesperson can bring up issues you might not have thought to research.

We decided to test the tech savviness of retail sales staff and Web sites, to find out how helpful they are at giving you the information you need. So we surveyed customers, interviewed store managers and employees, studied retail sites, and did some undercover shopping. Our goal? To help you locate the advice you need to make an informed decision-without quitting your day job or resorting to prescription painkillers.

But buying advice isn't the only critical factor to consider in deciding where to shop. So we also tracked prices, product selection, and return policies at five national retail chains and at ten popular Web stores to help compile our ratings of the best places to buy.

80
82
86
88
90

OUR RESEARCH FOCUSED on the following major brick-and-mortar and online retailers: The Apple Store/store.apple.com, Best Buy/bestbuy.com, cdw.com, Circuit City/circuitcity.com, CompUSA/ compusa.com, dell.com, gateway.com, hpshopping.com, sonystyle.com, and Staples/staples.com.

To get feedback from as many tech-buying consumers as possible, we developed an online survey (see "Best Buying Advice: Web Stores Whip Retail," page 82) and asked nearly 3500 PC World readers about their most recent tech shopping experiences. We asked them which stores and Web sites they

shopped at, and then invited them to rate how easily they found advice there, whether they obtained enough information to make a buying decision. and how understandable and accurate the information was. Responses were scaled from 1 to 7, with 1 representing unsatisfactory and 7 excellent.

For our own shopping excursions, we developed a script of technical questions calling for everything from simple factual answers ("What type of batteries does this digital camera take?") to highly technical explanations ("What are the differences between plasma, LCD, and rear-projection TVs?").

Armed with our shopping scenarios, we visited Apple Store, Best Buy, CompUSA, Circuit City, and Staples locations in metropolitan New York; in Springfield and Union, New Jersey; in Austin, Texas; in central and southern New Hampshire, and in the San Francisco Bay Area. We wanted to

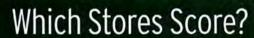
> see how well salespeople knew their PCs, digital cameras, and HDTVs.

### APPLE SHINES

MAC FANS, START GLOATING. If there's a clear winner in our survey results, it's Apple. Some 63 percent of survey respondents who had visited The Apple Store rated the overall quality of its buying advice a 6 or 7. (The next-closest brick-andmortar retailer in this category was Circuit City, with ratings of 6 or 7 from a relatively meager 35 percent of visiting respondents.) Apple Store shoppers rated the retailer particularly high in ease of finding buying advice (nearly 70 percent rated it a 6 or 7), and over 70 percent gave it top marks for providing sufficient information to make a buying decision.

Apple's Web store fared nearly as well as its retail outlets: About 69 percent of its shoppers rated its technical information easy to understand, and almost 60 percent said the site provided enough information for them to make a buying decision.

From my own experience at an Apple Store, I can easily see why the company did so well. I dropped by the Salem, New Hampshire, Apple Store one late afternoon in August-and by the time I left, the stars were out, the mall was closing, and I was trying to figure out whether I could make room in my already-cramped home office for a sleek new G5.



THE APPLE STORE, cdw.com, and dell.com top our ratings for technology stores and Web sites, based on the results of our survey of PC World readers and on our own research.

SITE	Overall	Buying advice	uying advice Pricing and rebates		Return policy
Cdw.com	Very good	Good	Good Good		Good
Dell.com	Very good	Excellent	Very good	Fair	Very good
Store.apple.com	Very good	Excellent	Fair	Fair	Good
Compusa.com	Good	Fair	Good	Very good	Fair
Gateway.com	Good	Good	Good	Good	Fair
Hpshopping.com	Good	Very good	Good	Poor	Very good
Staples.com	Good	Poor	Good	Fair	Excellent
Bestbuy.com	Fair	Fair	Good	Very good	Fair
Circuitcity.com	Fair	Fair	Good	Good	Fair
Sonystyle.com	Fair	Good	Fair	Fair	Very good
STORE	35.6				
Apple Store	Very good	Excellent	Fair	Fair	Good
Best Buy	Good	Poor	Good	Very Good	Fair
CompUSA	Good	Poor	Good	Very Good	Fair
Staples	Good	Poor	Good	Fair	Excellent
Circuit City	Fair	Poor	Good	Good	Fair

In contrast to the cluttered warehouse feel of many tech superstores, The Apple Store had a Zenlike simplicity: white walls; an airy, open floor plan; and convenient product stations where customers could sit down and play with the systems.

It took me more than 15 minutes to capture a salesperson's attention. But when I finally did, he was engaging, knowledgeable, and clearly passionate about the products he was selling. David (who bore a rather eerie resemblance to Steve Jobscoincidence?) explained each computer system thoroughly, and he accurately answered all of my questions about computers and digital cameras.

Similarly, our shopper in Austin, Texas, reported that Apple Store salesperson Josh answered most questions correctly, though his knowledge of digital cameras seemed somewhat limited.

The downside? Well, The Apple Store doesn't sell PCs, which rules it out for many Windows-centric business users. Apple offers a decent assortment of Mac-compatible tech toys, but if you want to look at a wide variety of products and manufacturers, you'll need to go elsewhere. And while Mac systems are sleek and sexy, they're also pricey: A basic EMac desktop with an integrated flat-screen CRT monitor starts at about \$800, and an IMac system with a higher-end CPU runs at least \$1300.

PC users get some good news, as well: Just over 60 percent of the dell.com shoppers in our survey rated the overall quality of the site's buying advice a 6 or 7. Dell also scored high in the accuracy of its buying advice, with over 63 percent of respondents giving it top marks. Many readers said they found the site easy to use and the information they needed easy to find; and one survey participant recommended the site's user forums as a great way to learn both the good and the bad about Dell PCs.

#### ROOM FOR IMPROVEMENT ONLINE

ALONG WITH DELL.COM and store.apple.com. hpshopping.com earned high marks, but most of the other sites got mediocre reviews. In our survey, hpshopping.com finished just below dell.com, with about 52 percent of respondents who had visited the site rating it a 6 or 7 overall. A number of them called HP's site well designed and praised its plentiful and accessible information. Judd Sills, a project manager who works in Orange County, California, said, "HP had the most complete information; but even if you could compare other brands, I wouldn't expect it to be without bias."

Feeling that the online information about pric-

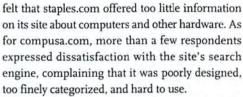


ing and rebates was inadequate, many respondents chose to visit a retail store instead. Andrew Blau of New York City voiced a common complaint: "None of the stores go out of their way to make sure that the customer understands that the lowball price they exhibit is for a system with a CRT and not the flat screen shown in the picture."

Best Buy, Circuit City, CompUSA, and Staples all tout the convenience of ordering products online and picking them up at a local outlet, but a few readers reported glitches in this process. Their advice: Phone the local store to to confirm that your purchase will be there when you arrive.

The lowest-rated online stores were staples.com and compusa.com, where just 35 and 37 percent, respectively, of respondents rated them a 6 or 7 in overall quality of buying advice. Several readers

hey were wonderful at The Apple Store and replaced a broken laptop drive, which they didn't have to do. Meryl Simon, Shaker Heights, Ohio



Winston Chow, an IT specialist in Honolulu, Hawaii, agrees that the sites don't provide enough facts. He says, "My problem is that there's too little info given online about products and their features. So I do research at expert sites that really care about how consumers use the products, and then go back and see who has the best price and shipping."

Good advice. But remember to check return policies, warranty information, and other details before you choose a seller (see page 90 for a comparison of the return policies of the retailers we looked at).

### CRUMBLING BRICKS AND MORTAR

EXCEPT FOR THE APPLE Store, none of the retail stores scored well in our survey. Like their online counterparts, Staples and CompUSA earned the lowest scores, with top ratings in overall quality of buying advice from only 28 and 30 percent, respectively, of surveyed customers.

Best Buy (34 percent) and Circuit City (35 percent) didn't fare much better on the same measure, though about 45 percent of respondents rated both of those stores highly for their ability to provide easy-to-understand technical information.

The complaint we heard most often-especially from readers who were Best Buy and CompUSA customers—was that finding help from retail salespeople was too hard. Mike Malesevich, an IT con-

# Best Buying Advice: Web Stores Whip Retail

ACCORDING TO OUR READER SURVEY, Apple shines in buying advice for both its retail and its online stores, while dell.com comes in a close second. Except for The Apple Store, retail stores did poorly across the board.

SITE	Overall rating	Buying advice is easy to find	Information is sufficient to make buying decisions	Technical information is easy to understand	Buying advice is accurate	Buying advice is of high quality overall
Bestbuy.com (1662)	Fair	40%	37%	49%	44%	40%
Cdw.com (403)	Good	43%	41%	50%	51%	45%
Circuitcity.com (1150)	Fair	41%	38%	50%	43%	39%
Compusa.com (1015)	Fair	37%	36%	50%	43%	37%
Dell.com (1217)	Excellent	57%	59%	61%	63%	60%
Gateway.com (369)	Good	45%	48%	52%	51%	47%
Hpshopping.com (669)	Very good	47%	55%	57%	56%	52%
Sonystyle.com (270)	Good	41%	44%	54%	53%	47%
Staples.com (940)	Poor	35%	29%	42%	42%	35%
Store.apple.com (162)	Excellent	59%	60%	69%	62%	59%
STORE						
Apple Store (123)	Excellent	70%	71%	66%	63%	63%
Best Buy (2195)	Poor	41%	33%	46%	36%	34%
Circuit City (1334)	Poor	33%	37%	45%	39%	35%
CompUSA (1514)	Poor	40%	29%	42%	32%	30%
Staples (1402)	Poor	34%	26%	39%	32%	28%

FOOTNOTE: 1 Number in parenthesis is the number of survey respondents who shopped at that site or retailer. CHART NOTE: Each store or site is rated only by respondents who shopped at that store or site. The percentages listed represent the proportion of those respondents who rated the vendor a 6 or 7 (on a seven-point scale) in the named category. PC World would like to thank Steve Alspach, senior technical support specialist at SPSS Inc., a statistical software and analytics firm, for his help in compiling this chart.

sultant from Ontario, Canada, gave this account of a trip to Best Buy: "I waited for more than 30 minutes to speak with a sales associate and finally left without talking to anyone. Another time, I held a camera for over 20 minutes, and no one wanted to serve me. Needless to say, I left."

Our own in-store experiences were similar. I paid three visits to two different New Hampshire Best Buy stores before I found a salesperson available to answer my questions about HDTVs-and then I had to return twice after that visit to discuss digital cameras and computers. (One Sunday afternoon, I tried to ask a salesman about a wide-screen television while pursuing him through the store; he finally advised me to come back on a weekday, "when the store isn't so busy.")

I mentioned this trend to several company representatives, who readily acknowledged the problem. Kevin Cockett, a spokesperson at Best Buy, says that the retailer has tried to address that issue over the past few years by placing more sales associates on the floor and by "planning appropriately for peak times throughout the day." More important, he says, has been the goal of "helping customers find the right solution for their needs and lifestyle, not just knowing and articulating what a specific product can do."

#### SALES HELP-SAVVY OR CLUELESS?

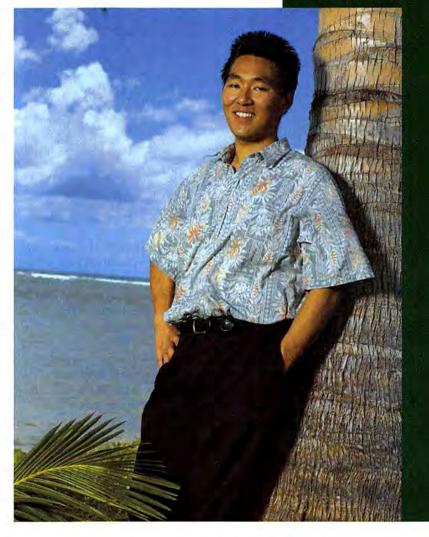
THIS SEGUES INTO another often-heard gripe: Salespeople don't know enough about the products they're selling. Many survey respondents mentioned that they'd received inaccurate or incomplete information from sales staff at retail stores, and many felt that they knew more about the products than the store personnel did.

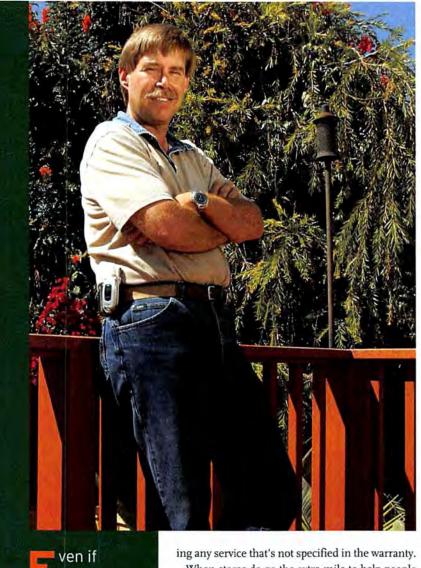
In most of our store visits, however, we were pleasantly surprised at the quality of information and advice we received. In several cases, salespeople began by asking what we wanted to use the devices for-a good sign. The best salespeople were obviously technology fans themselves. For example, Ryan, a digital camera salesperson at Circuit City in Union, New Jersey, mentioned that he was also a semiprofessional photographer. Who better to sell digital cameras?

But there were exceptions-a few so preposterous that it was hard to keep a straight face. At a southern New Hampshire CompUSA, for example, a cheerfully clueless salesman named Kenny had no idea what I meant when I asked him the resolution of a particular HDTV. When he leaned over and started poking around the back of the unit-presumably hoping to uncover an answer amidst the dust bunnies-I redirected his attention to a wide-screen plasma display. "Oh, you don't want a plasma TV," Kenny assured me. When I asked why not, he explained that I'd be able to watch it for only 4 hours at a time. "After that," he said, "the liquid starts to melt, and you'll end up with leaks-bluish stuff everywhere."

One final tip we picked up on our shopping excursions: Don't ask salespeople about the extended warranty. Read the policy yourself. Time and again, an eager sales representative would exaggerate what the warranty covered, claiming that plastic parts would be replaced or underperforming PCs could be exchanged for upgrades. Few extended warranties go that far. Sometimes, friendly stores will stretch the boundaries of their coverage to lend you a hand, but don't count on receiv-

do my research at expert sites that really care about how people use the products. Then I go back and see who has the best price. Winston Chow, Honolulu, Hawaii





When stores do go the extra mile to help people out, the appreciative customers are likely to return again and again. Meryl Simon, financial officer for a food distributor in Shaker Heights, Ohio, had a great experience at an Apple Store location. "My daughter dropped her laptop off her bed at college," she says. "I walked it into The Apple Store, and they were wonderful and replaced the broken drive for free, which they didn't have to do. Later I went back and bought two IPods from them."

#### **KEEPING UP**

ACCORDING TO company representatives, the retailers all use similar methods to train their salespeople and keep them current with products and technologies. Most use online training tools, at least for new hires, and supplement these efforts

later with visits from vendors brought in to introduce new product lines. Nevertheless, the extent to which training is regulated and employees are evaluated seems to vary widely by store and location. Usually, training and assessment of employee expertise are left up to each store's sales manager.

John McKeever, director of training at Circuit City, says that all new hires must take at least 32 hours of training, consisting of 12 to 15 online courses with exams and written workbooks. They also participate in sales-floor exercises that require them to identify particular products and specs, answer questions about them, and perform a sales presentation. "We also use a peer-to-peer approach in which each new salesperson has a senior partner to ask questions," McKeever said.

"Our sales managers are responsible for watching and observing associates," he noted. "Does that happen with every sale? Maybe not. But in general, it's been a home run for us."

The best salespeople told us that they kept up with new products and technologies primarily by reading electronics publications and magazines, and by tinkering with the products on their own out of personal interest. It makes sense: Salespeople who enjoy the products they sell are likely to be more effective and informed consultants.

A few salespeople mentioned participating in online training and sales seminars, and one very knowledgeable Best Buy salesman I spoke with said that he'd occasionally been sent to off-site vendor presentations and seminars as a form of recognition for good job performance.

One CompUSA sales manager told me he often sends salespeople to "learning sessions" run by the product vendors. "It's open to anyone on staff," he said enthusiastically, "and they love to go because [the vendors] feed them and pay them \$100!"

### WHO CAN YOU TRUST?

IF YOU'RE LOOKING for digestible buying advice and clearly presented specs, turn to the Web first. You'll find that comparing specs and prices is much easier online. Learn everything you can about the technology you're interested in, from a nonsales source. Then, if you decide to make your final purchase at a retail store, you'll be better prepared to sort the bad buying advice from the good. Visit the retail sites and stores to compare products, prices, service plans, and store policies. Educating yourself as a consumer is worth a lot more than finding the best salesperson.

you could

compare other

brands [at HP's

expect it to be

Orange County,

without bias.

Judd Sills,

California

store], I wouldn't

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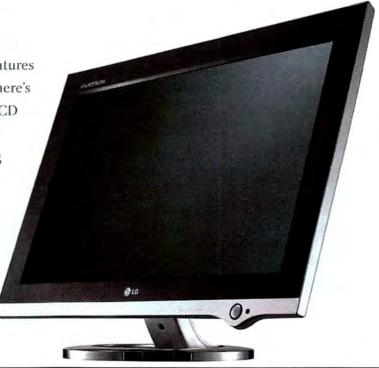
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# Prices & Rebates

WHEN IT COMES to prices at the major retail and Web stores, the good news is that you don't have to worry much about which store has the best price, because prices vary little from store to store. The bad news? You won't find many bargains at the major chains either. Still, when you do find a bargain, it'll stick out in a sea of similar prices.

To compare prices at the 15 sites and stores, we gathered prices for two or three popular products in three categories: digital cameras, high-definition or HD-ready televisions, and PCs. We tracked prices during the week of August 22 to 28, 2004, and we took into account any sales and discounts offered during that period. To evaluate the stores on an equal footing, we left taxes, fees, and shipping costs out of our comparison. Those costs vary depending on locality, but they can serve as a tiebreaker when stores are selling an item at similar

prices, so consider them before making a decision.

When we could find the same model at different stores, the prices varied little. For example, every store but hpshopping.com and sonystyle.com carried Canon's PowerShot S410 digital camera. (Both HP and Sony manufacture cameras, and they sell only their own brand.) Every store except The Apple Store, gateway.com, and Staples was selling the S410 for \$350 during that week. Gateway.com was more expensive at \$390, and The Apple Store and Staples were selling it for \$400.

On bigger-ticket items like the Canon EOS Digital Rebel, the variation in price was negligible, Each of the seven Web stores that carried the camera priced it within a few pennies of \$1000.

#### WHY THE SIMILAR PRICES?

MUCH OF THE consistency in pricing can be traced to a practice called minimum advertised price (MAP), which Roberta Furger wrote about in detail for the October issue of Digital World (see find.pcworld.com/44350).

Under MAP programs, product manufacturers exert some control over the lowest prices that a store can advertise for their products. That's why you sometimes have to place a product in your shopping cart to see how much it costs when you're shopping online.

Computer prices are more difficult to compare, since so few stores carry the same models. Here's where it really helps to do your research, component by component, for the system configuration you want. When you're shopping online, it's easy to configure comparable systems from different vendors. When you're shopping at a retail store, however, you have to look carefully at each PC component to pinpoint any hidden trade-offs and to make sure that you're getting a good value. Also, keep an eye out for limited-time discounts on selected components. Dell is well known for such deals, and they can change day by day.

The price you pay at the register isn't the only thing that determines how much you'll pay for a product. Rebate offers can save you significant amounts of money in the long run, provided you're willing to endure the hassle. Having to deal with rebates is one of the top gripes for technology buyers. So when we came up with our final price rankings, we gave bonus points to companies like CompUSA and Circuit City that simplify the rebate process by printing duplicate receipts or by offering tools such as online rebate centers.

# Where the Buys Are

BEST BUY, CIRCUIT CITY, dell.com, and gateway,com had the best deals, but prices were remarkably consistent overall. Vendors with good rebate policies received ratings bonuses.

SELLER	Overall rating	In-store rebates	Online rebate center
Apple Store and store.apple.com	Fair	Prints duplicate receipts	Yes
Best Buy and bestbuy.com	Good	Prints duplicate receipts	Yes
Cdw.com	Good	n/a	Yes
Circuit City and circuitcity.com	Good	Prints duplicate receipts	Yes
CompUSA and compusa.com	Good	Prints duplicate receipts	Yes
Dell.com	Very good	n/a	No
Gateway.com	Good	n/a	No
Hpshopping.com	Good	n/a	Yes
Sonystyle.com	Fair	n/a	No
Staples and staples.com	Good	Prints duplicate receipts and rebate forms	Yes

n/a = Not applicable.
Prices surveyed over the week of August 22 to 28, 2004.



#### WIRED

#### WIRELESS

- ROUTERS
- GATEWAYS
- ADAPTERS



- MULTIMEDIA
- VOICE OVER IP



MP 101
Wireless Digital Music Player



# The Player's Player

Set your MP3, WMA and Internet radio music free from the confines of your PC with NETGEAR®'s MP101 Wireless Digital Music Player. Built for those serious about playing music, the MP101 lets real players play real music where it belongs – on their stereo. The attractively designed, easy to install MP101, using Marvell technology, is compatible with 802.11b and 802.11g wireless networks, and comes with a remote control, a crystal clear four-line display and easy to install software that finds all your music files by title, artist, album, genre or play list – automatically. So quit playing around with tinny PC sound, and start booming high fidelity music right from your stereo... wirelessly.

Music files from PC to stereo is one click away. To learn more about the MP101 and how to get a 30-day free trial of Rhapsody™ Digital Music Services, go to www.netgear.com/go/mp101ad





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# Product Selection

IN OUR RESEARCH, cdw.com had easily the widest selection of models and manufacturers, though Best Buy, Circuit City, and CompUSA had large inventories, too. The Apple Store, dell.com, and gateway.com each offered an array of digital cameras from different manufacturers, as well as the PCs they make. You wouldn't expect hpshopping. com or sonystyle.com to sell products from its competitors, but the limited selection does make it easier for those stores to offer sound buying advice.

To get a cross-section of each store's product offerings, we tallied up the total number of manufacturers and models of digital cameras, computers (desktops, laptops, and tablet PCs), and HDTVs that were available at each retailer's Web store. As we did in the case of prices, we compiled this information during the week of August 22 to 28, 2004.

In most instances, the number of models listed below is approximate, since products constantly get updated or discontinued. And because PC manufacturers like Dell, Gateway, and HP offer custombuilt machines, we treated each product line as one product (for example, we counted the Dell Dimension 2400 as one product, and the Dimension 4600 as another). Retailers such as Best Buy and cdw.com tend to offer preconfigured systems, which boosts the number of models they have available.

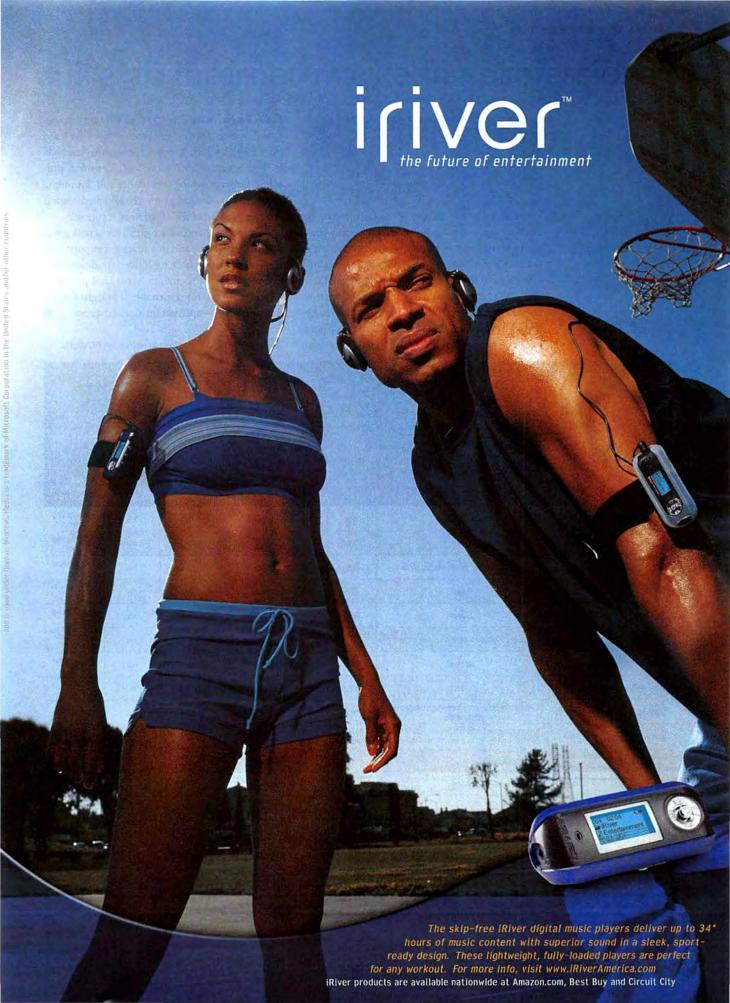
Finally, it's important to remember that product selection varies widely in retail stores around the nation, and that not all products offered at a particular company's Web store are always available at its retail store (and vice versa). If you're researching products online and plan to save shipping costs by purchasing the item at your local superstore, be sure to contact your local retailer to confirm that the product is available at that location.

# Best Selection: Big Boxes and Web Stores

WANT LOTS OF CHOICES? Head to cdw.com. On the other hand, if convenient pickup and returns or a wide selection of high-definition television sets is important to you, try one of the superstores.

SELLER	Overall rating	Digital camera manufacturers	Number of models available	PC manufacturers	Number of models available	HDTV manufacturers	Number o models available
Apple Store and store.apple.com	Fair	Canon, Casio, Konica Minolta, Nikon, Sony	20	Apple	52	Apple (displays)	2
Best Buy and bestbuy.com	Very good	Canon, Casio, Concord, Fujifilm, Gateway, HP, Kodak, Konica Minolta, Nikon, Olym- pus, Panasonic, Pentax, Samsung, Sony	95	Apple, Averatec, Compaq, EMachines, Gateway, HP, Medio, Shuttle, Sony, Toshiba	80	GoVideo, JYC, LG, NEC-Mitsubishi, Pana- sonic, Philips, Pioneer, RCA, Samsung, Sharp, Sony, Toshiba, Westinghouse, Zenith	42
Cdw.com	Excel- lent	Canon, Casio, Creative, Epson, Fujifilm, HP, Kodak, Konica Minolta, Logitech, Nikon, Olympus, Panasonic, Sony	140	Acer, Compaq, Gateway, HP, IBM, Itronix, MPC, Panasonic, Rugged, Sharp, Sony, Toshiba, ViewSonic	Over 1000	Gateway, Panasonic, Samsung, Sharp, Sony, Toshiba, ViewSonic	10
Circuit City and circuitcity.com	Good	Canon, Casio, Fujifilm, HP, Kodak, Konica Minolta, Nikon, Olympus, Panasonic, Samsung, Sony	70	Averatec, Compaq, EMachines, HP, Sony, Toshiba	55	Akai, Hitachi, Magnavox, Panasonic, Philips, RCA, Samsung, Sharp, Sony	30
CompUSA and compusa.com	Very good	Canon, Casio, Concord, Fujifilm, HP, Kodak, Konica Minolta, Logitech, Olympus, Sony, Toshiba, Vivitar, Xirlink	75	Apple, Cisnet, Averatec, Compaq, EMachines, Gateway, HP, Sony, Stormtek, Systemax, Toshiba		Apex Digital, Hitachi, JVC, Panasoníc, Philips, Samsung, Terapin Technology	24
Dell.com	Fair	Canon, Casio, Fujifilm, Kodak, Konica Minolta, Kyocera, Largan, Nikon, Olympus, Panasonic, Pentax, Sony	75	Dell	14²	Dell, NEC-Mitsubishi, Planar, Samsung	8
Gateway.com	Good	Canon, Epson, Fujifilm, Gateway, Kodak, Konica Minolta, Nikon, Sony	26	Gateway	15²	Gateway	5
Hpshopping.com	Poor	НР	6	HP, Compaq	26²	None	None
Sonystyle.com	Fair	Sony	22	Sony	322	Sony	14
Staples and staples.com	Fair	Canon, Fujifilm, HP, Kodak, Konica Minol- ta, Nikon, Olympus, Panasonic, Sony	85	Averatec, Compaq, HP, IBM, Northgate, Sony, Toshiba	20	None	None

Surveyed the week of August 22 to 28, 2004. Number of models is approximate; selections can vary day by day. 2 Vendor offers custom-configured PCs. Number refers to number of base models.





IF YOU'VE EVER been burned by an exorbitant restocking fee or annoyed by an uncooperative customer service rep, you know why it's important to research a company's return policy before you buy.

We looked for clear, customer-friendly policies that don't punish buyers for problem purchases. Specifically, we rewarded stores that don't charge restocking fees and that either pick up goods gone bad or let you return them to a brick-and-mortar location instead of making you shell out for shipping.

In this area, nearly every other store could learn from Staples, which lets customers return products to their neighborhood store and does away with aggravating restocking fees. Better still, for online purchases, Staples picks up your unwanted items if you can't get out of the office to do it yourself.

On the other hand, cdw.com's return policy was rife with exceptions and manufacturer stipulations. It's a good idea to check for hidden conditions and manufacturer requirements. Many IBM products, for example, aren't returnable if bought from a third-party site-and that includes cdw.com.

Anne Kandra is a contributing editor for PC World.

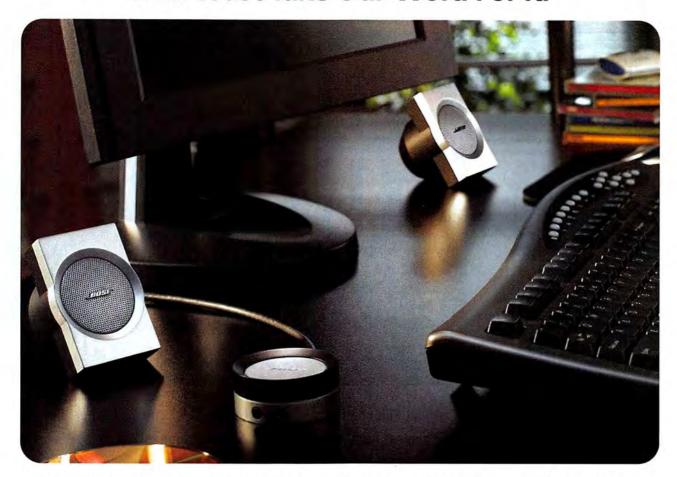
# Best Return Policies: Staples Shines

DON'T BUY IT UNTIL YOU KNOW how to return it. Dell.com, hpshopping, and sonystyle.com score for charging no restocking fee, but Staples comes out on top for also permitting customers to return products to its nearest brickand-mortar store-and for picking up the shipping tab if you don't return the item to a local store.

SITE	Overall rating	Return period	Restocking fee	Software returns	Who pays shipping?	Allows returns to retail location?	Policy for defective products?
Bestbuy.com	Fair	14 days '	15%	If unopened <sup>2</sup>	Buyer 3	Yes	No restocking fee
Cdw.com	Good	30 days	15%	If unopened <sup>2</sup>	Buyer 3	n/a	No restocking fee
Circuitcity.com	Fair	14 days; 30 days for non-PC-related products	15%	If unopened <sup>2</sup>	Buyer	Yes	No restocking fee
Compusa.com	Fair	14 days	15%	If unopened <sup>2</sup>	Buyer 3	Yes	No open-box fee
Dell.com	Very good	21 days	None	If unopened <sup>2</sup>	Buyer 3	n/a	No restocking fee
Gateway.com	Fair	15 days; 30 days for plasma TVs and servers	15% only if opened 4	If unopened <sup>2</sup>	Buyer 3	n/a	No open-box fee
Hpshopping.com	Very good	30 days	None	If unopened <sup>2</sup>	Vendor (w/RMA)	n/a	Handled case by case
Sonystyle.com	Very good	30 days	None	If unopened <sup>2</sup>	Buyer <sup>3</sup>	No	Handled case by case
Staples.com	Excellent	14 days for technology products; unlimited for office supplies	None	If unopened <sup>2</sup>	Vendor	Yes	No
Store.apple.com	Good	10 days to request Return Materials Authorization form; 10 days to return product after RMA issued	10% only if opened	Uninstalled, or unopened if package includes a printed user license	Buyer 3	Yes	Apple reim- burses shipping
STORE							
Apple Store	Good	10 days	10% only if opened	If unopened <sup>2</sup>	n/a	n/a	No restocking fee
Best Buy	Fair	30 days	15% only if opened	If unopened <sup>2</sup>	n/a	n/a	No restocking fee
Circuit City	Fair	14 days; 30 days for non-PC-related products	15%	If unopened <sup>2</sup>	n/a	n/a	No restocking fee
CompUSA	Fair	14 days	15%	If unopened <sup>2</sup>	n/a	n/a	No restocking fee
Staples	Excellent	14 days for technology products; unlimited for office supplies	None	If unopened <sup>2</sup>	n/a	n/a	No

n/a = Not applicable; site has no brick-and-mortar stores; shipping and returns columns do not apply to retail locations. FOOTNOTES: 1 For computers, monitors, printers, network PCs, camcorders, digital cameras, and radar detectors; 30 days for everything else. \* Unless buyer is exchanging for the same title. \* Shipping charges reimbursed for defective products. Or \$150, whichever is less.

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an elegant control pod puts speaker volume control, headphone jack and a second

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"...delivers surprisingly full, clean sound for music, movies and games." -- Laptop

"The Bose Companion 3 multimedia speaker system sounds a lot larger than it is..." — Electronic House

"The Companion 3 satellites... deliver sound that doesn't play around." – MacHome

"...worth every penny."

"...the sound quality is absolutely magnificent."

— Saskatoon Sun

For stores and dealers near you, call 1-877-696-BOSE, Ext. P80. Or visit www.bose.com/companion3



# **PCWORLD**



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- Smart phones

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From the editors of PCWORLD

# **Get It Free**



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We gather the **best gear** for setting up or **improving** a Wi-Fi **network**, and offer **advice** on how to add a **printer**, **hard drive**, **stereo**, and even a **TV** to your network.

BY BECKY WARING

# The Ultimate

IRELESS NETWORKING has, in a notably short time, gone from being a minor miracle used only by the geeky elite to a mainstream technology, thanks to falling prices, newer, faster standards, and the ubiquity of broadband connections. Going wireless is cheaper and easier than ever, and the latest devices are fast enough to handle heavy-duty tasks like large file transfers and streaming audio and video.

Modern wireless networks offer much more than just wireless Internet access; devices like digital audio and video players are adding wireless features that let you share your digital media around the house. You can even put nonwireless devices like printers and game consoles onto a wireless network with the help of products that quickly and easily convert them to wireless.

ILLUSTRATIONS BY ANDERS WENNGREN . PHOTOGRAPHS BY RICK RIZNER



# Wireless Guide



To help you build the best possible wireless network, we tested dozens of products and chose the best routers and adapters, print servers, wireless bridges, audio and video players, and travel routers. Our chart of the top wireless kits (on page 97) compares sets of routers and adapter cards. Our Best Buy comes from Netgear: A moderate price, combined with aboveaverage performance and a very simple setup, place this kit at the top of the chart.

But while setting up and maintaining a wireless network is getting easier, it is still far from being foolproof. So we also offer tips for getting the most from your setup. starting on page 105. We also look at the five most common wireless security mistakes (see page 98), explain what you can do to extend the coverage of your wireless network (see page 104), and describe upcoming standards that will enhance and change the way wireless works (see page 106).

#### **ENHANCED STANDARDS**

CURRENTLY two standards dominate wireless networking: 802.11b and the newer, faster 802.11g. Several manufacturers have created enhanced versions of 802.11g that they claim can transmit and receive data at up to 125 megabits per second (up from the standard 802.11g's 54 mbps). The 108-mbps Super G technology (developed by Atheros) is used by D-Link and Netgear, while 125-mbps High-Speed Mode technology (developed by Broadcom) is included in products by Belkin, Buffalo, and Linksys, as well as other vendors. Although plain-vanilla 802.11b and g products are compatible with each other, the different types of enhanced modes are not.

The bottom line: For the simplest installation and troubleshooting, and for maximum performance, your Wi-Fi components must use the same type of technology, preferably from the same vendor. Sticking with one manufacturer also means just one tech support call, which is one reason why we looked at wireless kits. Often vendors won't help if you mix equipment from various sources. The exception is if your laptop has built-in Wi-Fi.

# Choose It

# Start with the right components.

THIS PART OF OUR GUIDE will tell you what's what in Wi-Fi networking hardware, from the routers that form the heart of your network to the adapters that add your PC or notebook to the network, and bridges that turn nonwireless devices into wireless ones.

# Wi-Fi Routers and Adapters

THE ROUTER is the heart of your wireless network: It connects your network to the Internet via a cable or DSL modem. shares Internet access among multiple PCs or other devices, and controls who can access your network. As such, it is the single most important component.

We found that most routers share the same basic features-all of the ones we looked at offer four wired ethernet ports (for connecting to wired devices), plus various ways to control who gets onto the network. All of the routers we tested offer NAT (Network Address Translation) firewalls, WEP (Wireless Encryption Protocol) and WPA (Wi-Fi Protected Access) encryption, and MAC (media access control) filtering, where the router can determine access by allowing only devices with MAC addresses on a predetermined list to join the network. Every network device has a unique MAC address.

Nevertheless, the routers we tested differ markedly in how easy they are to use. The IOGear GWA502, for instance, was rather bewildering to set up, with confusing menus that led us on a search for the WPA feature. At the other end of the spectrum, we found the Belkin F5D7231-4 to be very easy to set up and use due to a clear quick-start guide, a printed manual, a sheet of router settings for major ISPs, and excellent software, including the best setup wizard we've seen from a Wi-Fi router. This software can even automatically check for firmware updates-something you should do frequently with any router. We also found notable differences in the units' parental controls and remotemanagement features, with the Belkin F5D7231-4 again taking top marks in both. Of the routers we tested, only the

> Actiontec GT704WR and D-Link DI-624 have removable antennas that you can replace with more sensitive or directional models (see "Extending the Range" on page 104). The Buffalo has an external antenna port; the Linksys WKPC54G has mounting holes in the case that make it easy to attach it to a wall.

The speed of the wireless kits varied greatly in our tests. Top honors went to the Buffalo kit, which managed to maintain a speed of over 25 mbps—significantly faster than all of the





# Top 5 Wireless Kits

WE ASKED ALL OF THE MAJOR VENDORS to send us a wireless kit, composed of a router and enough adapters (PCI, USB, or PC Card adapters) to get at least one desktop PC and a notebook PC connected. We then tested the routers and all of the submitted adapters; if a vendor supplied more than two adapters, we picked the two fastest to make our kit. The kit price is the combined cost of the router and the two listed adapters. Some vendors do not offer a full range of adapters, and other adapters were not available: D-Link, for instance, was not able to supply an 802.11g USB adapter in time for testing. Three kits (from Actiontec, IOGear, and SMC) didn't make the chart; you can read reviews of them at find.pcworld.com/44210.

	WIRELESS NETWORKING KIT	Street price (8/26/04)	Overall rating	Wireless modes¹	Performance/ average throughput <sup>2</sup>	Ease of setup	Comments
1	Netgear WGT624 router WG311T PCI adapter WG111 USB adapter find.pcworld.com/44224	\$205	93	802.11g, Super G	Very good 19.5 mbps	Very good	FEATURES: 128-bit WEP and WPA encryption, four ethernet ports, upgradable to WPA2; one-year warranty, free 24-hour daily support. SUMMARY: Comes with an excellent setup utility and very good security tools. The WG111 USB adapter does not support the Super G enhanced mode. (************************************
2	Linksys WKPC54G Network Kit (includes router and PC Card) WUSB54G USB adapter find.pcworld.com/44222	\$170	92	802.11g	Good 13.5 mbps	Very good	FEATURES: 128-bit WEP and WPA encryption, four ethernet ports, upgradable to WPA2; three-year warranty, free 24-hour daily support. SUMMARY: This Linksys package is one of the slower kilts on the chart, but it is also the cheapest, and its documentation and setup process are excellent. (************************************
3	Buffalo WHR3-G54 router WL12-PCI-G54S PCI adapter WL1-CB-G54S PC Card adapter find.pcworld.com/44216	\$260	91	802.11g, 125-mbps High-Speed Mode	Outstanding 27.6 mbps	Fair	FEATURES: 128-bit WEP and WPA encryption, four ethernet ports, removable antenna, upgradable to WPA2; two-year warranty, free 24-hour daily support. SUMMARY: The fastest (and priciest) kit on the chart. The AOSS feature makes setting up WPA encryption easy, but other aspects of setup lack polish. (************************************
4	D-Link DI-624 router DWLG520 PCI adapter DWL-G650 PC Card adapter find.pcworld.com/44218	\$185	91	802.11g, Super G	Fair 16.3 mbps	Good	FEATURES: 128-bit WEP and WPA encryption, four ethernet ports, removable antenna, upgradable to WPA2; three-year warranty, free 24-hour daily support. SUMMARY: Boasts an excellent range of features and well-designed hardware, but setting up the Super G mode was awkward. (************************************
5	Belkin F5D7231-4 router F5D7050 USB adapter F5D7011 PC Card adapter find.pcworld.com/44214	\$235	89	802.11g, 125-mbps High-Speed Mode	Good 15.4 mbps	Outstanding	FEATURES: 128-bit WEP and WPA encryption, four ethernet ports, upgradable to WPA2; lifetime warranty, free 24-hour daily support. SUMMARY: This kit combines stylish design and excellent parental-control Web filtering. The USB adapter does not support the 125-mbps High-Speed Mode, but the router and PC Card do. (*****)

FOOTNOTES: 'In their high-speed mode, accelerated 802.11g devices are incompalible with standard 802.11g devices. \* Average throughput is the average of the test results for downloads and uploads. The performance word score is based on several tests, including ones with unlisted results. HOW WE TEST: We test the performance of the wireless devices in uploading, downloading, and pinging a remote host in an electromagnetically isolated environment. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. Visit find.pc.world.com/44210 for more on our test methodology and results, and for reviews of protects tested and ranked in this chart. CHART NOTES: The overall rating is based on price (15 percent), performance (25 percent), features (20 percent), ease of installation (20 percent), and support policies (20 percent).

other products. However, bear in mind that the speed of the kit will make a difference only within your network: With Internet downloads, the speed of your Internet connection will be the restricting factor. Also, the Buffalo product did not have the same range as the other kits in our informal tests of network range; units that had dual antennas, such as the D-Link, got the best signal strength and covered a wider area.

The Belkin and IOGear routers include setup applications, but all the models we saw offer Web-based configuration utilities and step-by-step wizards. While the wizards will get you up and running, they won't always help with more-advanced settings (such as MAC address filtering or parental controls). Whether you choose a wizard or a utility, do the initial setup of your router with a PC using a wired connection, and then set up your Wi-Fi adapter to work with it. It's much simpler to avoid dealing with getting both to work at the same time. Buffalo's WHR3-G54 includes a feature called AOSS, which makes setting up WPA encryption easier than on the other routers. However, it works only with Buffalo products.

Getting the enhanced speed modes to

work was not always easy; we often found other wireless devices (such as an interloper's Wi-Fi notebook) trying to join the network, interfering with and forcing down the speeds of our own devices. With the enhanced routers, we fixed the problem by setting them to operate exclusively in highspeed mode and to ignore any 802.11gonly devices. Turning on MAC address filtering can help avoid this problem, too.

Generally speaking, the USB, PCI, and PC Card adapters from the same manufacturer use the same software (with different drivers to control the hardware). In just about every case, this software

proved straightforward to use and made the basic setup of all the adapters relatively easy. The Actiontec kit was an oddity, though: Inexplicably, the quick-start guide tells you to run an inadequate Web-based setup utility rather than to use the much more complete and helpful Installation Buddy software. Again, we had to experiment with the settings on all four kits that offer enhanced speed modes to get them running at top speed; for instance, we had to set a number of confusing parameters on the D-Link router and adapter to get them to run in the Super G mode.

Other points: The keychain size of the Belkin, IOgear, and Netgear USB adapters made them very portable. And all of the vendors, except IOGear, offer 24hour, daily technical support.

### **Print Servers**

WHILE YOU CAN SHARE a USB printer over your wireless network by using Windows' built-in printer sharing, the host computer must remain on for others to print. With a Wi-Fi print server, you don't need a host computer, and your printer can be located anywhere within range of your Wi-Fi network.

Most vendors offer at least one Wi-Fi router with a built-in USB print server. We looked at two, the SMC Barricade SMC2804WBRP-G (see find.pcworld. com/44210) and the Apple AirPort Extreme, which was our pick. The AirPort Extreme conveniently supports printing from either Macs or PCs; most wireless print servers do not. And the AirPort was simple to set up on each platform.

We also tried three stand-alone print servers from IOGear, Belkin, and Linksys. The IOGear GPSR01U (\$75, find. pcworld.com/44108) is the simplest of the three, a palm-size 802.11b device with a single USB 1.1 port. Moving up the ladder a rung, the paperback-size Belkin F1UP0001 (\$100, find.pcworld.com/ 44110) is an 802.11g model with two USB 1.1 ports, so it can work with two printers at once. It also provides an ethernet port, giving you the flexibility of connecting it with a wire. The Linksys WPS54GU2 >

SECURING YOUR NETWORK

# 5 Common Wi-Fi Security Mistakes)

IF THE STATISTICS ARE TRUE, about four of every five people who have a wireless network at home don't turn on any of the security features. Wi-Fi routers ship from the factory with their security turned off by default to ease the initial setup of the device, but that doesn't mean you should leave it in that mode forever.

Enabling security can take a little care, however, and even PC World editors goof it up sometimes. Here are some of the mistakes I've made. Don't repeat them.

Not changing the factory password. While setting up my first wireless router, I forgot to change the administrator password from the factory default. One day I discovered that someone else had logged in to the router (using the default password) and changed my settings, giving them free access. THE MORAL: Always change the router password from the default.

Not enabling encryption. If you don't enable encryption, your network is broadcasting your passwords and e-mail messages to anyone in range who cares to intercept them using free sniffer software like AirSnort (airsnort.shmoo.com), which can capture and analyze wireless data. THE MORAL: Unless you don't care who reads your e-mail, turn encryption on.

Not checking the security. Last spring my neighbor bought a Wi-Fi router, connected it to his broadband connection and printer, and merrily moved on to other things. Months later he awoke one morning to find his printer had mysteriously printed the page from his Wi-Fi router's manual that explained how to turn on the security settings. Later, his neighbor admitted to accessing his network by mistake, discovering the lack of security, and printing the page to the insecure network's printer as a not-so-subtle hint. THE MORAL: If you are concerned about how secure your network is, don't assume it is secure. Ask a knowledgeable friend to check it for you.

Overzealous security settings. Every wireless network card has a hardware (MAC) address that a Wi-Fi router can use to control which computers are permitted to connect to the network. One day I decided to turn on MAC filtering, and I dutifully added the address of every computer to be linked to the MAC filtering list-all except that of the PC I was using. I had locked myself out of my own network, the Wi-Fi equivalent of locking your car keys in the trunk. THE MORAL: Apply security settings with care, and thoroughly review them before you apply them.

Letting anyone access my network. I was the first on my block to have a wireless network, and I advertised that fact by setting the network name to "Open Access." Unfortunately, some nearby freeloader decided it was an open invitation to use my bandwidth to download huge amounts of pornography, slowing my network to a crawl. Now I've changed the SSID to my e-mail address; if anyone wants access, they have to e-mail me for permission first. THE MORAL: If your ISP allows it, going wireless makes sharing your connection easy, but people may abuse it if you leave it wide open. - Andrew Brandt



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(\$120, find.pcworld.com/44112), another paperback-size device, offers both a USB 2.0 port and a parallel port, for connecting to older printers. Like the Belkin, it has an ethernet port for connecting directly to your wired network.

All three devices work in similar fashion: You run a configuration utility, attach your printers to the print server, and then install and configure the printer server utility on each PC you want to print from. For basic one-printer installation, all of the servers we tested were reasonably easy to configure. Each time the process took

WEBCAMS TOP: Hawking HNC320W LEFT: D-Link DCS-5300G

around 30 minutes (because it involved setting up both a Wi-Fi device and a printing device), but all of the products came with good setup guides.

Another benefit of these three units is that they support Internet Protocol printing, so you don't even have to be near your computer to print. IPP allows you to, for instance, print out a report in the office from your location on the road.

All the devices we tried worked fine with our test printer (an Epson Stylus Photo 890), and all claim compatibility with most inkjet and laser printers. But they don't always work with multifunction printers; most consumer MFPs can only print, not scan or fax, when connected to a print server. Finally, if you're looking for a new printer, HP makes several-including the Photosmart 8450 (\$150. find.pcworld.com/44230) and the Photosmart 2710 all-in-one (\$400, find poworld. com/44232)-with a wireless print server built in, obviating a separate device.

# Wi-Fi Bridges

YOU CAN LINK almost any device with an ethernet port, such as a video game console or a network printer, to a wireless network by adding a Wi-Fi bridge. You

> connect your device to the bridge's ethernet port with a cable, and the bridge retransmits the data coming from the wired device wirelessly. The device itself acts no differently while using the wireless network.

> We tried out a few Wi-Fi bridges from Actiontec. Belkin, D-Link, and Hawking, but literally dozens more are available from other vendors. Our favorite was the Belkin F5D7330 (\$100, find.pcworld.com/ 44114). This 802.11g unit had by far the best setup utility and user manual, though none of the products we looked at were complicated to install or

use. The setup process was a little more involved when we enabled encryption on the network-we had to enter the encryption key into a Web-based setup program. Nevertheless, all the devices (except the Belkin model) supported WPA, and they worked without problems. If you are creating a wireless network from scratch, purchasing a bridge from your router vendor would make sense, especially if you have a speed-boosted model.

## Video Cameras

YOU CAN MOUNT a Wi-Fi video camera almost anywhere a power source exists. The two units that we tested have some

amazing features for consumer-level products. The Hawking HNC320W (\$135, find.pcworld.com/44116) is a compact 802.11b camera, while the D-Link DCS-5300G (\$350, find.pcworld.com/ 44166) is an 802.11g unit. Others are available from such vendors as Axis Communications, Linksys, and Veo; see find. pcworld.com/44120 for reviews.

Both models we looked at have built-in Web servers so you can view live video from any PC with Web access. Want to see if your kids got home from school okay, or to check on your office while you're working remotely? Just fire up your Web browser. Both cameras have motion detectors that can trigger video recording and send e-mail alerts if they spot movement. In addition, the D-Link model has a microphone for audio recording, as well as a motor with remote pan and tilt control; being able to pan the camera around remotely makes it much more useful, because it can cover an entire room. Both units include applications for recording and playing back video and for managing multiple cameras.

Neither camera is weatherproof or sensitive enough to capture video in low-light situations (though for nighttime security use, you could mount a motion-triggered floodlight nearby). But for the price, they do an impressive job.

# Music and Video Players

YOUR DIGITAL AUDIO and video don't need to be restricted to your PC-with a wireless media player, you can send music and video to your stereo system. We tried out the Linksys WMLS11B (\$150, find.pcworld.com/44128) and the MacSense HomePod (\$170, find. pcworld.com/44130). For use around the house, the Linksys is a great choice. It has large integrated speakers, so you can use it as a stand-alone wireless boom box as well as connect it to your stereo system (you can also detach the speakers). And the LCD is big and easy to read.

The HomePod also provides built-in speakers, but they are small and produce less volume. On the other hand, the

#### REPLACEMENT ANTENNAS

# Extending the Range)

IF YOU'VE TRIED DIFFERENT LOCATIONS for your wireless router, but you still have some dead spots around the house, consider a range-extending product. Signal strength is the key to a good Wi-Fi experience because performance drops off dramatically as signal strength decreases. The easiest and cheapest way to increase the range of your network is to replace your router's external antenna with one that is more efficient at transmitting and receiving the signal. Unfortu-



nately, not all routers have removable antennas; our chart on page 97 lists two that do.

We looked at the following antennas from Buffalo and Hawking (several other vendors sell range-extending, high-gain antennas): The Hawking HAI6SIP (\$35, find.pcworld. com/44452) boosts the signal strength in all directions; the HAI6DSP (\$45, find.pcworld. com/44454) boosts the signal strength in only one direction; and the HAI15SC (\$55, find. pcworld.com/44456), a corner-

mounted model, boosts the signal in a 90-degree spread (for providing coverage to large rooms). The omnidirectional Buffalo WLE-DA (\$50, find.pcworld.com/ 44458) works with only Buffalo routers; all of the Hawking antennas come with adapters that allow them to connect to a wide range of routers.

#### SMARTER COVERAGE

THE UNIDIRECTIONAL AND CORNER MODELS gave us a significant increase in signal strength and range during our informal testing inside a typical wood-frame house. The Hawking HAI6SIP omnidirectional antenna, however, offered little improvement, presumably because the built-in antennas on our D-Link and Actiontec test routers (the latter of which didn't make our chart) are very good.

In any case, you should use a directional antenna only when you want to provide coverage to a specific area, because rooms outside a directional antenna's narrow broadcast path will get even weaker signals-if they get any at all.

We also tested a preproduction version of the Hawking HSB1 (\$89, find. pcworld.com/44460), a signal booster that connects between the router and the router's stock antenna and amplifies the signal. The HSB1 worked wonders, giving us very good signal strength in all of the dead or low spots we previously had. The HSB1 allows you to adjust the signal strength, so you can boost the signal enough to cover the dead spots without extending the range to your neighbor's house.

In addition, Hawking offers the HWU54D USB adapter (\$49, find.pcworld.com/ 44462). It includes a directional antenna that you can point toward the router and its built-in antenna; the device gave us double the signal strength that we obtained with other USB Wi-Fi adapters. -Becky Waring HomePod searches automatically for music located on multiple host computers (Macs or PCs), and even has a USB 1.1 port for you to attach a storage device directly; the Linksys works with only one host, which must be running Musicmatch Jukebox. Besides Musicmatch, the HomePod also works with ITunes, Winamp, and several other music players. Both the WMLS11B and the HomePod support Internet radio playback, and the Linksys can tune in the Rhapsody music service. Oddly, neither supports WPA, so they won't work on encrypted networks.

The Actiontec Wireless Digital Media Player (\$160, find.pcworld.com/44132) boasts DVI output for connecting to a high-end TV (in addition to more mainstream ports). However, the software that came with it (which must run on the PC where the digital media is stored) was somewhat confusing to install and use. We'd also like to see a volume control on the remote, so you don't have to switch to your stereo remote for that function.

If you have a Windows Media Center PC, another alternative is coming soon: This fall, Media Center Extenders from various vendors will let you access all your Media Center PC content (such as recorded TV or digital music) on your TV or stereo system. Microsoft is also working on software that will turn an Xbox game console into a Media Center Extender. The advantage of these devices is that you won't have to learn a different interface to use them; they will work in the same way as a Media Center PC.

#### Travel Routers

TRAVEL ROUTERS are pocket-size versions of their larger siblings with specialized setup utilities for sharing a single connection (such as a single ethernet port in a hotel or conference room) among several people. They also let you save multiple configurations and switch among them, so you could have one configuration for hotel rooms, another for home, and yet another for the office conference room, making it easier to get online in different locations on the road.

We looked at the Apple AirPort Express (find.pcworld.com/44126), the Asus WL-330g (find.pcworld.com/44374), and the Netgear WGR101 (find.pcworld.com/ 44376). Apple's AirPort Express was our runaway favorite, thanks to its built-in power supply (the other two have separate

power bricks that nearly double their size and weight) and its ability to act as a wireless print server. All were easy to get up and running, though nonstandard setups (such as networks that require authentication) may be more difficult. The Net-

## Wi-Fi networks operate in the 2.4-GHz frequency range, the same as microwave ovens and many cordless phones. If you have 2.4-GHz cordless phones and they cause problems with your network, the gear omits WPA encryption capability. only solution is to swap them for 900-MHz or 5.8-GHz models.

## Use It

## How to get the most from your wireless network.

SO YOU'VE TAKEN OUR ADVICE and bought all the parts you need for your wireless network-now you have to put it all together. While most Wi-Fi devices are relatively simple to install and use (see find.pcworld. com/44170 for installation tips), coaxing the best performance out of your network takes some effort. Read on for tips to bring your Wi-Fi net up to speed.

## Location, Location, Location

LOCATION IS INDEED everything when it comes to getting the best range out of your Wi-Fi router. Wireless performance drops off dramatically as signal strength falls (from a top speed of 54 mbps with 802.11g to as little as 1 to 2 mbps at the lowest discernible signal strength); so if you can, you should position your router in a spot where all of your computers receive good signal strength.

Ideally, your Wi-Fi router should go in a location at the center of your house or office for best coverage, but you will have to position it near your DSL or cable modem. To test the coverage, do a preliminary installation of your router in the same room with your broadband modem, then connect your notebook PC wirelessly and walk around your home or office, checking the signal strength in the wireless adapter's administration software. Metal, stone, concrete, water, and human beings absorb or reflect signals, while wood and glass let them pass relatively unchecked. So place your router high in the room, as far away from obstructions

as possible, parallel to the wall, and away from windows to stop the signal from spreading beyond the building. Also try adjusting the antenna; just as with a TV antenna, even an inch can make a big difference in wireless reception. Have a partner with a notebook in a distant room call out to you as the signal gets better.

If you discover that your home or office suffers a few dead spots, you can add a higher-power antenna; see "Extending the Range" on page 104.

ten so popular that a single apartment or office building can house multiple networks, all trying to use the same frequency. A free utility like NetStumbler (www. netstumbler.com) can identify nearby networks. Note the channel numbers of any with significant signal strength, and set your network to use a different channel. Also make sure that your own SSID (network name) is different from the

> Enabling WEP or WPA can significantly cut the speed at which data is transmitted. That's why it's important to start with a strong signal, so that the speed loss is minimized. Also, don't fall into the trap

> others, so your computers don't try to

connect to them by accident.

Try to minimize interference. 802.11g

The other chief source of interference is competing Wi-Fi networks. Wi-Fi has got-

> of turning off the encryption in order to get better performance doing so would make it simple for an outsider to snoop on your network. For more tips on how to secure your Wi-Fi net, see "5 Common Wi-Fi Security Mistakes" on page 98.



THE ACTIONTEC Wireless Digital Media Player (top), the Apple AirPort Express, and the Linksys WMLS11B.

## Troubleshooting Your Network

IF YOUR COMPUTER can't seem to recognize your router, or if you can't get onto the Internet, the following basic troubleshooting steps should help (and make tech support phone calls much shorter).

The first thing to do with any network

glitch is to isolate the issue. Make sure that both the adapter card and the router are set to the same SSID, encryption mode (WEP or WPA), and encryption key-an error in any of these will lock you out of the network. If possible, try connecting a PC to the router via one of the wired ethernet ports. If you can bring up the router's administration interface on a wired connection, but not with Wi-Fi, check that your Wi-Fi card drivers are installed correctly. Usually the software that comes with the adapters has a testing option.

Also ensure that the adapter card and router are compatible. 802.11g routers may have g-only modes of operation to which 802.11b cards can't connect, or speed-boosted g modes that prevent regular 802.11g cards from connecting. Routers can also be set to allow only those clients with specific MAC addresses to connect to them, as a security measure. Make sure your card is on your router's list.

If you can connect to the router wirelessly but can't get onto the Internet, your card is working fine, but you'll need to troubleshoot your router. Check your router configuration to be sure you set it up properly. Rerun the setup utility, checking the mode (PPoE or DHCP, depending on what your ISP uses) and the user name and password that you use to log on. Be sure the settings match those that your broadband provider gave you. Some broadband modems are tied to the MAC address of the computer on which they were first installed, so you may need to "clone" the MAC address and fool the modem into thinking your router is really your PC.

Check that the wired connection between the router and the broadband modem is firmly seated, and that the indicator light for this connection is glowing. If a light is off, you may have a bad cable, or you might have connected a crossover ethernet cable instead of a regular one. Some routers come with a crossover cable that you use while setting it up-this cable doesn't work for the connection between the router and the modem.

If you get dropouts or lose your Internet

WIRELESS STANDARDS

## The Future Wireless Network

ALTHOUGH THE 802.11G PRODUCTS we've reviewed here are pretty speedy, tasks like simultaneously streaming several different video signals over a wireless connection require more bandwidth than current products offer. 802.11n is a forthcoming standard that will expand bandwidth and increase the range of wireless networks. The standard is still being discussed, but one version would provide more than 250 mbps of bandwidth, over four times that of existing 802.11g products. It would do this by compressing data more efficiently and using antennas that would allow it to transmit more than one signal at a time (a technique called MIMO, for Multiple In, Multiple Out). The final standard is not likely to emerge until 2006.

If you can't wait until then, this may be good news: Some vendors (such as Belkin; see find.pcworld.com/44450) have released what they call Pre-N devices, which use their proposed version of the standard. Belkin claims that its products will be upgradable to the final 802.11n standard when it is released.

## WIRELESS TRAFFIC CONTROL

MEANWHILE, TWO OTHER NEW STANDARDS coming soon are designed to enhance existing 802.11g networks. 802.11e allows for different traffic priorities, so timecritical data (such as a video stream or a VoIP phone call) is transmitted before less important stuff (such as e-mail or Web pages). A subset of this standard called WMM (Wi-Fi Multimedia) will start appearing in consumer products late this year.

802.11i increases the security of a network by adding more encryption and access controls; a subset of this standard called WPA2 (Wireless Protected Access 2) will appear in products by year-end. Most existing routers will be upgradable to the new standard: several vendors told us that they are planning to offer WPA2 upgrades to their older 802.11g products soon. The Wi-Fi Alliance (www.wi-fi.org) recently announced that it will be testing products for WMM and WPA2 compatibility to certify that they will work properly together, in the same way it currently evaluates and certifies 802.11g products for interoperability. -Richard Baguley

STANDARD	Status	Advantage over 802.11g	When products are likely to appear	Are existing products upgradable?
802.11n	Not yet ratified	Increased speed and range	2005	No
802.11e	Ratified	Allows prioritization of traffic	Late 2004	Yes
802.11i	Ratified	Increased security	Late 2004	Yes

connection, make sure you have the latest firmware for both the router and the adapters. Wi-Fi vendors issue frequent firmware updates that address such issues and add new features.

And finally, one last thing to remember: Keep your Windows system up-to-date with the latest patches from Redmond. Becky Waring is a freelance writer. Richard Baguley is a senior associate editor for PC World. Andrew Brandt is a senior associate editor for PC World and coauthor of How to Do Everything with Windows XP Home Networking (McGraw-Hill, 2004). Testing for this story was conducted by Elliott Kirschling of the PC World Test Center.





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## 10.4" TFT Display HIIIIIIIIII

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Acer AL1931



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Acer AL1912



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Acer TravelMate 2301LCi-XPP

\$949

ALL FEATURES LISTED. (LX.T5606.080)





## Acer AL1714

- 17.0" TFT LCD
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- Black color



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## Acer Veriton 7600GT-U-P3201

**\$923** 

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(512KB L2 CACHE, 533MHz FSB)
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- 512MB DDR400 SDRAM
- . 1.44MB' floppy drive
- Intel® Extreme Graphics 2
- · Gigabit LAN



## Acer Veriton 3600GT-U-P3201

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## Acer Veriton 3600GT-U-N2800

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AcerPower F2-U-N2800

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## Can anything stop the next global virus outbreak?

We follow the trail of one recent worm to see how the security system works—and whether it can be fixed.

BY DAN VERTON

NETWORKS CHOKE ON TRAFFIC, and crash. Computers reboot continuously, paralyzing banks, airlines, and hospitals. The cause: an attack by a worm named Sasser, which dominated the Internet for five days last May, infecting millions of computers.

Viruses as virulent as Sasser are coming at PC users faster than ever. The first half of 2004 saw a fourfold increase in new Windows viruses over the same period in 2003. With attacks coming from all sides, we examined the system that's supposed to protect us.

# Biography of a Contract of the Contract of the



BUG BUSTER Yuji Ukai of EEye Digital Security hunts for Windows vulnerabilities.

Who created Sasser? The short answer is a malicious hacker. But Sasser is also the by-product of the very system that's supposed to protect computer users. The hole Sasser wriggles through was discovered by an employee at a California security firm. And in releasing a patch for the hole, Microsoft supplied hackers worldwide with all the technical data they needed to exploit it. In short, you have to wonder whether this cure is worse than the disease.

To answer that question-and to examine what's right and what's wrong with the patch system—we followed Sasser's trail.

## Aliso Viejo, California, October 8, 2003.

Yuji Ukai is paid to find new ways to infiltrate your PC. Long after normal working hours at EEye Digital Security, where Ukai

works on "vulnerability management" software (which large companies use to protect their computer networks from hack attacks), he's still in front of his office workstation.

He should be home, but instead he has opted to have a little fun. And in Ukai's world, "fun" means searching like a bloodhound for security flaws in the millions of lines of software code that power the most widely used operating system in the world.

EEye's products try to anticipate where hackers will strike next and to throw a blockade in their path. Its customers expect EEye to protect their computers even when there's no official fix for a problem. As a result, researchers at businesses like EEye

'It's just one line of code.... I don't know why Microsoft took so long to fix [it].

-YUJI UKAI, SENIOR SOFTWARE ENGINEER, EEYE DIGITAL SECURITY

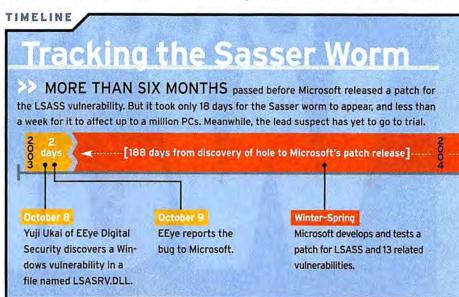
constantly dig into Windows, looking for weaknesses that nobody else knows about.

The company's record speaks for itself:

During the past 30 days, Ukai and his colleagues have discreetly notified Microsoft about six new Windows vulnerabilities they've discovered. Ukai found one of them, an unused command in a part of Windows called the Workstation Service.

Something tells him that other parts of the system have this same vulnerability. So tonight he's digging through DLL files, looking for the flaw. He starts out by checking other servicesprograms running various portions of the Windows operating system-that are turned on by default.

Almost immediately he finds another hole. And this one is inside the Big Kahuna: the Local Security Authority Subsystem Service. LSASS controls all aspects of security for the local Windows machine. He can get it to shut down, so Windows doesn't



have any protection for a short period of time; he can also get LSASS to run a program of his choosing, thereby turning Windows' "security guard" into an insider that's working for himone that can take control of Windows 2000 and Windows XP PCs. Hackers could do the same thing if they knew about the security flaw and were skilled enough to take advantage of it.

Ukai informs his boss that he's discovered a surprisingly easy method of controlling LSASS. Within hours, executives at EEye are on the phone to Microsoft. A significant portion of the world's computers have a major security hole. Fortunately, only EEye and Microsoft (as far as they're aware) know about it. Now, Microsoft must fix the problem before anyone else finds out.

The service EEye provides protects its customers, but it also creates two classes of Windows users: Those who are protected from newly discovered vulnerabilities (EEye's customers), and the rest of us, who must wait (sometimes months) for a patch and who remain ignorant of looming potential problems with our PCs.

Redmond, Washington, October 8, 2003. At the Microsoft Security Response Center (MSRC), an ordinary-looking office space in the heart of the software giant's campus, the team's ten top members are scrambling around like emergency-room physicians to triage a wounded Windows.

The triage team first analyzes the report and reproduces the problem, says Kevin Kean, director of the MSRC. Next, they bring in the Secure Windows Initiative (SWI) group-the SWAT team for Windows security bugs-programmers and product managers, who create a fix. Once they have a good idea of how to patch the bug, the MSRC goes through a lengthy, in-depth test rollout "to make sure we have a quality fix," says Kean.

The LSASS case quickly grows into a mammoth undertaking. In less than a week, the ten analysts bring aboard hundreds of programmers, product managers, and bug testers.

## PCs probed, per hour, by Sasser at its launch: about 200,000.

SOURCE: SYMANTEC

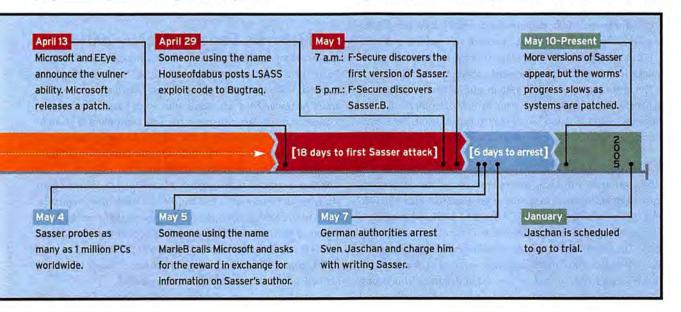
Despite the potential for catastrophe, Kean and Stephen Toulouse, the company's security program manager, breathe somewhat easier because EEye abides by the software industry's gentlemen's agreement known as responsible disclosure. Under these unofficial guidelines, the discoverer of a vulnerability gives the affected software company adequate time to work out a solution be-

fore the discoverer announces technical details to the world.

Responsible disclosure temporarily protects the public, at least in theory. Had EEye immediately posted these details online, Kean's team would have faced the nightmare of trying to fix a security hole at the same time as hackers were launching new viruses or worms. But keeping the details quiet can create a false sense of security, too. While Microsoft works on the patch, a criminal hacker might discover and covertly exploit the hole.

Kean says that most security researchers now refrain from posting details until after the patch comes out-a practice that used to be quite rare. As a result, Microsoft can focus on producing patches that don't cause additional problems. But that process requires testing-lots and lots of testing, in this case.

>> Redmond, April 13, 2004. It's been more than six months since Ukai's discovery. Microsoft releases its patch, along with details of the LSASS problem, in an advisory labeled MS04-011. By waiting so long, Microsoft has violated a responsible disclosure guideline: Security companies generally agree that patches should appear within 30 days of when a





WINDOWS BUG STOMPERS: The Microsoft Security Response Center's core members include (from left) Amy Carroll, Kevin Kean, Stephen Toulouse, and Richie Lai.

bug is discovered. Kean explains that the patch fixes not just the bug Ukai found in LSASS, but 13 related vulnerabilities as well.

Windows users and IT professionals must install the patch quickly, lest they leave their networks open to ransacking.

The technical report, which system administrators use to evaluate the safety of applying the patch to their computers, also provides the technical data a highly skilled hacker needs to reverseengineer the patch and write programs to attack unpatched PCs.

Russia, April 29, 2004. Just 16 days later, at 3 p.m. local time, a Russian hacker known as Houseofdabus releases a proof-of-concept exploit-a program that shows how to take control of an unpatched PC-for the LSASS vulnerability.

The code that Houseofdabus writes is professional-quality work. The author claims to have tested the exploit against ten different Russian- and English-language versions of Windows XP and Windows 2000. A note embedded in it states, "This is provided as proof-of-concept code only for educational purposes and

'[Microsoft aims to strike a] balance between timeliness and quality. We don't want to take risks that would ever cause people to distrust a patch.

-KEVIN KEAN, MSRC DIRECTOR

testing by authorized individuals with permission to do so." Nobody believes it will be used only by authorized individuals. For virus writers, who tend to be less skilled than exploit writers, this code is like candy.

The motivations of Houseofdabus are unclear, but virus expert Sarah Gordon, who has interviewed dozens of virus writers, says that most exploit coders see delays in applying patches as signs of laziness on the part of PC users and companies. They believe that the presence of their exploits online spurs a faster reaction to security holes.

Back in Redmond, Kean receives word about the Houseofdabus code, and puts the MSRC into "watchful normalcy" mode, a state of alert in which analysts monitor the Internet for signs that someone is trying to use the exploit code.

Helsinki, Finland, May 1, 2004. At 7:02 a.m. local time, analysts at Helsinki-based antivirus firm F-Secure learn that a new worm exploiting the LSASS vulnerability is in the wild. F-Secure dispatches a bulletin about the worm to other antivirus researchers, and names the worm Sasser.

Sasser spreads fast, causing vulnerable computers to crash or reboot without warning. It doesn't inflict deliberate damage on infected systems, but infected PCs bog down as the worm floods the local network, attempting to replicate.

When news of Sasser reaches Microsoft, engineers begin studying the worm on a test-bed PC, to learn how it spreads. Meanwhile, Kean gathers the product teams that need to be involved, as well as people from Microsoft's communications wing, who will run the public and customer outreach efforts.

"It becomes a 24-by-7 operation," Kean says. "We set up a number of war rooms and establish rotating shifts."

About 10 hours later, a second variant of Sasser, Sasser.B,



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has already popped up on the radar screen of F-Secure. Sasser.B is sufficiently different that antivirus companies have to rerelease their antivirus software updates to detect and remove it.

Redmond, May 2, 2004. By Sunday, within 24 hours of Sasser's appearance, Microsoft decides to launch a broad outreach campaign that will last the entire week, including conducting a Webcast, posting information on the company's Web site, creating retail flyers and content for PC makers and key partners, and even paying Google to ensure that anyone who searches for information about the worm will see an ad that points to Microsoft.com for the patch and other downloads.

Despite all of these efforts, Microsoft is struggling to contain Sasser. Reports of the worm's impact fly in: Operations have been disrupted at companies like Goldman Sachs and British Airways. Computers in half of Taiwan's post offices have been infected. Sasser plagues PCs at government agencies in Hong Kong and on oil platforms off the coast of Mexico.

The magnitude of the worm's disruption is staggering: 5000 computer systems and associated X-ray equipment at a hospital in Lund, Sweden, stop responding; 1200 PCs at the European Commission headquarters in Brussels cannot get online; and Sun Trust bank and American Express in the United States lose Internet connectivity entirely for several hours.

PCs infected by Sasser through September 2004: 700,000 to 1 million.

SOURCES: AKAMAI AND MICROSOFT

By late Sunday evening, almost 1.5 million people have downloaded a free tool from Microsoft that kills Sasser. But Sasser is far from finished.

>> Waffensen, Germany, May 3, 2004. In this village of just 900 people, located about 21 miles from the city of Bremen in northwestern Germany, Sven Jaschan, an 18year-old high school student, has allegedly spent the past three months writing and revising a series of Internet

worms that he calls Skynet, but that antivirus software companies call Netsky. Variants of this earlier worm-one of the most prolific on the Internet-infect and reinfect tens of thousands of computer systems every month. But Netsky's goal isn't to wreak havoc on innocent bystanders: It's a weapon in a war against two other worms-Bagle and Mydoom-that turn infected machines into a spam distribution network. Netsky takes over those infected machines and deletes the spam-sending worms.

## PATCH DELAYS



## How Long Is Too Long?

SOME SECURITY EXPERTS say software companies are taking too long to create security patches, leaving computers unprotected for months.

In the case of the LSASS vulnerability, EEye senior software engineer Yuji Ukai is baffled by the amount of time that it took Microsoft to fix one line of code. "LSASS was not a complex fix, so it was incomprehensible to me that they took 188 days to supply a patch," he says. "It's an unwritten rule that you give vendors 30 days to fix such a problem and 60 days if the problem is complex."

Rob Shively, CEO of PivX Solutions, a company that develops vulnerability and patch management software, agrees. If PivX has provided a company with enough proof of a vulnerability, PivX expects

the vendor to patch that hole within a month, he says. If a patch is not available immediately, the vendor at fault should post a workaround (usually involving disabling the vulnerable feature in the program), "so users are not left in the lurch," he says.

In Microsoft's defense, Kevin Kean, director of the Microsoft Security Response Center, and Stephen Toulouse, Microsoft's security program manager, say that every hole or patch presents unique challenges. In the case of LSASS, 13 other vulnerabilities had to be fixed, explains Toulouse. Microsoft must balance timeli-

> ness and quality, says Kean. "We don't want to take risks that would cause people to distrust the patch."

But a security patch that takes more than six months to produce-even if it is well-tested and trustworthy when

it arrives-is unacceptable, say some business users. Tom Kellerman, senior data risk management specialist at the World Bank, says, "We need patches before the underground finds exploits."

On the flip side, PC users have a lot of responsibility in this process, too, Kellerman adds. Users must install a patch within 24 hours of its release, he believes. When someone discovers a vulnerability, "hackers smell blood in the water, backdooring thousands of networks as [users] ponder when to patch."

MacDonnell Ulsch, managing director of Janus Risk Management, says that if customers are ever to get software that's secure straight out of the box, they must demand change. But for now, he adds, no one seems to be demanding it in an organized way.

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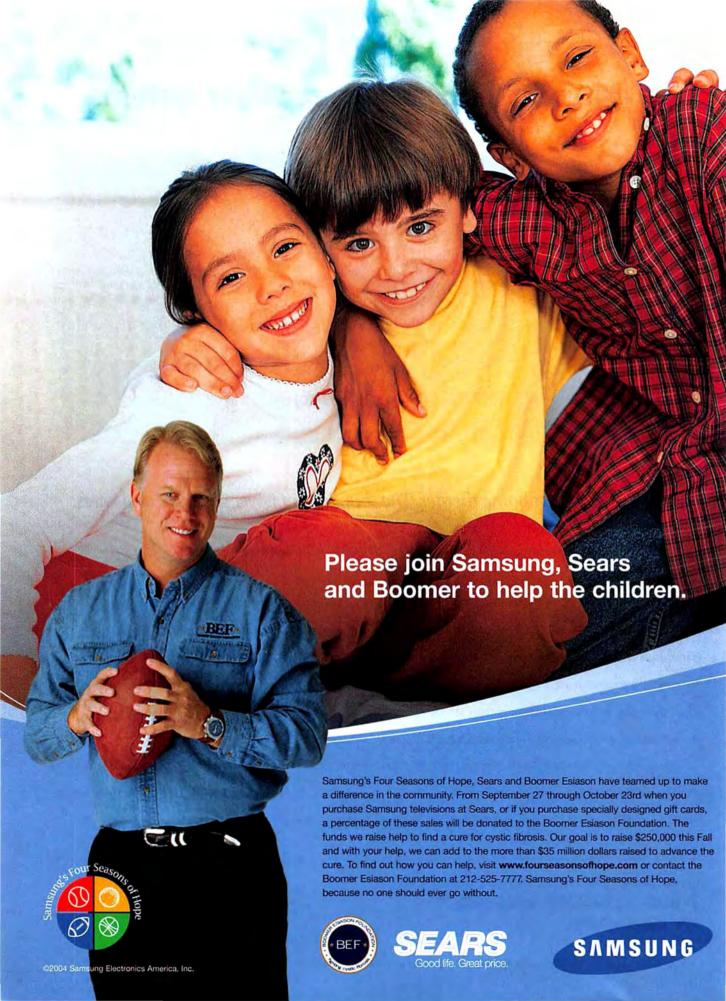
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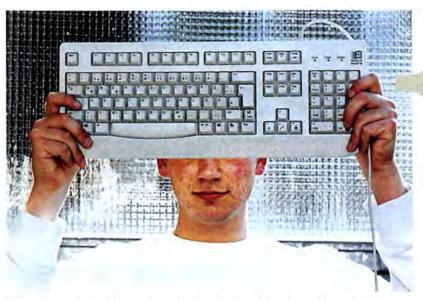


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LORD OF THE WORMS: Student Sven Jaschan, 18, allegedly wrote Netsky and Sasser.

Today-a little over two months since the release of the first Netsky worm-Jaschan allegedly releases the 29th version of the worm, Netsky.AC, on his school network. Like previous versions, this variant contains a hidden message, but in this particular message, the author claims responsibility for writing Sasser.

"Hey, av firms, do you know that we have programmed the sasser virus?!?. Yeah thats true! Why do you have named it sasser? A Tip: Compare the FTP-Server code with the one from Skynet. V!!! LooL! We are the Skynet ... "

Helsinki, May 4, 2004. On Tuesday morning, antivirus companies are trying to verify the claims made in the hidden Netsky.AC message. Virus analysts at F-Secure dissect Sasser and Netsky, and produce a detailed flow chart of the worms' routines and subroutines.

This graphical depiction enables them to compare the code and the style of its author. "The same guy who wrote Netsky wrote Sasser," says Mikko Hypponen, antivirus research director at F-Secure, pointing to the graphic.

Antivirus companies and Microsoft estimate that each of the four versions of Sasser has infected anywhere from half a million computers to many millions of them. Each infection causes Windows XP and 2000 PCs, without warning, to begin a 60-second, unstoppable countdown to reboot. When office workers returned to work Monday morning, their unpatched PCs set off a tsunami of worm attacks that has yet to subside, and that infects PCs faster than any previously known worm.

Waffensen, May 5, 2004. As the world's news media catches up with the Sasser story, the FBI joins in the hunt for Sasser's author. According to his own account, published in the German magazine Stem, Jaschan writes to one of his friends,

## '[Sven Jaschan1 is a freak and very intelligent.

-HELMUT TRENTMANN, PUBLIC PROSECUTOR IN GERMANY.

known only as MarleB, declaring that he is getting out of worm writing; Jaschan plans to destroy his hard drive.

Six months earlier, Microsoft had caused

quite a stir throughout the virus- and worm-writing world by establishing a \$5 million fund that the company would use to reward informants for tips that led to the arrest and conviction of anyone responsible for an outbreak of malicious code.

Later that day, MarleB and another of the young man's friends from school call Microsoft's German headquarters to find out whether Microsoft will pay them the \$250,000 bounty if they identify the author of the Sasser worm.

The call is passed along to Hemanshu Nigam, Microsoft's corporate attorney, who manages the antivirus Reward Program. "We informed the persons who were coming forward that, yes, we would gladly pay the reward," Nigam says.

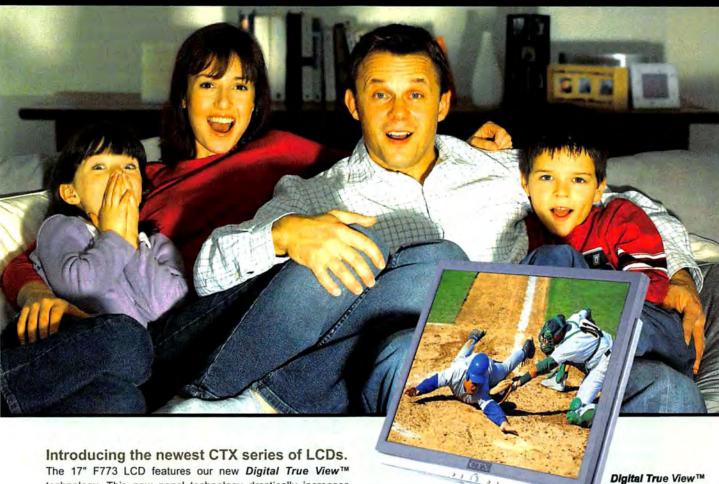
But before the informants can get their money, Nigam explains, they must provide data that Microsoft can "technically analyze" to determine the truthfulness of their claims. MarleB sends along the source code to a version of Sasser. No one has revealed how MarleB got it.

"Our security engineers took the information, analyzed it, and concluded that there was evidence that suggested the [informants] did know what they were talking about," Nigam says.

Microsoft now strongly suspects that it has its man, Sven Jaschan. This will be the first time in the history of the Reward Program that a tip from an informant actually leads to an arrest.

Seattle, May 7, 2004. As soon as he receives confirmation about Sasser from his engineers, Nigam calls in federal investigators. An FBI task force based in Seattle immediately contacts police in the German state of Lower Saxony. Later that day, German law enforcement agents raid the cottage where 18-year-old Sven Jaschan lives with his parents, and confiscate Jaschan's computer. In his interrogation, Jaschan allegedly confesses everything about his role in creating Sasser, Net-

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NETSKY'S AUTHOR claimed he wrote Sasser, in a note buried in Netsky. AC.

sky, and their variants.

Only 2 hours after his arrest, while Jaschan is still in police custody, a fifth version of Sasser appears online. Some security experts suspect that other hackers may be spreading Sasser, or that Jaschan may have offered a false confession. German authorities, for the moment. remain confident they

have the culprit. Jaschan probably unleashed Sasser. E only minutes before authorities arrived at his house, German officials say.

>> Hannover, Germany, June 2004. Despite Jaschan's confession, a trial is required under German law. Helmut Trentmann, the public prosecutor in Lower Saxony, gets the Jaschan case, which should go to trial in the state's capital, Hannover, sometime in January 2005.

Trentmann describes Jaschan as a young man who spends his free time working on his computer. The defendant is "a freak and very intelligent," he says. Based on evidence from computer experts and Microsoft, Trentmann is convinced that Jaschan authored and spread the Sasser worm, and that he acted with malicious intent. "In several steps, he put [Sasser] on the Internet and these steps he made alone," Trentmann says. "And he informed his friends about what he was doing. He was proud."

But Jaschan's malice has yet to be proved, Trentmann acknowledges. "I think his ambition was to get better [at programming]," says Trentmann. "It was a kind of competition. But in the days before he was discovered, he became gripped by fear. He had heard about the FBI investigation. And it became too big for him."

As for Jaschen himself, though his legal status remains unclear, he may get the chance to put his skills to better use: A German firewall firm wants to recruit him as a programmer.

Hannover, September 2004. As PC World goes to press, Trentmann is questioning five informants, four of whom are Jaschan's schoolmates. Trentmann and other investigators consider it likely that some of the informants may have assisted Jaschan in spreading the Sasser worm across the Internet.

Meanwhile, at least two new Sasser variants have appeared, indicating that accomplices of Jaschan may still be hard at work. And on August 23, Sasser.G, which at press time was the most recent variant discovered, was circulating on the Internet. Earlier versions of Sasser continue to infect unpatched machines every day. And Jaschan's mysterious spam-friendly rivals who produce the Bagle and MyDoom worms are still at it as well, releasing a new virus every few days.

All of the parties involved in this case say that their actions help others. EEye and Ukai's discovery of the LSASS hole helped the company's customers, who would have been at risk if a malicious hacker had found the vulnerability first. Microsoft's release of the patch enabled customers to avoid the problem.

Houseofdabus stated that the exploit was created only for educational purposes. Jaschan, too, claims that he was providing a service to the Internet at large. Although Sasser's primary effect was to spread as fast as possible, Netsky, on the other hand, attacked computers infected with the Bagle and MyDoom viruses (collectively known as spam zombies), preventing those PCs from sending spam to the rest of us.

So if everyone is looking out for our interests, why do we keep getting hit by ever-worsening viruses and worms that corrupt our

> data, gum up our networks, and crash our computers?

> In practice, the patch system doesn't protect all of us-it protects those who patch quickly. According to Gerhard Eschelbeck, CEO of the security firm Qualys, only half of all PC users apply patches within three weeks of when they appear. That leaves the other half open to worms that might never have been created if the patch

hadn't been released at all. Clearly we can't simply scrap the current patch system. Malicious hackers will always be on the lookout for vulnerabilities in software, even without unwitting aid from Microsoft. Such hackers, working undetected, might do far more serious damageall computer users would be vulnerable to data and identity theft, and businesses would be open to espionage.

> The ultimate solution is to produce software that's secure from the get-go. Until then, improving the patch system must be the top priority for everyone involved. Users, however, have only one real option right now: Patch early and often.

> Dan Verton is a senior writer for Computerworld. PC World Senior Associate Editor Andrew Brandt contributed to this article.

## Cost of damage due to the Sasser worm: \$979 million.

SOURCE: TRUSECURE

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## asser News Updates

FOR NEWS DEVELOPMENTS about Sasser, Sven Jaschan's trial, and other topics in this story that broke after this issue went to press, head to our Web site at find.pcworld.com/44432.

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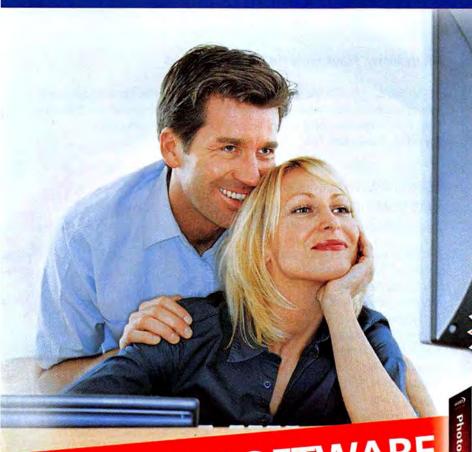
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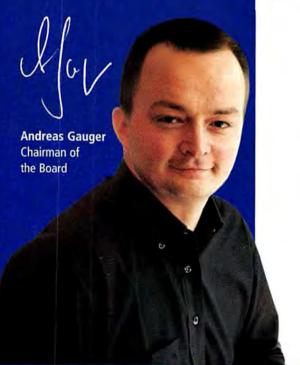
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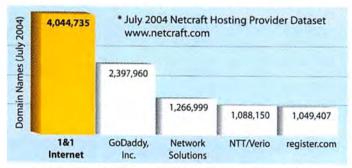
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## 1&1 HOSTING

## **Market Your Own Website**

## Make your site interactive and increase communication using 1&1 tools.

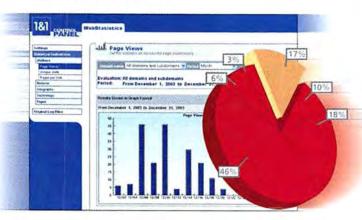
Easily add features to enhance your website. 1&1 gives you the tools that let you effectively communicate with your customers and site visitors, keep them intrigued and keep them coming back for more. Your 1&1 hosting package comes complete with high performance

features that let you connect with your visitors through live interaction, feedback forms, e-mail newsletters and more and gives them exactly what they are looking for. Best of all, these tools are so easy to use that no programming knowledge is needed!



## 1&1 WebStatistics

Use comprehensive statistics to understand visitor dynamics and adapt your site to your visitors. Included with ALL shared hosting plans!



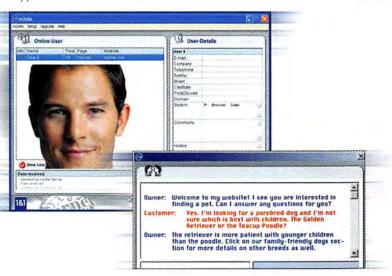
## ELAINE36: Hello, I saw your site and I have a queston about one of your products HOTCARDS2004: Which product can I help you with? ELAINE38: I am interested in ordering some business cards. What is the difference between gloss and matte firesh? HOTCARDS2004: Matte stock is a coated paper that has a dull or flat finish. It is often preferred for readability on projects that are text intensive or that contain charts or graphs. Gloss stock is a coated paper with a shiny or reflective finish. It is generally less expensive than matte and serves to help full color photographs, images and graphics appear more vivid, real and real and appealing. ELAINE36: I think I'm gorry to go with the gloss Thanks so much for your help!

## Chat & Forum

Provide a meeting place for your customers and add information and entertainment value to your site. Included with ALL shared hosting plans!

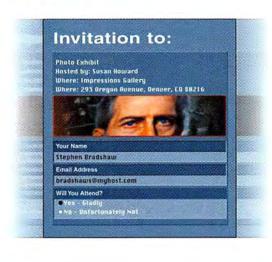
## In2site Live Dialogue

Give site visitors personalized customer service and support live and in real time.



## 1&1 WebElements

Add template-driven contact forms, online polls and more and customize them to fit your site.





## 1&1 WebDatabase'

Easily create and integrate customized databases into your website with no programming knowledge needed.



## 1&1 Newsletter Tool

Easily create and send professional looking e-mails to share news and information with your visitors.



<sup>\*</sup>Home packages do not include WebElements, In2site Live Dialogue, WebDatabase or Newsletter Tool.

## 1&1 HOSTING



## Affordable, all-inclusive, featurepacked hosting from 1&1.

1&1's Microsoft and Linux shared hosting packages offer the best value for your money. Whether you're a novice Internet user or operate a heavily trafficked site, 1&1 has a hosting package that will help you make the most of your web experience.

## Home Package

Ideal for creating your family website and publishing your photos or hobbies to the Internet.

## **Business Package**

The easy way for small and medium-sized businesses to build a sophisticated, professional web presence.

## **Developer Package**

Packed with the latest Internet technologies to build powerful, secure and reliable web applications.

## Freinschaft Sodern Networking Team Temeley, by 1s, 2004. The solution is a second of the solution of the sol

## www.HighImpactNetworking.com

"When I signed up for 1&1's 3 year hosting promotion, I was skeptical, but to my delight, 1&1's services were so exceptional that I purchased a Microsoft Hosting account. 1&1's services are so reliable and affordable that I plan on purchasing additional services as my business expands."

**George Alto** 



100% SATISFACTION OR YOUR MONEY BACK



Featuring New Versions of PhotoImpact® and NetObjects Fusion®

**HOME PACKAGE** 

INCLUDES 1 DOMAIN

MONTH

1,000 MB

25 GB

12 pages

10

200

1 account

optional 5/199

1,000 MB

25 GB

12 pages

10

200

1 account

optional

5699

**IMPROVED** 

FROM

**PACKAGE FEATURES** 

 1&1 Control Panel Logfiles

MARKETING TOOLS 1&1 Chat channels 1&1 WebStatistics SITE-BUILDING TOOLS WebsiteCreator

 Software bundle worth \$600 FrontPage extensions CGI library Active Server Pages **DOMAIN NAMES** Included Domains

 Run multiple independant sites Full DNS management

 Aliases, auto-responders, forwarding 1&1 WebMail Symantec Virus Scanners

**SECURITY FEATURES** Protected by up-to-date firewall

 Daily backups Password protected directories Dedicated SSL Certificate

PER MONTH

Web space FTP accounts Monthly Transfer Volume

Subdomains

E-MAIL POP3 accounts



# **BUSINESS PACKAGE**

FROM

MONTH

# INCLUDES 3 DOMAINS

	8	<i>[]</i>
PACKAGE FEATURES		
<ul><li>Web space</li></ul>	2,000 MB	2,000 MB
<ul> <li>FTP accounts</li> </ul>	5	5
<ul> <li>Monthly Transfer Volume</li> </ul>	50 GB	50 GB
<ul> <li>1&amp;1 Control Panel</li> </ul>	1	1
<ul><li>Logfiles</li></ul>	1	/
MARKETING TOOLS		
<ul> <li>1&amp;1 Chat channels</li> </ul>	5	5
<ul> <li>1&amp;1 WebStatistics</li> </ul>	1	<b>/</b>
In2site Live Dialogue	1	/
<ul> <li>1&amp;1 Newsletter Tool</li> </ul>	1	<b>/</b>
<ul> <li>1&amp;1 WebElements</li> </ul>	1	1
SITE-BUILDING TOOLS		
<ul> <li>WebsiteCreator</li> </ul>	18 pages	18 pages
<ul> <li>Software bundle worth \$600</li> </ul>	/	/
<ul> <li>FrontPage extensions</li> </ul>	1	1
CGI library	/	/
<ul> <li>Active Server Pages</li> </ul>	100-000	/
<ul> <li>ASP.NET, .NET Framework</li> </ul>	100-	1
Perl, PHP3 and PHP4	1	
<ul> <li>1&amp;1 WebDatabase</li> </ul>	1	1
<ul> <li>Database</li> </ul>	1 MySQL	MS Access
Cron Jobs	1	
<ul> <li>SSI (Server side includes)</li> </ul>	1	/
DOMAIN NAMES		
<ul> <li>Included Domains</li> </ul>	3	3
<ul> <li>Subdomains</li> </ul>	50	50
<ul> <li>Run multiple independant sites</li> </ul>	1	
Full DNS management	1	1
E-MAIL		
■ POP3 accounts	500	500
<ul> <li>Aliases, auto-responders, forwarding</li> </ul>	1	1
■ 1&1 WebMail	1	<b>/</b>
<ul> <li>Symantec Virus Scanners</li> </ul>	3 accounts	3 accounts
SECURITY FEATURES		
<ul> <li>Protected by up-to-date firewall</li> </ul>	1	1
Daily backups	1	1
<ul> <li>Password protected directories</li> </ul>	1	1
<ul> <li>SSH Secure Shell Access</li> </ul>	1	1000
■ Dedicated SSL Certificate	optional	optional
PER MONTH	5 <b>9</b> 99	5 <b>12</b> 99

# **IMPROVED**

# **DEVELOPER PACKAGE**

MONTH

#### INCLUDES 5 DOMAINS

to the state of th			
PACKAGE FEATURES			
<ul><li>Web space</li></ul>	4,000 MB	4,000 MB	
FTP accounts	25	25	
<ul> <li>Monthly Transfer Volume</li> </ul>	100 GB	100 GB	
<ul> <li>1&amp;1 Control Panel</li> </ul>	1	1	
<ul><li>Logfiles</li></ul>	1	1	
MARKETING TOOLS			
<ul> <li>1&amp;1 Chat channels</li> </ul>	10	10	
<ul> <li>1&amp;1 WebStatistics</li> </ul>	1	1	
<ul> <li>In2site Live Dialogue</li> </ul>	1	1	
<ul> <li>1&amp;1 Newsletter Tool</li> </ul>	1	1	
<ul> <li>1&amp;1 WebElements</li> </ul>	1	/	
SITE-BUILDING TOOLS			
<ul> <li>WebsiteCreator</li> </ul>	25 pages	25 pages	
<ul> <li>Software bundle worth \$600</li> </ul>	1	/	
<ul> <li>FrontPage extensions</li> </ul>	1	1	
<ul> <li>CGI library</li> </ul>	1	1	
<ul> <li>Active Server Pages</li> </ul>		1	
<ul> <li>ASP.NET, .NET Framework</li> </ul>		1	
<ul> <li>Perl, PHP3 and PHP4</li> </ul>	1	F-120	
<ul> <li>1&amp;1 WebDatabase</li> </ul>	1	MS Access MS SQL	
<ul> <li>Database</li> </ul>	3 MySQL		
<ul><li>Cron Jobs</li></ul>	1	0.00200	
<ul> <li>SSI (Server side includes)</li> </ul>	1	1	
<ul> <li>Advanced Developer Tools</li> </ul>	1	100	
DOMAIN NAMES			
<ul> <li>Included Domains</li> </ul>	5	5	
<ul><li>Subdomains</li></ul>	200	200	
<ul> <li>Run multiple independant sites</li> </ul>	1	-	
<ul> <li>Full DNS management</li> </ul>	1	1	
E-MAIL			
<ul> <li>POP3 accounts</li> </ul>	1,000	1,000	
<ul> <li>Aliases, auto-responders, forwarding</li> </ul>	1	1	
<ul> <li>1&amp;1 WebMail</li> </ul>	1	1	
<ul> <li>Symantec Virus Scanners</li> </ul>	6 accounts	Б account	
SECURITY FEATURES			
<ul> <li>Protected by up-to-date firewall</li> </ul>	1	1	
<ul> <li>Daily backups</li> </ul>	1	1	
<ul> <li>Password protected directories</li> </ul>	1	1	
<ul> <li>SSH Secure Shell Access</li> </ul>	/		
<ul> <li>Dedicated SSL Certificate</li> </ul>	1	1	
PER MONTH	5 <b>19</b> 99	5 <b>24</b> 99	

Includes 24/7 support . No setup fee

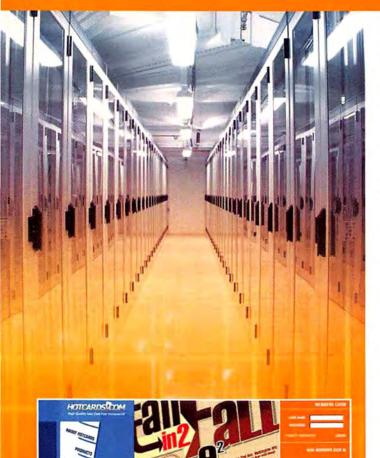


Linux packages





# 1&1 SERVERS



# Whatever you need from a dedicated server, 1&1 has the definitive solution

Dedicated servers from 1&1 offer a broad range of functionality so you car choose the solution that best fits your needs and experience level. From a fully maintained Managed Server, to a Root Server with maximum flexibility and control, to a solid and secure Windows Server, 1&1 will help you take your web presence to the next level.

## \$25 Million Data Centers

- 99.9% uptime guaranteed
- 18,000 MBit connectivity
- 500 peerings with 250 different providers for optimized routing

# **Fully Managed Servers**

- As easy as shared hosting but with added power and performance
- Complete monitoring, management and maintenance by 1&1
- Security updates and system
- Server configured and installed by 1&1

# Windows Server: Web Edition

- Included with Windows Server I & II
- Designed for dedicated web serving and hosting
- Remote Desktop Control
- ASP, ASP, NET, MSDE

# Windows Server: Standard Edition

- Included with Windows Server III
- Designed to support sophisticated and demanding applications
- Exchange Server installable
- Includes Active Directory, Streaming Media Server, Terminal Services

# Plesk 7 Reloaded Included with All Root Servers

- Use, create and manage your Linuxbased system
- Create new e-mail accounts
- Manage web spaces plus up to 100 domains
- Become your own host by partitioning your server into shared web space

#### www.hotcards.com

"Moving to 1&1's Managed Server III has made our business much more efficient. 1&1 gives us our own dedicated server, but we still get the seamless, maintenance-free service of a shared hosting site. Plus, we get all the space we need for our high resolution graphics files and print samples."

Nikki Woodruff



100% SATISFACTION OR YOUR MONEY BACK



# Flexibility and Control

- Plesk 7 Reloaded Control Panel pre-installed
- RedHat Linux 9 Operating System
- Advanced Recovery Tool lets you instantly reboot





# and Convenience

- All the features of shared hosting with the power of a dedicated server
- Continuously updated firewall protection
- 1&1 user-friendly Control Panel for easy administration
- Includes Dedicated SSL Certificate at no extra cost



# Reliability

- Windows Server 2003 Standard Edition with Server III (Web Edition with Server I & II)
- Unlimited administration access
- .NET Framework already integrated



#### SERVER I

- Intel Celeron 2.0 GHz
- 40 GB IDE hard drive

MONTH

MONTH

# SERVER II

40 GB IDE hard drive

MONTH

# SERVER III

- Processor with Hyper-Threading
- 120 GB IDE hard drive

PER

Includes 24/7 support • \$99 one-time setup fee

1&1

# 1&1 eSHOPS



# Easy, yet sophisticated e-commerce solutions.

1&1 eShops are as powerful as any major online retailer, but with no software or hardware to install. Online wizards and a wide range of professionally designed templates offer such simplicity that your online shop can be up and running in less than an hour. Plus, 1&1 eShops are fully compatible with your current site, regardless of which hosting provider you use. 1&1 eShops include all the web space and bandwidth you need and require no additional hosting plan to get your online storefront open for business.



# Design consultation and the second consultation of the second consultation

#### shop.gitanosoftware.net

"A great experience is what we have encountered with our new 1&1 Developer eShop. 1&1 gives us exceptional value, high quality, and a level of customization that we never had before. With very little effort we can offer discounts, purchase orders and more."

Jesus F. Moreno



Featuring New Versions of PhotoImpact® and NetObjects Fusion®.



100% SATISFACTION OR YOUR MONEY BACK

# 30+ professional shop templates

- Ready to be loaded with your products
- Designed by experts
- Customizable with different fonts, colors and positioning
- Easy, economical and fast

# Online payments via PayPal and WorldPay

- Secure
- Easy to use
- No merchant account necessary with PayPal
- Connect with 35,000 loyal PayPal users - with no paperwork or bank application

# 8 easy-to-use wizards

- Step-by-step guides
- Quickly and simply configure:
  - Shopping basket
  - Order processing
  - Tax clearing
  - Delivery methods
  - Payment settings

# Froogle Search

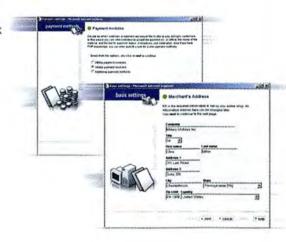
Help your customers find your online products quickly and easily. Available with 1&1 Professional and Developer eShops, Froogle allows users to find the products they want and provides links to the stores that sell them. Users can click through to your business and buy direct from you.

# All-inclusive hosting solution

- No software installation
- Traffic and web space included
- Updates and enhancements handled automatically
- 1&1 WebStatistics included

#### SSL secured

- All shop-based settings created in SSL secured pages
- Maximum integrity of confidential data
- Fully protected from third-party access



# Google Conversion Tracking

1&1 eShops support Google Conversion Tracking! Identify the effectiveness of your AdWords campaigns and make better decisions about the ads and keywords in which you invest. Receive detailed statistical reports outlining trends - from the campaign to the keyword level.

# **BUSINESS eSHOP**

- 50 MB web space
- = 10 GB monthly transfer volume
- 50 item product catalog
- Choice of 2 shipping methods



# PROFESSIONAL eSHOP

- 300 MB web space
- 30 GB monthly transfer volume
- 200 item product catalog
- Unlimited item variants
- Choice of 5 shipping methods
- Multi-currency support
- Newsletter editor
- Import/export customer data
- Online credit card clearing with PayPal and WorldPay
- Tax clearing server (calculates taxes by state, county and city)



# **DEVELOPER eSHOP**

- 1200 MB web space
- 60 GB monthly transfer volume
- Unlimited item product catalog
- Unlimited number and depth of sub-categories
- Unlimited shipping methods
- Multi-currency support
- Newsletter editor
- Import/export customer data
- Online credit card clearing with PayPal and WorldPay
- Tax clearing server (calculates taxes by state, county and city)
  - FTP access
  - Customer account management
- Fully customizable templates
- Dedicated SSL Certificate included
- In2site Live Dialogue



Includes 24/7 support • No setup fee



# WEBSITE IN AN INSTANT

# Create your ideal website in just 20 minutes.

With 1&1 Instant Website you can build a 12-page site quickly and easily using WebsiteCreator. Whether you're a beginner building your first site or an experienced user looking for a quick additional site with no programming hassles, 1&1 Instant Website offers the quickest, easiest, most feature-rich solution.



# **1&1 INSTANT WEBSITE**

- Create your own website in just 20 minutes
- Ideal for beginners and experienced users alike
- WebsiteCreator 12 pages included
- Choose from 120 customizable templates
- Online in just 5 easy steps
- Launches right from the 1&1 Control Panel no software to install

Service Control of the Control of th

1&1 makes it fast and easy to establish your presence online. Simply register your domain for just \$5.99/year. Then sign up for 1&1 Instant Website and easily and affordably create a professional website in minutes – with no HTML knowledge needed!

.COM .NAME

000

.NET .ORG

.INFO .US

\$599
PER YEAR







Lots of programs promise to locate your data in a hurry. Our tests reveal the top tools for searching your hard drive and inbox.

BY DENNIS O'REILLY

YOU KNOW THE FILE IS SOMEWHERE. Windows can locate it in a twinkling, no doubt. You click *Start*• *Search*, type a word or two, click *Search*, and wait.

And wait.

A banana and half a sports section later, you get the news: 'Search is complete. There are no results to display'. But that can't be! Since you know the file arrived as an e-mail attachment, you open Outlook, click Find,

type your term, click Find Now, and see 'No items found'. Oops! Outlook can't search attachments.

I know your frustration. My boss recently gave me a simple task: to find the original version of a Scott Spanbauer *Internet Tips* column about wireless network security from a few years ago. That's all he remembered about it—no file name, no date, nothing.

The search functions built into Windows and

Outlook came up empty. (The next Outlook, expected in 2005, and the next Windows, code-named Longhorn and due in 2006, will ostensibly offer superior search functions.) As I scanned through row upon row of file names in Explorer, I knew there had to be a better way. Then in a vision of folder paths and mystery extensions, I saw my quest: to discover the best finder of lost data files.

I chose ten file-search utilities, known and not so well known, and tried using each to unearth that lost Spanbauer file in either or both of two locations: as an attachment among my 30MB of Outlook data (comprising 1104 files) and as a .doc file in my 750MB data megafolder, which held 1110 assorted files and 43 subfolders. I limited the e-mail tests to Microsoft Outlook because it is the most widely used Windows e-mail program.

#### THE SEARCHERS

THE TEN TOOLS can do more than simple e-mail and data-file searches; my tests focused on finding that Spanbauer file and locating all files on a single subject (travel books). Visit find.pcworld.com/44346 for a complete description of the tests.

Three of the programs I tried out work primarily with Outlook data: Caelo Software's \$70 NEO Pro, Lookout Software's free Lookout plug-in for Outlook (Lookout was recently acquired by Microsoft), and Stata Labs' \$99 Bloomba Professional. You can also set Lookout to search for data files on your local system. Five of the remaining seven programs let you search both e-mail and data files. (I also looked at two popular personal information managers, AskSam Systems' AskSam and Micro Logic's Info Select 8. See find. pcworld.com/44344 to read why they don't satisfy the file-search need very well.)

All but one of the tools found what I was looking for in less than a second, once they completed the initial task of importing and indexing.

FEATURES COMPARISON

# LOST AND FOUND: UTILITIES FOR FINDING FILES FAST

IT HAS NEVER BEEN EASIER to search for misplaced files and e-mail messages, thanks to tools such as these finders. Our choice of the three e-mail-based search utilities is the free Lookout, while DtSearch tops the seven file finders that work outside your e-mail.

UTILITY	List price	Indexing time (in minutes)	Local folder search	Comments
DtSearch Desktop With Spider	\$199	6'	Yes	For search options, DtSearch is the utility to beat. The program is easy to use, even with its wealth of tools. Installation, indexing, and search all went off without a hitch.
Lookout Software Lookout  Lookout Software Lookout  Lookout Software Lookout  Lookout Software Lookout	Free (no tech support)	1.5	Yes	Outlook plug-in uses .Net Framework 1.1, which downloads automatically during the program's installation. Now owned by Microsoft, Lookout could be the future of Outlook search. If so, the view is pretty good.
Lycos HotBot Desktop ★★★☆ find.pcworld.com/44282	Free	42 (e-mail), 50 (test folder)	Yes	Great toolbar displays local file search results in an Internet Explorer window. You can click a link to open the file. HotBot was the slowest indexer, but its searches were fast and accurate thereafter.
Blinkx ★★★★☆ find.pcworld.com/44286	Free	11	Yes	Blinkx's keyword function works surprisingly well. Searches are fast and simple, but not especially accurate—though it did locate our test file.  Blinkx could make a useful research tool. And the price is right.
Caelo Software NEO Pro ★★★元章 find.pcworld.com/44288	\$70 Pro, \$40 Basic	3.5	No	Outlook replacement allows you to search within Outlook folders, by date range, and by similar words. You can designate saved searches as "hot" to place them on a toolbar inside NEO.
Stata Labs Bloomba Professional ★★★☆☆ find.pcworld.com/44290	\$99 Professional, \$60 Personal	61	No	E-mail tool imports Outlook data seamlessly. It automatically saves your last 20 searches and lets you scroll through their results with a single click. The Professional version syncs with Palm PDAs.
X1 Technologies X1 Search <sup>2</sup> ★★★☆☆ find.pcworld.com/44292	\$99 (with 15-day free trial)	2	Yes	We experienced some problems getting this program to complete its file indexing. Once we selected only our test folder, indexing was quick. Outlook and other e-mail indexing was fast as well.
Knownsoft Turbo Searcher 大大文章章 find.pcworld.com/44296	\$30	1.5	Yes³	Tool indexes only by drive, including network drives. It can search for images, videos, music files, and other content categories, but default options are limited. You can manually add other formats to its index.
Enfish Find ★★章章章 find.pcworld.com/44300	\$50; \$200 Professional	20	Yes <sup>2</sup>	Program indexes your entire hard drive automatically after installation, without giving you the chance to change its default settings. We later changed the default index settings to get it to scan only our test folder.
ISleuthHound Technologies Sleuthhound ★ ಕಾರ್ಮ find.pcworld.com/44302.	\$20, \$35 Pro, \$96 Pro PowerPack; \$15 per plug-in or \$65 for all	5	Yes	Sneaky app lurks in your system tray without asking permission. The basic package supports a narrow range of file types (you can add more types via plug-ins). Its advanced search features are weak.

FOOTNOTES: 'Indexes automatically during data import. 'Installation requires an ActiveX control.' Requires that you index an entire drive.

Despite some missteps, all ten programs proved to be a giant leap up from the search functions in Windows and Outlook. My favorite e-mail searcher is the free Lookout, and the \$199 DtSearch Desktop is my pick among file finders. Here's how each package fared.



# DtSearch Desktop With Spider 🖂

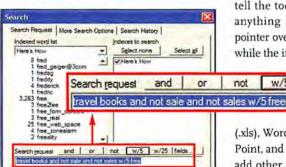
\*\*\*\*, find.pcworld.com/44278

I COULD EASILY see this program serving a reference librarian. DtSearch Desktop gives you more ways to search for information than Windows has bugs. The utility took only 6 minutes to index my test files. By default the program indexes Excel (.xls), Word (.doc), RTF, text (.txt), Outlook Express, Outlook, PowerPoint, PDF, MBOX (for Eudora, Netscape, and other e-mail), HTML, and other files. It includes document properties, macros, and other hidden content in Office files. Even with all this overhead, DtSearch returns results in a flash. In fact, it found my folder and e-mail test files so quickly I had to make sure that I hadn't already done the search and forgotten to clear the results. The \$199 price tag is steep, but the search results speak for themselves.

# Lookout 🖂 🗇

#### \*\*\*\*, find.pcworld.com/44280

SOME OF THE best things in life really are free. Lookout Software's Lookout add-in for Outlook not only found my test e-mail



DTSEARCH DESKTOP gives you many options for narrowing your file search.

attachment, it uncovered the test file in my megafolder as well. Lookout installs as an Outlook toolbar. It requires Microsoft's .Net Framework, but this downloads automatically (with your permission, of course) if you haven't already

installed it. Loading the utility took only 5 minutes, and Lookout indexed my Outlook files and data folder in just 90 seconds more. However, you can't search the contents of e-mail attachments until you've opened the program's Advanced options and checked 'Index attachments and file contents.' Lookout's ability to search local files is all the reason I need to keep the program on my Outlook toolbar. Searching couldn't be simpler or cheaper.

# HotBot Desktop 🖂 🗀



SEEING YOUR OFFICE documents displayed in Internet Explorer can be a little disconcerting; but after the initial shock, you'll appreciate that this free download

puts your e-mail and most of your files just a search and a click away. Unfortunately, the program's pokerfaced indexing gives you no clue as to how long the e-mail and file indexing will take. The only way you can tell the tool is doing

w/5

anything is by hovering your mouse pointer over the utility's system tray icon while the indexing is in progress.

> The utility searches both messages and attachments from Outlook and Outlook Express-along with Excel

(.xls), Word (.doc), RTF, text (.txt), Power-Point, and PDF files-by default; you can add other file types manually. To index files, you must navigate to and select the drives and/or folders that you want to



MICROSOFT'S FREE LOOKOUT add-in utility for Outlook lets you limit your search by date, contact, location, and other options.

include. The program took a pedestrian 42 minutes to index my Outlook data, and another 50 minutes to index my test folder. But once the index was complete, it served up the files I needed in no time. That makes the slow indexing easier to abide (especially since the tool is free).

# Blinkx 🖂 🗇

conduct an

#### \*\*\* find.pcworld.com/44286

I'VE ALWAYS HAD a soft spot for the contrarians of the world. Just when everybody says that searching is all about keywords, along comes Blinkx with a free search utility that claims to find the e-mail and documents you want without bothering to



THE FREE HOTBOT DESKTOP browser plug-in displays your local-file and e-mail search results in Internet Explorer.

word text search. The program indexes your local files and adds a small toolbar to Internet Explorer and to your other apps. Click one of the toolbar icons to find files related to the topic of the document that's currently open. You can choose from local drives, online news, the Web, shopping sites, video content, or Weblogs.

The program can also perform an oldfashioned keyword search of files in the same locations. Just click the Blinkx icon on the toolbar to open the utility's

search window. Enter your keywords and click the magnifying-glass icon, and your search results from the Web and from your local drive will appear in an Internet Explorer window. Danged if the program didn't find my test file on the first try. though it never did find the Outlook email message that the file was attached to. Blinkx might also make a valuable research tool; it lacks the advanced features of conventional finders, but its scattergun approach is fast, simple, and free.

# NEO Pro

#### \*\*\* find.pcworld.com/44288

YOU'D HAVE TO LOOK long and hard to find a program that offers more e-mail search options than Caelo Software's NEO (for Nelson Email Organizer) Pro. When open, the \$70 program (\$40 for the basic version) places a small Outlook icon in the bottom-left corner of the screen, so moving between the programs is a snap; NEO Pro also adds its icon to the Outlook



THE FREE BLINKX TOOLBAR searches local files, Web sites, and news sources-with or without your entering a phrase.

toolbar for one-click switching. I imported my Outlook data to NEO in only a few seconds, and the import operation includes automatic indexing of every word sent and received. I found the attachment I was looking for on the first try, and NEO completed that and all other searches in less than a second each. Though NEO doesn't work with local files, it'll turn up your hard-to-find Outlook messages.

# Bloomba Professional

\*\*\* find.pcworld.com/44290

WHO NEEDS FOLDERS? That's the philosophy of Stata Labs' \$99 Bloomba Professional, which works as an Outlook

replacement. (The \$60 Personal version lacks automated Palm sync, shared calendar, and other features.) During installation, Bloomba took only a minute to import my Outlook data, and the program even warned me to make sure that

my antivirus software was set to scan incoming and outgoing e-mail. (No indexing was required.) Bloomba promises not to modify Outlook's settings, and in my tests I was able to access all my messages and contacts and send and receive e-mail in Outlook while Bloomba was open. New messages sync with Bloomba automatically when that program reopens.

In less than a second, Bloomba found the attachment I was looking for, and it did equally well in my "travel books" search. You can limit a search to certain

> e-mail fields (to: or cc:, for example) and to specific

> > dates, among other options. Two other things I like are the

handy 'Delete as spam' option and the fact that the utility lets you save and scroll through past searches. Unfortunately, even with Bloomba's fast and intuitive approach to

e-mail searching, \$99 is a lot of money for what is essentially an Outlook substitute.

# X1 Search

#### \*\*\* find.pcworld.com/44292

I GOT A GOOD feeling about X1 Technologies' \$99 X1 Search program right off the bat when it politely asked whether I wanted it to load at Windows startup. Unfortunately, I had plenty of time to contemplate X1's civility because creating its initial index, which it does with no prompting, took 25 minutes. You can search during the indexing, but X1 warns you that the results won't be complete.

Following this initial setup, though, X1



BLOOMBA BRINGS FIRST-RATE file-search options that make finding data lurking in mountains of Outlook e-mail and attachments easy.

lets you specify which file types to index, and you can choose the folders it scans. After X1 produced its automatic index, I went back and manually instructed it to re-create the index, limited to my test folder (and to all e-mail). The tool generated that index in about 2 minutes, and it found both my test files in an instant. I discovered that the indexing picked up my Eudora and Outlook Express mail as well as my Outlook data (including all attachments), and I found that combing the mail from various clients makes locating duplicate messages a breeze.

With X1 you can search by file name and size, or by file extension. Other options let you specify the maximum file size for content indexing (which applies to e-mail attachments as well). But for advanced search options, that's it.

#### The Also-Rans

THE LAST THREE file searchers I tested didn't measure up, for one reason or another, to the preceding apps. Knownsoft's \$30 Turbo Searcher was by far the slowest of the group, though it supports a wide range of file types. In Enfish Find's free-trial version, the default settings and automatic indexing missed my test data folder: after I re-created the index manually, however, it found both files in less than a second. And Sleuthhound gives you fast searches, but the \$20 shareware utility adds itself to your system tray and to Windows' Startup group without asking. Visit find.pcworld.com/44348 to see full reviews of these programs.

Dennis O'Reilly is a senior associate editor for PC World.

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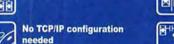
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156 BLUETOOTH:

**158 GADGET FREAK:** STREAMED MOVIES





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# RIP YOUR RECORDS

YEARN TO HEAR YOUR OLD ALBUMS AGAIN? HERE'S EVERYTHING YOU NEED TO DIGITIZE THEM AND THEN PLAY THEM ANYWHERE YOU CAN PLAY AN MP3. BY PATRICK NORTON

VINYL'S NOT DEAD yet. The market for records has never gone away, and chances are good that you still have some albums tucked away that you can't part with but no longer listen to. If you miss those tunes, here's good news: You can easily make clean digital copies of them. In fact, if you can plug a cable into a socket, you can convert your vinyl recordings into MP3 files. And here's even better news: You can handle all the importing without expensive or complicated software and hardware.

#### THE HARDWARE

TO CONDUCT my conversion testing, I grabbed my copy of Greatest! Johnny Cash (circa

1959, from Sun Records) and a turntable. My computer and a phono preamp rounded out my equipment list.

You'll need a phono preamp to boost the volume (or level) of the audio coming from the turntable and to compensate for the RIAA curve, a form of equalization built into records since about 1950. Though you

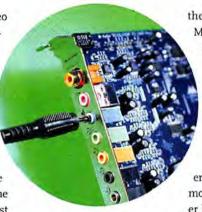
can import audio from a turntable without using a phono preamp, it isn't advisable. The level is likely to be very low, and the sound very tinny.

For this project I connected a turntable directly to my PC and to a stand-alone phono preamp, but if you still have a turntable attached to your stereo, you don't need to

buy a separate preamp: Stereo receivers that support a turntable have a phono preamp built in. If you want to use your stereo instead of a separate preamp, you can connect the receiver's Aux or other line-out jack to the line-in jack on your sound card. If your PC and stereo are in separate rooms, however, a stand-alone preamp may be the simplest way to bring your turntable and your PC together.

If your computer lacks a linein port and has only a microphone jack for sound input, consider investing about \$100 in an external sound card like Creative's USB Sound Blaster Audigy 2 NX or Griffin Technology's PowerWave. The external card will provide a linein port with the correct level; and because it's isolated from the other electronics in your system, it could yield cleaner sound. Don't link your sound card to the speaker outputs on your receiver: If you do so and then turn the volume up, you are liable to do serious damage to your sound card.

For my tests, I tried out a couple of phono preamps sep-



WHICH ONE'S THE LINE-IN? On most sound cards, the line-in port is blue, and it's labeled with an arrow pointing into a circle.

arately: Memorex's MX-SP2 Stereo Phono Pre-Amplifier (\$40, www.circuitcity.com), and TCC's TC-750 Audiophile Phono Preamp (\$43, www. phonopreamps.com). Both of them come with a stereo RCA cable for connecting the preamp to your turntable. The TC-750 also includes an RCAto-stereo MiniPlug adapter for linking the preamp to your sound card. Those connections are fairly easy to figure out. In addition, most turntables have a ground wire: The TC-750's sturdy steel case has a thumbscrew you can attach the ground wire to, but the Memorex's case doesn't. To

eliminate the obnoxious

ground loop hum I heard when working with the Memorex, I connected the turntable's ground wire directly to a case screw on my computer.

Overall, the TC-750 delivered richer, fuller audio, with more-distinct highs and crisper bass. That's important because the better the audio is when you capture it, the better your final output will be.

Magix's Audio Cleaning Lab 2005 utility (\$40, www.magix. com) comes with filters that are capable of substituting for a preamp, according to the vendor, so I tested them, too. Though the filters workedmore or less-the resulting audio was noticeably flat, with fake-sounding bass. And Magix did a poor job of documenting this filtering capability: I wasted considerable time trying to figure out how to forgo the preamp. For superiorquality sound and better control, you should invest the \$40 or so that a hardware preamp costs. And while you're shopping, buy yourself a recordcleaning brush. The less dust you leave in your LPs' grooves, the less noise you'll have to clean up after importation.

#### THE SOFTWARE

ONCE I HAD all the hardware set up, I was ready to fire up a couple of programs and bring the Man in Black into the digital age. I looked for reasonably automated applications that do the job from end to end: importing the album side, splitting the tracks, cleaning up the audio, and saving separate digital audio files.

I tested (besides Magix's Audio Cleaning Lab) Microsoft's Plus Analog Recorder (which is part of the company's Plus Digital Media Edition, \$20, www.microsoft.com/plus), and Pinnacle Systems' Clean 4 (\$50, www.pinnaclesys.com). Of the three, Plus Analog Recorder made importing and cleaning up the easiest, and it also did the most complete job of labeling files with artist, album, and title information.

If you own a disc-burning suite like Ahead's Nero 6 or Roxio's Easy CD Creator 6, try the sound editor bundled with it before you purchase anything else. Many such suites have basic tools for importing and enhancing analog audio.

#### IMPORTING

IN MOST AUDIO software, a waveform window sits in the middle of the screen. It contains a squiggly line that represents the sound you're listening to. The waveform looks high-tech, but you can safely ignore it, especially at the outset of your import process.

You do have to pay attention to the audio level on the linein, by watching a pair of level monitors (one each for the left

FEATURES COMPARISON

# ANALOG AUDIO IMPORT TOOLS

OUR FAVORITE SOFTWARE for converting LPs into digital files is surprisingly simple and inexpensive.

CONVERSION PROGRAM	Price	Good stuff	Gotchas
Magix Audio Cleaning Lab 2005 **க்க்க் find.pcworld.com/44104	\$40	Program's main functions are a snap to use; filters are easy to try out; includes demo videos.	Audio sounded mostly overprocessed and flat; the filters that substitute for the preamp are hard to find; no simple way to enter ID3 tags before burning MP3s.
Microsoft Plus Digital Media Edition  ****  find.pcworld.com/33635	\$20   detection of track solits; hes		Limited (though effective) cleaning tools; no direct recording to audio CD; MP3 encoding requires extra purchase.
Pinnacle Systems Clean 4 ★★★☆☆ find.pcworld.com/44106	\$50	Software provides top-notch audio quality if you're willing to experiment with its many filters.	Has an interface only a sci-fi fan could love; poor detection of tracks; crippled without an extra-cost update.

and right channels). Start recording a test file and look at the monitors: You want the loudest sections of the song to reach the yellow section, but not to break into the red. If the audio software doesn't have a volume control, you'll have to find your computer's line-in level control (the way to access this varies with different operating systems and sound systems) and adjust the line-in volume until your recording comes in at the level you want.

#### CLEANUP

AFTER RECORDING an entire side of an album as a single .wav file, you have a choice: If you want to preserve the experience of listening to vinyl, including any pops, clicks, and crackle, you can burn this raw audio file directly to CD. Alternatively, you can use your software to filter out as much of the noise as possible, and then divide the large file into individual tracks and convert each of them to a compressed audio format such as MP3.

Microsoft's Plus Analog Recorder offers the fewest cleaning options (they consist of simple check boxes for 'Reduce Pops' and 'Reduce Hiss'),





MICROSOFT PLUS ANALOG Recorder has a wizardlike interface that walks you through the audio import process, including adjusting your input level and adding artist, song, and album data to each track.

but they work quite well. Analog Recorder automatically marked individual tracks; and when the split between songs wasn't right, I found that moving the markers was easy.

Pinnacle's Clean 4 wasn't as successful at detecting where songs began and ended, so I wound up making lots of corrections to songs' start and end points. Doing this wasn't particularly difficult, though.

Clean 4 offers a laundry list of audio effects and features, including reverb and 'Add Brilliance', but they're wrapped in a cluttered interface reminiscent of something from Star Trek. One example: You have to click the 'Process This Title' button to execute any effectbut it blends with the rest of the controls because it has the same gunmetal-gray skin as everything else in the window.

Interface issues aside, the filtering in Clean was excellent. With minor manual adjustments, it removed most of the crackling and clicks from my audio without trashing the quality, although it did knock just a bit of the high end out of songs. Between Clean 4 and Plus Analog Recorder, I'd call my results a toss-up: The finished product from each program sounded pretty good. I can't say the same for Magix Audio Cleaning Lab 2005: Its audio improved when imported through a preamp, but I was consistently unimpressed.

#### **NAMING NAMES**

THE NEXT-TO-LAST step consisted of adding the information about songs that appears in music-management software and digital audio players. Of the three programs, Plus Analog Recorder let me do the most extensive tagging of my tracks before exporting them: It let me add labels for artist name, album title, and track title. Clean 4 permitted me to identify just artist and track title, and Magix allowed me to save the track title as the file name but offered no way to specify artist or album. Virtually any digital music management program, such as ITunes or Musicmatch, can add this ID3 data to music files.

The last step of my testing was to save songs as individual files. Plus Analog Recorder saves files in Windows Media Audio format by default, and you must use Windows Media Player to burn songs to a CD. But you can purchase an MP3 Creation Pack (a \$10 third-party plug-in) that lets you save files as MP3s. Clean 4 requires a \$10 upgrade before you can export to MP3 more than 20 times. Magix limits your MP3 exports until you register the program and download a free upgrade.

Today, you don't have to be an audio engineer to give new life to your favorite vinyl. After investing a few bucks and a few hours of your time, you'll have a bunch of oldies (or rare imports) to add to your playlists. And when you can listen to those songs on your PC, burn them onto mix CDs, or load them into a digital music player, you'll find that they are soon back in heavy rotation.

Patrick Norton is a freelance writer based in the San Francisco Bay Area. Formerly he cohosted the program The Screen Savers on TechTV.



PINNACLE CLEAN 4 has lots of filters, but using them is hindered by a confusing interface that doesn't highlight important functions.



# BLUETOOTH GADGETS BRANCH OUT

BLUETOOTH GETS no respect in the United States, owing in part to the glacial pace of product introductions. But it is becoming more common in notebooks, in PDAs, and especially in cell phones, providing users a wireless way to transmit small amounts of data over short distances.

Now, increasingly creative applications for the technology are cropping up. Looking beyond the typical, utilitarian gear, I tried out four intriguing (yet quirky) accessories for Bluetooth telephones.

### TALK TO THE DASHBOARD

WHEN PAIRED WITH a cell phone, the CCM Blue Warrior Car Kit (★★★★☆, \$80, find. pcworld.com/44012) becomes a speakerphone that plugs into your car's power adapter. The noise-canceling microphone reduces background sounds effectively, and the large buttons make adjusting speaker volume easy. The Blue Warrior is far from sleek or sexy, but it's certainly the most practical device I tested.

## TINY TUNE BOX FOR **PHONE FIENDS**

PART MP3 MUSIC player and part hands-free phone headset, the compact, very lightweight Sony Ericsson HBM-30 (★★★☆☆, \$109, find. pcworld.com/44006) is a cute little gadget that lets you take calls with minimal interruption of your music. It automatically pauses music for an incoming call, and you speak into its built-in microphone (the HBM-30 is meant to be worn around your neck or clipped to your clothes) and listen to the caller through the stereo headphones. While it offers good-quality sound for both music and phone calls, and it paired easily with my Sony Ericsson T637 Bluetooth phone, I would definitely replace the headphones with a more comfortable set. In addition, the battery chamber cover was extremely difficult to remove. In short: cool concept, lukewarm execution.

# THOUGHTS

WITH NOKIA'S SU-1B Digital Pen (★★★☆☆, \$249, find. pcworld.com/44008), I doodled and made handwritten notes in ink on a special notepad and transmitted them from the pen to my Bluetooth phone. I then sent my scribbles from the phone to friends via Multimedia Messaging System (MMS). As an alternative to typing on a cell phone

though pricey-tool for MMS addicts. The pen can transfer drawings and notes to a PC, too, but only through a USB connection. (You can save your jottings in formats like BMP and JPEG, but you can't easily convert them to text.)

### SHOW YOUR PHONE SNAPSHOTS ON TV

WANT TO MAKE a slide show out of your camera phone photos the next time your friends visit? Nokia's SU-2 Image Viewer (★★本章, \$90, find.pcworld.com/44010) lets you display the shots on a TV or projector. Hook this square gray thingamajig to your TV's RCA input via the built-in cable, beam the pictures wirelessly to the SU-2 from your Bluetooth-enabled phone, and let the photo fest begin. The unit is easy to set up and use, but it displays resolutions only up to 640 by 480; if you have a newer phone that takes higherresolution photos, you won't be able to use this device. And 640-by-480 photos will look blocky on a TV screen, no matter what. If your phone can send batches of photos (my T637 couldn't do it), you can create a slide show: Nokia says you also can use sequentially beamed shots.

-James A. Martin

# A PEN FOR YOUR

keypad, this pen is a handy-

NEXT TECH

# **UWB: BETTER THAN BLUETOOTH?**

THE BLUETOOTH STANDARD is now facing competition from a new wireless technology.

Called Ultra Wideband (UWB), it promises data-transfer rates up to 480 megabits per second, while most current Bluetooth devices transfer data at up to 721 kilobits per second.

Does this mean Bluetooth is long in the tooth?

Not necessarily. Bluetooth devices are unlikely to disappear anytime soon, and UWB has its own pitfalls: Its fastest transfer rates work only within 3 feet; there is no single UWB specification; and many countries haven't approved UWB yet.

Those issues should be solved by year's end, but devices may not appear until spring 2005.







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# **GADGET FREAK**

DAN TYNAN

# **COMING TO A PC NEAR YOU**



I LOVE MOVIES, but I'd rather eat stale popcorn than wait in line at Blockbuster. So I joined Movielink (www.movielink. com) and Starz Ticket on Real Movies (movies.real.com). Both let you download films from the Internet and watch them on your PC. Cinema-Now (www.cinemanow.com) has a similar service, but a fellow can watch only so many movies. My quest: to find out if they're a better deal than Netflix (www.netflix.com), my DVD-by-mail service of choice. Here's how they stack up.

Selection: Browsing Starz's 150-odd movie titles is much like cable-surfing at 3 a.m.not surprising, since the films are also part of the Starz Movie library. Who can forget Two of a Kind, starring John Travolta and Olivia Newton-John. or Smokey and the Bandit III? (Answer: everyone but Starz

subscribers.) Movielink, in contrast, serves up 900 films, including recent Oscar winners like Cold Mountain. Netflix offers a whopping 25,000 DVD choices. Game over.

Price: Starz's \$13 a month for unlimited downloads may seem like a bargain, but what do you do once you've rented the 5 flicks worth watching? Movielink charges \$1 to \$5 per film-but mostly \$5. That's about \$4.99 more than I am willing to pay for movies like Bio-Dome. With Netflix, I can rent up to 3 DVDs at a time for \$22 a month. We'll see 12 to 15 movies in a good month. It's a much smarter deal.

Convenience: With Netflix, you add movies to your list, and the discs are sent to you as they become available. Movielink and Starz let you download movies to watch later (or alternatively, in Movielink's

case, as they download; Starz expects to offer streaming by press time). That's more convenient, right? But the services are hobbled by the studios, which give movies to them a month after they hit the video stores, and impose silly rules on when you can watch films.

On Starz, for example, you can watch a movie at any time, provided you do it while the film is still available on the site and within 24 hours of starting it, but not more than three times, except during a blue moon in months that end in r. (Okay, I made up that last bit.) Starz lets you burn films to disc, but you can only play that CD on up to three PCs. Movielink gives you 30 days to watch a movie, but you must finish it within 24 hours of starting it or pay \$1 for another 24-hour license-no burning allowed. You can keep a Netflix DVD for weeks and watch it a hundred times. That would be stupid, but you could do it.

Playback: To simulate a real movie-theater experience, I connected my notebook to a digital projector and watched Blue Crush (from Starz) on the wall of my living room. The picture was almost as good as with a DVD. But Movielink was a mess. One file that I downloaded was corrupted and wouldn't play. I had to reinstall Movielink's media software and download Bride NEXT UP

# Frag Your Friends



WANT TO STOP lugging a full-size PC to LAN parties? Then try Falcon Northwest's new FragBook line of notebooks. The TL (thin and light) models, which have 15-inch screens and Pentium M processors, weigh only about 7 pounds. Prices for the TL series start at \$2786. The DR (desktop replacement) FragBooks are Pentium-4based and have 17-inch widescreen displays, a built-in Webcam, and four speakers. Prices for the DR series start at \$3300. To psych out your gaming competition, you can order your FragBook with any automotive finish available. www.falcon-nw.com

-Rebecca Freed

of Chucky all over again. When the film did finally play, it stuttered and dropped frames. Netflix DVDs do have a high schmutz factor, and this can cause playback problems, but a quick wipe with Windex and a tissue usually fixes them.

The verdict? Movie download sites are a good idea done poorly, at least so far. But when Netflix launches its own download service next year (possibly in partnership with TiVo), I'll be one of the first in line to sign up. And I won't even have to get off the couch to do it.

Contributing Editor Dan Tynan really wants to direct.





Cube cases are all the rage nowadays. So surf in style with our infinitely configurable Aria. This dashing little number sports all kinds of features guaranteed to turn your friends sea-green with envy. Like a whisper-quiet 300-watt power supply. A multi format card reader for all your audio/photo/video applications. And unlike the other cubes, Aria can work with your choice of microATX motherboards and the latest accessories. To start building your dream computer, simply visit www.antec.com or your local Antec retailer.























# Escape from Tape

# FASTER, CHEAPER, BETTER solutions are readily at hand

sk just about any home or business computer user, and he or she will tell you that backing up data has always been something of a headache. Although vendors have made great strides in improving the underlying tape backup hardware and software, the inherent nature of tape, being both mechanical and serial, limits how effective tape backup can be, especially in today's environment.

Let's face it: Tape's a pain. For many users and companies, tape backup was the gold standard, and in some places it still is. But lately it has become increasingly inadequate in light of the challenges facing most users today. Consider the veritable explosion of data. Leading research firms estimate annual data growth of 50% or more, enough to bog down if not completely overwhelm tape solutions.

Also, the business environment itself is fast-changing, and the rules apply to small businesses and enterprise-class businesses alike. Specifically, regulatory mandates in many industries now require that organizations protect critical data and ensure

its accessibility. In other cases, organizations are under the gun to guarantee that they can recover from failures, disasters, and other emergencies quickly and reliably, often within minutes rather than days or even hours. Then of course there are competitive pressures that also drive the need for robust business continuance strategies in which data backup and recovery play a key role.

So data storage needs are soaring, IT resources are dwindling, and the increasing pressure to provide backup solutions that are "faster, cheaper, better" is overwhelming. Once upon a time, the answer would have been to install a tape device, better yet a tape autoloader that provides automated backup. But IT professionals at small and medium-sized businesses will likely tell you that tape is expensive, data restoration is



The REV Autoloader 1000 includes a single REV SCSI drive and ten 35-GB REV disk slots for fast, secure backup.



anything but convenient or reliable, maintenance adds to workload, and, of course, tape is slow.

# The Iomega REV Autoloader 1000: The Radically Better Solution

Enter the lomega REV Autoloader 1000. Bringing automation to the successful and award-winning REV product line, the REV Autoloader includes a single REV SCSI drive and ten 35-GB REV disk slots (350-GB native capacity; 700-GB with 2:1 compression) that provide blazing fast, efficient, and secure backup—all while providing quick disaster recovery from a major system failure using included enterprise-level backup software.

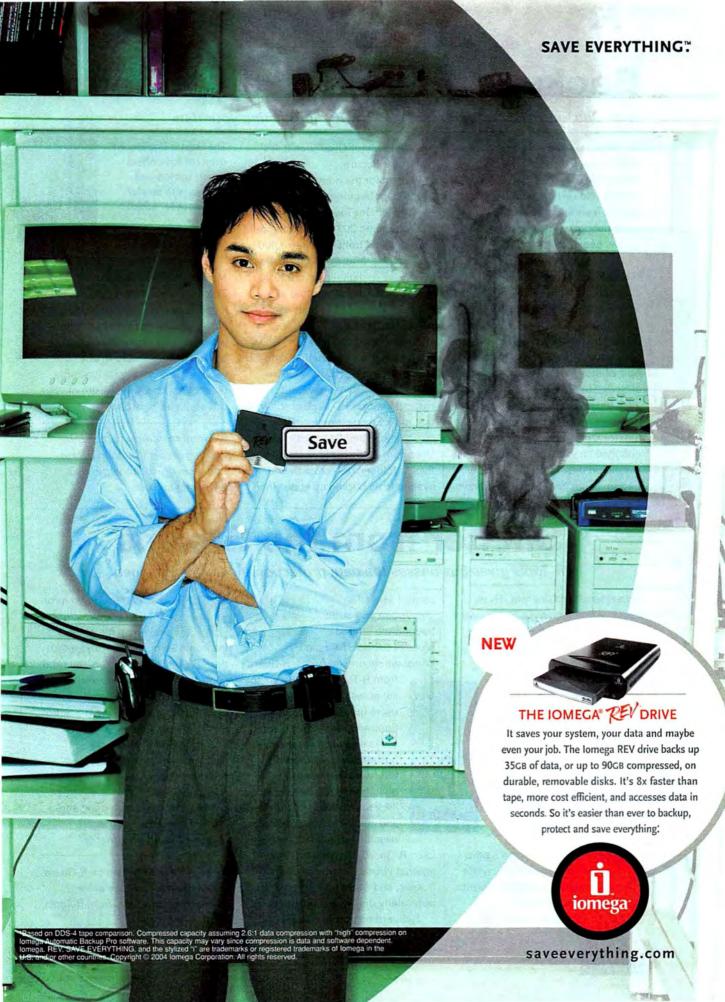
Compared with tape autoloaders, the REV Autoloader is simply faster—up to eight times faster, shortening your backup window by over 80%. And with no hidden additional costs (no cleaning cartridges, no retensioning, no media wear-out, no maintenance), the REV Autoloader provides lower total cost of ownership. This new storage solution is also easier to use, offering random access that

allows users to boot directly off the media and access files directly, which you cannot do with tape.

The REV Autoloader 1000 is an ideal replacement for contemporary entry-level and low-end tape autoloader systems, providing enterprise-class archiving and backup for small businesses. Using intuitive drag-and-drop functionality, the REV Autoloader 1000 provides instant access to files with simple clicks of the mouse. All this functionality and value of the REV Autoloader 1000 allows businesses that have relied upon tape to gain immediate savings in labor and hardware costs while saving system downtime too.

 To learn more about this exciting breakthrough in backup and archiving technology, visit www.iomega.com.





# Backup Made Easy-and Secure

With OneTouch II, Maxtor takes the pain out of protecting your data

SPONSORED BY:

Maxtor Corp. www.maxtor.com

Whether your data is for business or personal use, backing it up is absolutely essential. Data backup should also be highly secure. And ideally, it should be easy, although most people would argue backing up has been anything but easy.

Now Maxtor Corp. (www.maxtor.com) has changed the rules for

backup—again. With its new
Maxtor OneTouch II external hard
drive, Maxtor—the pioneer of the
"push-button" approach to backup—offers Maxtor DriveLock for
added data protection. DriveLock
allows users to password-protect
the contents of the drive. The
Maxtor OneTouch II also features
enhanced backup capabilities and a
simplified user interface. So now
backup is not only easier than ever

with the Maxtor OneTouch II, it's also more secure.

Perfect for the home or small office and for beginners or data pros, the Maxtor OneTouch II provides up to a whopping 300 GB of additional storage. That translates into 5,000

hours of high-quality digital music; 230,000 digital photos; 21

hours of video; or 144 high-resolution video games.

Connecting the Maxtor
OneTouch II is a breeze thanks to its
USB and FireWire ports. Also included is exclusive, new Dantz Retrospect Express HD backup software
that makes recovering from a system
crash or another disaster simple.
Users can easily retrieve deleted
files or folders, or restore their entire
system to its backed up status in a

The Maxtor OneTouch II external drive offers simple backup and storage with Maxtor DriveLock for added security.

few simple steps.

But its ease of use is where the Maxtor OneTouch II really shines. The drive is set so the default installation backs up every local drive automatically, or users can simply push one button and files are backed up and secure in one convenient location. Similarly simple diagnostics check the health of your drive with a single click.

For more information on this exciting breakthrough in backup and recovery technology, visit www.maxtor.com.

# Shelter from the Storms

R-Tools gives businesses the data protection they want and need

Windows security services, R-Guard

No system is crash proof. Thus, users will be glad to know that with R-Drive Image from R-Tools Technology Inc. (www.r-tt.com), they can completely and rapidly restore their systems after a heavy data loss due to an operating system crash,

virus attack, hardware failure, or other disaster.
R-Drive Image is a potent utility for providing disk image files creation for backup or duplication.
It restores images on the original disks or any other partitions or even on

other partitions or even on a hard drive's free space on the fly, while creating a special bootable diskette to restore system partitions.

And to extend access rights

control as well as encryption and audit beyond the limited scope of standard Microsoft

from R-Tools allows users to set access rights not only for users but also for applications and system processes.

As a result, R-Guard gives businesses the protection they want and need from unauthorized disclosure, theft, illicit modification, corruption, and inadvertent or deliberate deletion by an unauthorized

user. R-Guard also protects files against viruses, spyware, Trojan horses, and other unwanted and potentially disastrous intruders.

R-Guard users can quickly and

SPONSORED BY: R-Tools Technology Inc. www.r-tt.com easily track down information about actions taken on file objects,

including edits, deletes, and executions. With R-Guard, users get total control over file/folder operations at the user application level.

R-Tools also offers the R-Studio family of data recovery utilities, including R-Mail to rescue accidentally deleted email messages and damaged .dbx files; R-Wipe&Clean to keep disks free and clear of unwanted data; and R-Word to recover damaged Microsoft Word documents.

■ For more information on R-Guard, R-Drive Image, and the other outstanding products from R-Tools, visit www.r-tt.com.





# It's your favorite shot. Keep it safe.

Your stuff is important. Save it, store it, back it up with the push of a button. The Maxtor OneTouch II is the only external hard drive with room for up to 200,000 photos, new software that lets you easily retrieve backed up files with

the click of a mouse, and Maxtor DriveLock™ for added security.

Think of it as your computer's new best friend.







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SPOTLIGHT: WIDE-SCREEN LCD MONITORS

# Wide Screens Open for Business

Dreamy-eyed, you tick off the advantages of a wide-screen LCD monitor: Oft-used programs side by side, photos in exquisite detail, room for every toolbar-and think of how great DVDs would look. Your dream is now within reach. We tested various LCDsthree 17-inch monitors, five 23-inch displays, and one 24-inch unit—and their superb quality and reasonable prices (as low as \$664 for a 17-inch model and \$1599 for a 23-incher) show a far-from-harsh reality.

Investing in a wide-screen monitor makes good business sense. "I spend a huge amount of my day in Excel using spreadsheets," says Rhoda Alexander, director of monitor research at technology analysis company ISuppli. "I need to track a lot of data >

#### Top 10 Hard Drives

Top 10 Two new drives from Seagate—the CHART \$230 200GB External Hard Drive (rear) and the \$169 40GB Portable External Hard Driveoffer different types of storage options.





Top 10 Top 10 Digital Cameras CHART Sony's petite Cyber-shot DSC-F88 should turn heads: It has a unique rotating bar that holds the optical viewfinder and flash.

## Top 15 Desktop PCs

Top 15 You may have to CHART pay a hefty \$5100 to obtain HP's Media Center PC M1050y, but in return you get a loaded system with a removable hard drive and copious ports on the front, as well as a beautiful 23-inch LCD monitor.



170

#### INSIDE THE TOP 100

See find.pcworld.com/15720 for details on how we compile charts for the Top 100. Freelance writer Carla Thornton, and PC World editors Laura Blackwell, Eric Butterfield, Tracey Capen, Kalpana Ettenson, Rebecca Freed, Melissa J. Perenson, Narasu Rebbapragada, and Alan Stafford contributed to the Top 100 section this month. Ulrike Diehlmann, Julio Giannobile, Elliott Kirschling, Jeff Kuta, Tony K. Leung, Thomas Luong, and William Wang of the PC World Test Center tested the products reviewed in this section, with logistical support provided by Julian Weatherby.

Despite the business benefits, Alexander predicts that wide-screen LCDs will edge their way into the office via the living room: "We'll see a groundswell in the U.S. market with TV viewing." With DVD movies and television shows such as *The West Wing* available in wide-screen, viewers are getting accustomed to the format.

Many of the models on our chart bank on crossover appeal. Most accept A/V inputs like component, composite, and S-Video. Some have TV tuners, and many are HDTV-ready. A few boast special sound features. We evaluated entertainment functions, but we graded these models as monitors and not as TVs.

Of the smaller units, Sharp's LL-M17W1, with its first-rate image quality, handily won our nod for Editor's Pick. Impressing our jury with beautiful graphics and unparalleled text quality, Samsung's SyncMaster 243T was our Editor's Pick in the 23- and 24-inch category—though it omits the entertainment bells and whistles found on other models.

#### SMALL, BROAD-SHOULDERED

WHILE THE SHARP earned top imagequality scores, the other two 17-inch wide screens—the LG Electronics Flatron L172WT and the Samsung SyncMaster 173MW—were close behind, both earning a text score of Outstanding and a graphics score of Very Good.

All three models performed well in our DVD playback test, but again the Sharp proved superior to its two competitors. In fact, DVDs looked better on these small panels than on their larger cousins.

Each of the 17-inch units comes with a built-in TV tuner and picture-in-picture display, which allows you to watch a second channel within a smaller window in the screen; the LG also includes picture-by-picture (side-by-side split screen) and picture-on-picture, which lets you

TOP 100

# Wide-Screen LCD Monitors

FEATURES ABOUND IN ALL OF THESE monitors, but the less entertainment-oriented models serve up the greater feast for the eyes.

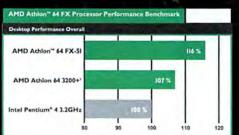
17-INCH WIDE-SCREEN LCD MONITOR	Street . price (8/20/04)	Quality of text/ graphics/DVD playback	Inputs	Features	Comments
LG Electronics Flatron L172WT find.pcworld.com/44026	\$664	Outstanding/ Very good/ Above average	Dual video,' composite, component, S-Video	Tilt adjustment, built-in speakers, enhanced sound, PIP/PBP/POP, <sup>2</sup> TV tuner, HDTV-ready	Advanced sound functions, HDTV readiness, and picture-on- picture and picture-by-picture functions make this model a satisfactory replacement for a secondary TV. (****)
Samsung SyncMaster 173MW find.pcworld.com/44028	SyncMaster  Outstanding/ Very good/ Very good/ Dual video.' Composite, composite, component, S-Video, color-adjusting software, PIP/PBP. <sup>2</sup>		speakers, virtual Dolby surround sound,	Text looks crisp on this HDTV-ready monitor, but other models provide brighter colors and cleaner details in both graphics and video. (************************************	
Sharp LL-M17W1 Find.pcworld.com/44030	\$679	Outstanding/ Outstanding/ Above average	Analog video, composite, component, S-Video	Tilt adjustment, built-in speakers, image-adjusting software, PIP, <sup>2</sup> TV tuner	Our pick because of its clear details and rich, vibrant color. This is the only 17-inch unit here without HDTV capability, but it displayed the best DVD pictures. $(\star\star\star\star\dot{\star})$
23- OR 24-INCH WI	DE-SCRE	EN LCD MC	NITOR		
Apple Cinema HD Display find.pcworld.com/44032	\$1799	Outstanding/ Outstanding/ Above average	Digital video	Tilt adjustment, two-port USB 2.0 hub, two FireWire 400 ports	Streamlined model topped our graphics tests, but its lack of even basic picture adjustment features for non-Mac OSs limits this unit's appeal for PC users. (****)
HP L2335 find.pcworld.com/44034	S1599 Very good/		Tilt, swivel, height, and pivot adjustments; PIP, <sup>2</sup> HDTV-ready	This business monitor has excellent physical adjustments and a low price; but weak DVD playback means it has limited entertainment value. (************************************	
LG Electronics Flatron L2320A find.pcworld.com/44036	\$2699 Very good/ composite, enhanced bass, two-port USB 1.1 hub,		enhanced bass, two-port USB 1.1 hub, color-adjusting software, PIP/PBP/POP. <sup>2</sup>	A separate box holds this unit's A/V ports, but that innovation doesn't make up for low text quality and an inability to display native resolution via the digital interface. (************************************	
Philips Brilliance 230W5VS find.pcwarld.com/44038	Brilliance 230W5VS S2350 Very good/ composite, speakers, two-port USB 2.0 hub, six-in component, universal card reader, color- and ima		Tilt and swivel adjustments, built-in speakers, two-port USB 2.0 hub, six-in-one universal card reader, color- and image- adjusting software, PIP, <sup>3</sup> HDTV-ready	This solid all-around performer sweetens the pot by including a six-in-one media card reader and by conveniently placing USB 2.0 ports in the front. (************************************	
Samsung SyncMaster 243T find.pcworld.com/44040	\$2240	Outstanding/ Outstanding/ Below average	Dual video '	Tilt, swivel, height, and pivot adjustments; color-adjusting software	The only 24-incher we tested, this model had the top text scores and second-best graphics scores; but ghosting on DVDs means this unit is all work and no play. (****)

FOOTNOTES: 'Includes both digital (DVI) and analog inputs. DVI requires a graphics card with a DVI digital output, which we use to test all monitors that offer DVI. 'PIP = picture-in-picture, PBP = picture-by-picture, POP = picture-on-picture, HOW WE TEST: Judges rate how well each monitor displays 13 text and graphics images at native resolution, which is 1280 by 768 for the 17-inch wide-screen monitors here and 1920 by 1200 for the 23- and 24-inch wide-screen monitors on this chart. Some screens are from DisplayMate for Windows (www.displaymate.com). See find.pcworld.com/34613 for testing details, DVDs are played on PC test systems. CHART NOTES: Data based on tests designed and conducted by the PC World Test Center. All rights reserved. See find.pcworld.com/10860 for details on PC World's Star Ratings. Visit find.pcworld.com/44080 for reviews of all products tested this month and shown in this chart.





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17" Flat Panel LCD Display (add: \$359)



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AMD Athlon™ 64 Processor 3200+ 1600FSB w/ HyperTransport



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VIA K8T800 Chipset Mainboard w/SPDIF Out (Support RAID 0, 1)

512MB PC3200 Dual Channel DDR400

Seagate® 120GB Serial ATA/150 (8MB Cache) 7200rpm Hard Drive

#### 128MB ATI RADEON™ 9550 w/TV-Out & DVI

Realtek ALC655 6-Channel Codec Audio

Realtek 10/100/1000 Gigabit LAN

MID Tower Chassis w/500Watt Power Supply

Logitech® Internet Keyboard & Optical Wheel Mouse

2-Piece Stereo Speaker

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3-Year Limited Warranty\*



17" Flat Panel LCD Display (add: \$359)



# ZT ENTERPRISE PC A5349

AMD Athlon™ 64 Processor FX-53 + 1600FSB w/ HyperTransport



# Microsoft® Windows® XP Professional Edition

ASUS A8V Deluxe K8T800 Pro Chipset Main Board w/SPDIF Out & Firewire (Support RAID 0, 1)

1.0GB PC3200 Dual Channel DDR400

Seagate® 160GB Serial ATA/150 (8MB Cache) 7200rpm Hard Drive

#### 256MB ATI RADEON™ 9600 XT w/TV-Out & DVI

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watch a second channel in a small, uncropped window alongside an uncropped main picture. Of these three, only the Sharp does not offer HDTV support.

Every one of these 17-inch models missed an opportunity by forgoing pivot capability. Since a 17-inch wide-screen monitor's display area is about 90 percent that of a normally proportioned 17-inch display—and these wide screens cost an average of \$140 more than the average 17-inch LCD on our October monitors chart—you want to make the most of the wide-screen format. And one great use of a wide screen would have been the ability to pivot it to portrait orientation for scrolling down lengthy Web pages.

#### **BIG AND BEAUTIFUL**

THE LARGER WIDE-SCREEN monitors spoiled us. Image editing programs, with their many palettes, take great advantage of the vast territory. Text pages look more distinct on a bigger screen; plus, the display's size allows you to look at two such pages side by side. The effect is like using a dual-monitor setup, but without bezels interrupting the images in the middle.

Of the five 23-inch monitors and one 24-inch screen our jury saw, most were superb at displaying graphics and text. One exception was the BenQ FP231W, whose poor color reproduction and dis-

LCD PANEL



APPLE'S WIDE screen (left) cuts cable clutter; LG's L2320A hosts A/V ports on a separate box.

tracting shimmer in light-colored areas kept it off the chart. We were unable to test a Sony unit; the Sony model available during our test period was slated to be discontinued by the time you read this.

The graphics race in the 23-/24-inch category was close yet undisputable: Our jury found the lifelike colors and clean details of Apple's 23-inch Cinema HD Display irresistible. This beauty went undefeated in its reproduction of color photos and a Web page.

In general the large size and 1920 by 1200 native resolution of 23- and 24-inch wide-screen LCDs translated to crisp, beautiful text. Though the Apple performed extremely well in these tests, too, Samsung's SyncMaster 243T won by a nose. LG Electronics' Flatron L2320A disappointed our jury with indistinct text that one tester dubbed "smeary."

#### **ADJUSTMENTS AVAILABLE**

MOST OF THESE displays offer standard screen adjustments like color temperature. The Apple, however, includes no adjustments but brightness—the rest are built into Mac OS X. For the PC user who prefers a color temperature other than the default or who wants to tweak the gamma control in a game with dark environs, the loss of these options is a deal-breaker.

We had expected 23-inch wide screens to be too ungainly to offer many physical adjustments, but only the hefty, 31.7-pound LG and the perhaps-too-simple Apple pony up nothing more than screen tilt. The HP L2335 and the 24-inch Samsung pivot for portrait and landscape viewing; both offer height adjustment as well. The HP's height adjusts smoothly, but the Samsung's method is awkward, involving a button on back of the base.

With the numerous inputs and ports that most of these displays have, cable clutter can get ugly. However, the Apple's integrated power/DVI/USB/FireWire makes a neat cabling package; and the LG achieves a similar (if less subtle) effect by placing all its A/V ports on its separate Media Station box and running everything to the display through one cable.

—Laura Blackwell ■

# Ask Mother When to Buy a Monitor

IT ALL STARTS WITH MOTHER-or in an LCD monitor's case, with the mother glass, the sheets of glass manufacturers cut into LCD panels. Panel price "can be from 60 to 70 percent of the cost" of a typical LCD monitor, Sweta Dash, director of LCD and projection research at technology market analysis company ISuppli, explains.

Supply and demand greatly influence that cost. Last year and in the first half of 2004, the popularity of LCD panels in monitors, notebooks, and TV sets made panel supplies tight, driving prices higherand the price increases caused would-be buyers to hold off, according to Dash.

New mother-glass sizes, in use now, will soon mean more efficient yields for manufacturers, and new fabrication facilities will mean a larger stock of panels. LCD shoppers who opted to wait can reap the rewards—for a few months. "We believe [panel prices] will reach the bottom in November. But because the prices are going down so fast, panel suppliers are cutting production. By the end of the year, the panels may stabilize in price," says Dash.





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# The Perfect Combination

Kingston memory for Dell systems, like peanut butter and jelly.

A mouth-watering idea—taking your Dell PC and making it even better with a memory upgrade from Kingston\*. Kingston can enhance an already great product by giving it some added flavor boosters as Kingston is in the business of complimenting PCs. Not only is Kingston memory 100% compatible with your Dell PC, it can also help your system run faster and more efficiently.

Come and enjoy a winning combination as American as PB & J. For special offers on Kingston memory for Dell systems, please visit shop.kingston.com/save25









# **TOP 15 DESKTOP PCs**

	POWER SYSTEM	Overall rating	Street price (8/20/04)	WorldBench 5 performance score ' Faster	Comments
1	Dell Dimension 8400 find.pcworld.com/43544	89	Average \$2999*	Windows XP Very good Home 98	This PC's new Intel processor and chip set, top-performing graphics car and attractive LCD are a winning combo. (★★★★) Oct 04)
2	Micro Express MicroFlex 38A find.pcworld.com/43982	87	Average \$2834	Windows XP Very good Home 106	A speedy system with high-quality audio; graphics were impressive over all, and frame rates were high in our video game tests. (****)
3	HP Pavilion A650e find.pcworld.com/43986	86	Inexpensive \$2564	Windows XP Very good Professional 97	Offers quick performance, and has a moderate price for its array of features; audio quality was average, however. (★★★☆)
ļ	Polywell Poly 939VF-FX53 find.pcworld.com/43988	85	Average \$2999	Windows XP Very good Professional 105	This fast system offers high graphics and audio quality, though for the price you might expect better than a 19-inch CRT. (****)
5	HP Media Center PC M1050y find.pcworld.com/43984	84	Very expensive \$5100	Windows XP Media Good Center Edition 96	Handles most multimedia tasks, from TV to radio to video. Extensive fe tures—including a huge LCD—make the price reasonable. (★★★★♪)
,	Xi Computer MTower 64FX find.pcworld.com/43534	83	Expensive \$3579	Windows XP Very good Home 103	A swift system that comes with a great selection of software, room for expansion, and wireless support. (***) 0ct 04)
7	ABS Awesome 6500 find,pcworld.com/43992	83	Average \$3199	Windows XP Good Home 96	ABS's first PC built around Intel's new 925 chip set brings good speed, stylish retro look, and lots of features for a fair price. (****)
	VALUE SYSTEM	Overall rating	Street price (8/20/04)	WorldBench 5 performance score ' Faster	Comments
	Best Dell Dimension 4700	86	Average \$1299*	Windows XP Very good Home 83	This update of a previous Best Buy uses a new Intel chip set to provide better integrated graphics and sound. (**** Oct 04)
	find.pcworld.com/43542	733	31233	111111111111111111111111111111111111111	
2	ABS Awesome 4300 find.pcworld.com/43990	85	Very expensive \$1819	Windows XP Outstanding Home 95	Impressive performance and extensive features justify the high price; the quality of the CRT was disappointing, though. (★★★☆)
3	ABS Awesome 4300	85	Very expensive		the quality of the CRT was disappointing, though. (★★★★☆)
3	ABS Awesome 4300 find.pcworld.com/43990 NEW	374	Very expensive \$1819	Windows XP Outstanding	Ties for fastest on the value list and produced fast frame rates on gam
3	ABS Awesome 4300 find.pcworld.com/43990  Micro Express MicroFlex 3200 Plus find.pcworld.com/44014  Polywell Mini-Box 900VX-3000	83	Very expensive \$1819 Average \$1499 Average	Windows XP Outstanding Home 96	the quality of the CRT was disappointing, though. (**オナニシ)  Ties for fastest on the value list and produced fast frame rates on gam could use a better monitor, however. (**オナニ Sept 04)  Small system offers good performance and plenty of ports, but it has
1	ABS Awesome 4300 find.pcworld.com/43990  Micro Express MicroFlex 3200 Plus find.pcworld.com/44014  Polywell Mini-Box 900VX-3000 find.pcworld.com/43540  CyberPower Gamer Infinity 8000 Dream	83	Very expensive \$1819 Average \$1499 Average \$1350 Expensive	Windows XP Outstanding Home 96  Windows XP Outstanding Home 93  Windows XP Very good	Ties for fastest on the value list and produced fast frame rates on gam could use a better monitor, however. (**** この の の の の の の の の の の の の の の の の
1	ABS Awesome 4300 find.pcworld.com/43990  Micro Express MicroFlex 3200 Plus find.pcworld.com/44014  Polywell Mini-Box 900VX-3000 find.pcworld.com/43540  CyberPower Gamer Infinity 8000 Dream find.pcworld.com/43980  IBuyPower Gamer EX	83	Very expensive \$1819 Average \$1499 Average \$1350 Expensive \$1685 Average	Windows XP Outstanding Home 95  Windows XP Outstanding Home 93  Windows XP Very good Home 91	Ties for fastest on the value list and produced fast frame rates on gam could use a better monitor, however. (****) Sept 04)  Small system offers good performance and plenty of ports, but it has extremely limited expansion options. (****) Oct 04)  Value-priced gaming system delivers great graphics and solid performance, as well as stylish looks. (****)

Go to find.pcworld.com/10860 for details on *PC World's* Star Ratings. Go to find.pcworld.com/39209 for details about the weightings we give to the various factors that contribute to a desktop PC's overall rating in each of the two categories.

'Performance word scores reflect comparisons of PCs in the same category (power or value) running the same operating system. See find.pcworld.com/15720 for more details. Total capacity in gigabytes (may represent multiple drives). <sup>3</sup> Vertical cases are towers (over 20 inches), midsize towers (15.5 to 20 inches), or minitowers (under 15.5 inches). Compacts are small-footprint or thin horizontal cases.

TWO DELL DIMENSIONS RETAIN THEIR LAURELS as the top PCs this month, but the performance honors go to new systems from Micro Express and Polywell. Both well-equipped machines, the MicroFlex 38A and the Poly 939VF-FX53 exceeded the century mark on our World-Bench 5 test suite, and are the two fastest computers on our chart.

The most interesting new PC, however, comes from HP. The Media Center PC M1050y is powerful and primed for both work and entertainment. Though pricey in the extreme at \$5100, it has a highly innovative removable hard drive that works equally well as an external USB drive. And if you own one of several particular models of HP digital cameras, you can add a docking station for it to the top of the PC's case. Capping off the ambitious system is a beautiful 23-inch wide-screen LCD.

But look at this month's performance

Visit find.pcworld.com/44082 for reviews of all products tested this month and ranked in this chart.

CPU	RAM (MB/ type)	Hard drive <sup>2</sup>	Monitor	Graphics	Case type <sup>3</sup>	Optical drives	Other features *	Graphics quality	Setup and ease of use	Vendor's reliability/ service
3.6-GHz Pentium 4 560	1024/ DDR2-533 SDRAM	320 (RAID)	19-inch LCD	256MB ATI Radeon X800 XT	Midsize tower	12X DVD+RW and 48X CD-RW drives	Gigabit network adapter, Dell 5650 speakers, Microsoft Works Suite 2004	Outstanding	Good	Good/Fair
2.4-GHz Athlon 64 3800+	1024/ DDR400 SDRAM	250	19-inch LCD	256MB ATI Radeon X800 XT	Midsize tower	12X DVD±RW and 52X CD-RW drives	Media-card reader,* gigabit network adapter, Logitech Z560 speakers, wireless LAN card, digital audio ports, no modem	Outstanding	Good	J.
2.4-GHz Athlon 64 3700+	1024/ DDR400 SDRAM	250	17-inch LCD	256MB ATI Radeon 9800 Pro	Minitower	BX DVD+RW and 48X CD-RW drives	Media-card reader, Harman/Kardon 2.0 speakers, Microsoft Office Small Business Edition 2003	Very good	Good	Fair/Fair
2.4-GHz Athlon 64 FX-53	1024/ DDR400 SDRAM	148 (RAID)	19-inch CRT	256MB EVGA GeForce 6800 Ultra	Midsize tower	8X DVD±RW drive and 16X DVD•ROM/52X CD•RW combo drive	Media-card reader, * gigabit network adapter, Creative T7700 7.1 speakers, wireless LAN card, Wi-Fi antenna, wireless keyboard, no modem	Outstanding	Very good	7
3.6-GHz Pentium 4 560	1024/ DDR400 SDRAM	250	23-inch LCD	256MB ATI Radeon X600 Pro	Midsize tower	12X DVD+RW and 16X DVD-ROM drives	Media-card reader, * Klipsch Pro Media Ultra 5.1 speakers, Microsoft Office SBE 2003, 160GB removable hard drive, remote control	Outstanding	Good	Fair/Fair
2.4-GHz Athlon 64 3800+	1024/ DDR400 SDRAM	148 (RAID)	19-inch LCD	256MB Asus V9980 Ultra	Midsize tower	12X DVD±RW and 16X DVD-ROM drives	Gigabit network adapter, 802.11g wireless adapter, Logitech X-620 6.1 speakers, WordPerfect 11 Productivity Pack, no modem	Very good	Good	Tr.
3.4-GHz Pentium 4 Extreme Ed.	1024/ DDR2-533 SDRAM	160 (RAID)	19-inch CRT	256MB EVGA GeForce 6800 Ultra	Midsize tower	12X DVD±RW and 16X DVD-ROM drives	Media-card reader,* gigabit network adapter, Logitech Z680 speakers, Microsoft Works Suite 2004, no modem	Very good	Very good	Good/'
СРИ	RAM (MB/ type)	Hard drive	Monitor	Graphics	Case type 1	Optical drives	Other features '	Graphics quality	Setup and ease of use	Vendor's reliability/ service
3-GHz Pentium 4 530	512/ DDR2-400 SDRAM	160	17-inch LCD	Integrated Intel Media Accelerator 900	Minitower	16X DVD-ROM and 48X CD-RW drives	Dell ADA-425 speakers, Microsoft Works 2004	Good	Good	Good/Fair
2-GHz Athlon 64 3200+	1024/ DDR400 SDRAM	200	19-inch CRT	256MB ATI Radeon 9800 Pro	Midsize tower	12X DVD±RW and 16X DVD-ROM drives	Media-card reader,* gigabit network adapter, Logitech Z-640 5.1 speakers, Microsoft Works Suite 2004	Very good	Good	Good/'
2-GHz Athlon 64 3200+	512/ DDR400 SDRAM	250	17-inch LCD	128MB ATI Radeon 9800 Pro	Midsize tower	8X DVD±RW drive	Media-card reader,* gigabit network adapter, Creative Labs SBS 4.1 450 speakers, no modem	Very good	Good	T
2-GHz Athlon 64 3000+	512/ DDR400 SDRAM	160 (RAID)	19-inch CRT	128MB ChainTech SA5900X	Compact	12X DVD±RW drive	Media-card reader, * Aopen MS805-B speakers, no modem	Outstanding	Good	77'
3.6-GHz Pentium 4 560	512/ DDR400 SDRAM	160	17-inch LCD	128MB NVidia GeForce PCI EX 5750	Tower	8X DVD±RW and 16X DVD-ROM drives	Media-card reader,* gigabit network adapter, Creative Labs 5.1 560 speakers, Microsoft Works 7	Outstanding	Good	Ţ
3.2-GHz Pentium 4 540	1024/ DDR400 SDRAM	120	19-inch CRT	128MB GeForce FX 5750	Midsize tower	12X DVD±RW and 16X DVD-ROM drives	Gigabit network adapter, PMPO 3.1 speakers	Very good	Fair	77
2.4-GHz	512/ DDR400	80	19-inch	128MB PNY Verto 5900 SE	Midsize tower	16X DVD-ROM/48X CD- RW combo drive	Media-card reader, * gigabit network adapter, Altec Lansing 251 speakers, Corel WordPerfect, Ulead PhotoImpact, Ouicken 2003	Very good	Good	T
Athlon 64 3700+	SDRAM	1	CRT	3700 32	ione.		Oleda Filotollipact, Galekeli 2003			

Unless otherwise stated, systems come with a modem and a 10/100 network adapter.

numbers, and you'll see that the gap between power and value systems is getting thinner and thinner. All three value PCs we tested this month, from ABS, CyberPower, and Sys, produced World-Bench 5 scores in the 90s, not significantly lower than units on the power list.

The fastest of the three, the \$1674 Sys Performance 64, has the same 2.4-GHz Athlon 64 3700+ processor found on power systems, but Sys kept the price down by configuring its machine with a smallish hard drive, a 19-inch CRT, and a midrange graphics board. The ABS Awesome 4300, the most expensive of the three at \$1819, takes the opposite tack: It has a high-end ATI graphics board, a gigabyte of RAM, and a large hard drive; but its 2-GHz AMD Athlon 64 3200+ processor is no longer cutting edge.



THE SPEEDY MICRO EXPRESS MicroFlex 38A has gigabit ethernet and a wireless adapter.

<sup>&</sup>lt;sup>5</sup> Use Dell Value Code 6V411-840REV to get this price. <sup>6</sup> Includes support for some combination of CompactFlash I/II, Memory Stick, Memory Stick Pro, MultiMediaCard, Secure Digital Card, SmartMedia, and XD-Picture Card.

Insufficient data to give a rating.

Use Dell Value Code 6V411-470REV to get this price.

# **TOP 15 NOTEBOOK PCs**

	DESKTOP REPLACEMENT	Overall rating	Street price (8/20/04)	WorldBench 5 performance score 1 Faster	Comments
1	HP Compaq Business Notebook Nc6000 find.pcworld.com/41093	82	Average \$1933	Windows XP Very good Professional 74	Lightweight corporate notebook comes with dual wireless capabilities and great battery life. (★★★☆ May 04)
2	Gateway M405CS find.pcworld.com/42184	80	Inexpensive \$1333	Windows XP Good Home 69	Model performs well and is low-priced. Order it with the lithium ion battery (as we did) to get the battery life we saw in our tests. (★★★オップ July 04)
3	Dell Inspiron 9100 find.pcworld.com/43352	78	Expensive \$2330	Windows XP Very good Home 81	This thick desktop replacement has a DVI port and dual pointing devices; built- in speakers and a subwoofer pump out loud, rich audio. (★★★★ ©ct 04)
4	Dell Inspiron 8600c find.pcworld.com/44058	78	Very expensive \$2840	Windows XP Outstanding Professional 90	Convenient design touches and strong sound, thanks to front-mounted speakers, make up for this laptop's thick case. (*****)
5	Polywell PolyNote 3015AW find.pcworld.com/44062	π	Expensive \$2499	Windows XP Outstanding Professional 98	Stately black wide-screen laptop delivers excellent performance, and its keyboard has a firm touch. (************************************
	ALL-PURPOSE NOTEBOOK	Overall rating	Street price (8/20/04)	WorldBench 5 performance score ' Faster	Comments
1	Best IBM ThinkPad R51 Find.pcworld.com/43118	82	Inexpensive \$1699	Windows XP Good Professional 67	Slim R51 suits users who care more about mainstream features than bells and whistles. Excellent keyboard. (★★★★が Sept 04)
2	Toshiba Satellite A55-S326 find.pcworld.com/44064	81	Inexpensive \$1599	Windows XP Good Home 73	Easy-to-use audio controls and a firm keyboard highlight this inexpensive, midweight notebook. (★★★★☆)
3	IBM ThinkPad T42 find.pcworld.com/43080	80	Expensive \$2299	Windows XP Very good Professional 83	IBM pays great attention to detail in this impressive business portable, which has good speed and an outstanding keyboard. (** ** *** Sept 04)
4	Toshiba Tecra M2V-S310 find.pcworld.com/42558	80	Inexpensive \$1499	Windows XP Fair Professional 61	Lightweight business notebook offers good battery life and generous storage expansion. At this price, model includes 256MB of RAM. (大大大学 Aug 04)
5	Chem USA ChemBook 2056 find.pcworld.com/42910	78	Average \$1999	Windows XP Very good Home 83	Strong performance and long battery life distinguish this unit. The optical drive is mounted on the front for easy access. (** Sept 04)
	ULTRAPORTABLE	Overall rating	Street price (8/20/04)	WorldBench 5 performance score	Comments
1	Best Toshiba Portégé M205-S810 find.pcworld.com/43120	75	Expensive \$2299	Windows XP Good Tablet Edition 64	This stylish convertible tablet/notebook handles both jobs adequately. It has good battery life and is very responsive to screen taps. (★★★が示 Sept 04)
2	IBM ThinkPad X40 find.pcworld.com/43066	75	Expensive \$2299	Windows XP Fair Professional 55	Ultraportable ThinkPad boasts the finest keyboard for its size. Optical drive is USB- or dock-based. (★★★☆ Sept 04)
3	JVC Mobile Mini Note PC MP-XV841US find.pcworld.com/43084	71	Expensive \$2399	Windows XP Fair Professional 52	Well-equipped ultraportable offers an integrated optical drive and a wide- format screen. Includes Pinnacle Studio 9 SE. (★★★☆☆ Sept 04)
4	HP Compaq Tablet PC Tc1100 find.pcworld.com/43076	71	Expensive \$2259	Windows XP Fair Tablet Edition 53	Tablet PC converts into a smoothly working notebook with a keyboard addition. Screen taps require more force than we'd like. (★★★ Sept 04)
5	Sharp Actius MM20 find.pcworld.com/43082	70	Inexpensive \$1598	Windows XP Poor Home 35	Only 2.6 pounds without accessories, this day-tripper makes a fine companion notebook for your desktop machine. (************************************

Go to find.pcworld.com/10860 for details on PC World's Star Ratings. Go to find.pcworld.com/40049 for a breakdown of the weightings we give to the various factors that contribute to a notebook's overall rating in each of the three categories.

THREE NEW LAPTOPS MAKE THIS MONTH'S CHART, including two equipped with Intel's latest mobile processor, the 2-GHz Pentium M 755 chip. The 8.3-pound Dell Inspiron 8600c muscled its way into the fourth slot on the desktop replacement list with a WorldBench 5 score of 90. The fifth-place Polywell PolyNote 3015AW, an all-black wide-screen

laptop, proved even speedier, notching a score of 98-the highest mark we've seen from a notebook thus far.

The Inspiron 8600c is well designedit offers an external battery gauge and a modular bay that has a side release, both of which are unusual features among lap-

See "Your Guide to the Top 100" at find.pcworld.com/15720 for more details.
Except where noted, all Intel CPUs are SpeedStep chips, which run at a slower speed on battery power. (We performance-test all notebooks plugged in.)

Features listings are not exhaustive.

<sup>&#</sup>x27;Unless otherwise noted, all notebooks come with a lithium ion battery.

Includes computer, AC adapter, power cord, optical drive, and floppy drive (if offered).

Visit find.pcworld.com/44066 for reviews of all products tested this month and ranked in this chart.

				ore minu.p	CHOITU.COM	44000 for reviews or all p	roducts tested this month and	rankeu iii tii	iis ciidi t.			
	CPU <sup>2</sup>	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Bays and optical drives	Other features <sup>3</sup>	Overall design	Battery life (hours:min) *	Average weight (pounds) <sup>3</sup>	Vendor's reliability/ service	
	1.6-GHz Pentium M 725	14.1	512	60	Touchpad, eraserhead	One multipurpose bay with DVD- ROM and CD-RW combo drive	802.11a/g, Bluetooth, gigabit ethernet, SD Card slot, embedded security chip	Very good	Outstanding/ 6:23	Light/ 6.6 Average/ 7.1	Fair/Fair	
	1.5-GHz Pentium M 715	15.0	512	40	Touchpad	Fixed DVD-ROM and CD-RW combo drive	802.11g, Microsoft Works 7	Good	Very good/ 5:15		Good/Good	
	3.2-GHz Pentium 4 540 *	15.4	512	60	Touchpad, eraserhead	One multipurpose bay with DVD+R/RW drive	802.11a/g, Bluetooth, DVI port	Outstanding	Limited/ 1:26	Very heavy/ 11.5	Good/Fair	
	2-GHz Pentium M 755	15.4	1024	60	Touchpad	One multipurpose bay with DVD+R/RW drive	802.11g, Corel WordPerfect Productivity Suite	Very good	Very good/ 4:32	Average/ 8.3	Good/Fair	
	2-GHz Pentium M 755	15.4	1024	60	Touchpad	One multipurpose bay with DVD+R/RW drive	802.11g, four-in-one media card reader	Very good	Fair/ 3:03	Average/ 7.6	7	
	CPU?	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Bays and optical drives	Other features <sup>3</sup>	Overall design	Battery life (hours:min)	Average weight (pounds)	Vendor's reliability/ service	
i	1.5-GHz Pentium M 715	15.0	512	40	Touchpad, eraserhead	One multipurpose bay with DVD- ROM and CD-RW combo drive	802.11g, gigabit ethernet	Outstanding	Good/ 3:54	Average/ 7.4	Good/Good	
	1.6-GHz Pentium M 725	15.0	512	60	Touchpad	Fixed DVD±RW/-RAM drive	802.11g	Good		Average/ 6.8	Good/Fair	
	1.7-GHz Pentium M 735	15.1	512	40	Touchpad, eraserhead	One multipurpose bay with DVD- ROM and CD-RW combo drive	802.11g, gigabit ethernet	Very good	Good/ 4:09	Average/ 6.9	Good/Good	
Ī	1.5-GHz Pentium M	14.1	256	40	Touchpad	One multipurpose bay with DVD±RW drive	802.11g	Good	Good/ 4:02	Light/ 5.7	Good/Fair	
	1.7-GHz Pentium M 735	15.0	1024	60	Touchpad	One multipurpose bay with DVD±RW drive	802.11g, SD Card slot	Good	Good/ 4:07	Average/ 7.3	7	
	CPU <sup>2</sup>	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Bays and optical drives	Other features <sup>3</sup>	Overall design	Battery life (hours:min) *	Average weight (pounds) '	Vendor's reliability/ service	
	1.5-GHz Pentium M	12.1	512	60	Touchpad	External DVD-ROM and CD-RW combo drive	802.11g, Bluetooth, SD Card slot	Fair	Good/ 3:20	Average/ 7.1	Good/Fair	
	1.2-GHz LV Pentium M	12.1	512	40	Eraserhead	External DVD-ROM and CD-RW combo drive	802.11g, Bluetooth, gigabit ethernet, SD Card slot	Good	Fair/ 2:36	Light/ 5.6	Good/Good	
	1-GHz ULV Pentium M 723	8.9	256	40	Eraserhead	Fixed DVD-ROM and CD-RW combo drive	802.11g, SD Card slot	Fair	Very good/ 4:47	Very light/ 3.9	77	
	1-GHz ULV Pentium M	10.4	512	40	Eraserhead	External DVD-ROM and CD-RW combo drive	802.11g, Bluetooth, SD Card slot	Good	Good/ 3:15	Average/ 7.1	Fair/Fair	
	1-GHz Efficeon TM8600	10.4	512	20	Touchpad	External DVD-ROM and CD-RW combo drive	802.11g	Fair	Fair/ 2:28	Very light/ 4.3	77'	

tops. Its 15.4-inch screen boasts a resolution of 1920 by 1200 pixels, excellent for detail work. The PolyNote 3015AW has nice design touches of its own, such as four USB 2.0 ports and a convenient fourin-one media card reader.

Need to get out of the house more?

Toshiba's easy-to-carry Satellite A55-S326, the new number two all-purpose model, weighs 5.9 pounds without its power adapter and lasts a little under 5 hours on one battery charge. At \$1599 including a fixed multiformat DVD burner, it's a good choice for budget minders.



<sup>\*</sup> Single-speed desktop CPU.
\* Insufficient data to give a rating.







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## **TOP 100**

## **TOP 10 PRINTERS**



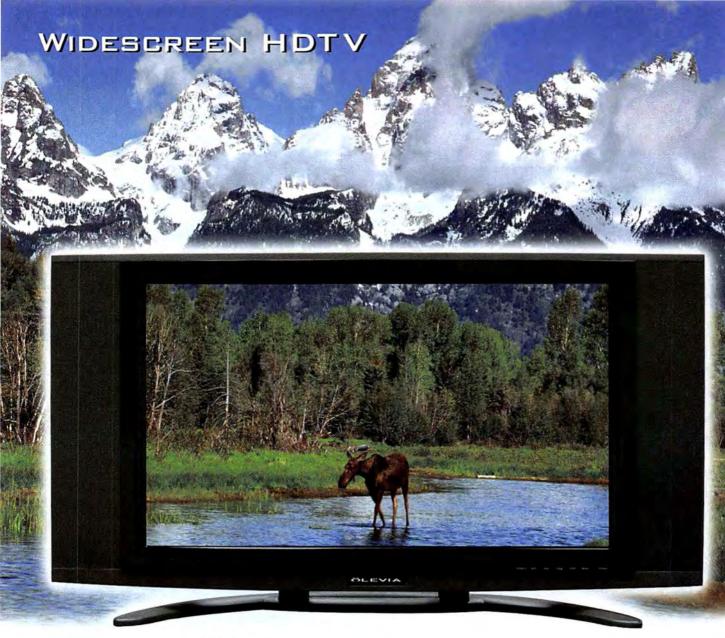
Visit find.pcworld.com/44248 for reviews of all products tested this month and ranked in this chart.

IN THE PAST YEAR the price of monochrome laser printers has plunged, as our latest chart reflects: On average, the small-office models cost nearly one-third less than their counterparts did a year ago. And all ten printers ranked here are

new to the chart. Each of our current Best Buys-the \$199 Brother HL-5140 for small offices and the \$925 Oki Data Oki B6300n for workgroups-offers an aesthetically pleasing yet functional chassis and delivers notably crisp text output.

	SMALL-OFFICE LASER	Street price (8/27/04)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/ graphics	Comments t
1	Best Brother HL-5140 BUY find.pcworld.com/44152	\$199	91	12.8/7.9	Very good/ Good	FEATURES: Rated 21 ppm. Standard 16MB of RAM, 2400-by-600-dpi maximum resolution, <sup>2</sup> 250 sheets input, 150 output; optional ethernet. SUMMARY: The compact, smartly designed HL-5140 offers an impressive combination of fine performance and abundant features at an attractive price. Output quality was top-notch, with sharp text and line art. (************************************
2	Samsung ML-2250 find.pcworld.com/44162	\$225	86	12.6/8.0	Very good/ Fair	FEATURES: Rated 22 ppm. Standard 16MB of RAM, 1200-by-1200-dpi maximum resolution, 300 sheets input, 150 output; optional ethernet, 802.11b. SUMMARY: Unit produced high-quality text, but banding marred its graphics. Model has a single toner and print drum cartridge, which could save high-volume users money in the long run. (****)
3	Oki Data Oki B4350 find.pcworld.com/44160	\$349	84	16.0/11.0	Good/ Good	FEATURES: Rated 23 ppm. Standard 16MB of RAM, 1200-by-600-dpi maximum resolution, 250 sheets input, 150 output; optional ethernet. SUMMA-RY: This streamlined model was the fastest small-office laser on both our text and our graphics tests. Its relatively steep price prevents it from rising higher on the chart, however. (★★★:☆)
4	Dell Laser Printer 1700 find.pcworld.com/44148	\$199	83	7.4/3.6	Good/ Very good	FEATURES: Rated 25 ppm. Standard 16MB of RAM, 1200-by-1200-dpi maximum resolution, 250 sheets input, 150 output; optional ethernet. SUMMARY: Model was slow to print-especially when generating the first page. Its graphics output was the best we've seen, though, and an optional 550-sheet second paper tray is a bargain at only \$100. (***********************************
5	Konica Minolta PagePro 1350W find.pcworld.com/44154	\$180	π	10.0/6.0	Very good/ Poor	FEATURES: Rated 21 ppm, Standard 8MB of RAM, 1200-by-1200-dpi maximum resolution, 150 sheets input, 100 output; USB 1.1 port, no ethernet option. SUMMARY: This Windows-only model economizes by relying on your PC's processor for image processing. Its text output impressed, but its graphics output was too dark and exhibited banding. (★★★☆☆☆)
	WORKGROUP LASER	Street price (8/27/04)	Overall rating	Speed for plain text/full-page graphics (ppm)	Print quality for text/ graphics	Comments 1
1	Oki Data Oki B6300n Find.pcworld.com/44184	\$925	90	18.6/11.4	Very good/ Fair	FEATURES: Rated 35 ppm. Standard 128MB of RAM, 1200-by-1200-dpi maximum resolution, 700 sheets input, 500 output; optional serial port. SUM-MARY: The fastest printer on the chart for graphics and the second-fastest for text, the 0ki B6300n produced precise text output, but banding and moiré interference patterns tarnished its grayscale graphics. (************************************
2	Brother HL-6050DN find.pcworld.com/44164	\$650	84	11.6/6.5	Outstanding/ Fair	FEATURES: Rated 25 ppm. Standard 32MB of RAM, 1200-by-1200-dpi maximum resolution,* 600 sheets input, 250 output; duplexer. SUMMARY: The HL-60500N's print speeds were comparatively sluggish, but its sharp, dark text looked great. No PostScript printing, but this model is otherwise a good deal for a laser printer with duplexing. (★★★☆☆)
3		\$650	77	11.6/6.5		mum resolution, 2600 sheets input, 250 output; duplexer. SUMMARY: The HL-6050DN's print speeds were comparatively sluggish, but its sharp, dark text looked great. No PostScript printing, but this model is otherwise a
3	find.pcworld.com/44164  Xerox Phaser 4500/N				Fair/	mum resolution.* 600 sheets input, 250 output; duplexer. SUMMARY: The HL-6050DN's print speeds were comparatively slugglish, but its sharp, dark text looked great. No PostScript printing, but this model is otherwise a good deal for a laser printer with duplexing. (************************************

FOOTNOTES: 1 All models include parallel and USB 2.0 ports, unless otherwise noted. Workgroup lasers also include ethernet. 2 The maximum true resolution is lower. CHART NOTES: See find.pcworld.com/44372 for details on how we test and for a breakdown of the weightings that go into the overall rating. See find.pcworld.com/10860 for details on PC World's Star Ratings.



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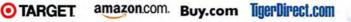




































## **TOP 10 HARD DRIVES**



Visit find.pcworld.com/44378 for more details about all products tested this month and ranked in this chart.

THIS MONTH WE LOOK AT both compact and standard-size external drives. Two 400GB units debut on the large-capacity side of the chart. CMS Products' Velocity SATA Automatic Backup System was the top performer, while SimpleTech's SimpleDrive Deluxe balances performance with cost. Among the five 40GB portable drives, Seagate's model costs the least and WiebeTech's drive performed best. Sony's Giga Vault earned our Best Buy for its performance and features.

	PORTABLE EXTERNAL HARD DRIVE	Street price (08/26/04)/ cost per GB	Overall rating	Capacity (GB)	Performance/ support policies	Comments
1	Sony Giga Vault BUY find.pcworld.com/41225	\$240/ \$6.00	π	40	Good/ Good	FEATURES: 5400 rpm, USB 2.0, 2MB buffer, 7.0 (with battery) by 3.9 by 0.8 inches, media management software, one-year warranty, 9-hour weekday toll-free support. SUMMARY: Drive neatly balances performance, features, and support, and can run on battery power rather than on bus power No backup software included. Retested this month. (************************************
2	Ximeta NetDisk Mini find.pcworld.com/44342	\$230/ \$5.75	76	40	Good/ Limited	FEATURES: 5400 rpm, USB 2.0 and ethernet, ZMB buffer, 5.6 by 3.1 by 0.9 inches, backup and security software, one-year warranty, 9-hour weekday toll-call support. SUMMARY: Portable drive can connect to a network and comes with a limited version of Norton Internet Security 2003, as well as with rudimentary backup and syncing software. (************************************
3	WiebeTech ComboGB 40GB find.pcworld.com/44340	\$230/ \$5.75	74	40	Good/ Very good	FEATURES: 5400 rpm, USB 2.0, FireWire 400, and FireWire 800, 8MB buffer, 5.4 by 3.2 by 0.8 inches, one-year warranty, 9-hour weekday toll-free support. SUMMARY: Triple-interface pocket drive is one of the first to support FireWire 800. Comes with ample cables and PDF documentation, but no extra software. (************************************
4	Seagate 40GB Portable External Hard Drive find.pcworld.com/44332	\$169/ \$4.23	73	40	Good/ Fair	FEATURES: 5400 rpm, USB 2.0, 2MB buffer, 5.0 by 3.8 by 1.0 inches, back- up and disk utility software, one-year warranty, 12-hour weekday toll-call support. SUMMARY: Well-priced but average performer is attractive and comes with a limited yet useful disk utility for running diagnostics and for partitioning the drive. (************************************
5	IOGear 2.5-Inch USB 2.0 FireWire Ion Drive find.pcworld.com/41207	\$280/ \$7.00	71	40	Good/ Very good	FEATURES: 4200 rpm, USB 2.0 and FireWire 400, 2MB buffer, 6.4 by 3.1 by 0.6 inches,¹ three-year warranty, 10-hour weekday toll-free support, SUM-MARY: This expensive drive turned in average speed and it lacks software. A \$60 increase in price caused a drop in ranking for this former Best Buy. Retested this month. (★★★☆☆)
	DESKTOP EXTERNAL HARD DRIVE	Street price (08/26/04)/ cost per GB	Overall rating	Capacity (GB)	Performance/ support policies	Comments
1	Best Maxtor One Touch 300GB find.pcworld.com/43244	\$296/ \$0.99	87	300	Good/ Very good	FEATURES: 5400 rpm, USB 2.0 and FireWire 400, 2MB buffer, 8.3 by 5.5 by 1.6 inches,¹ backup software, one-year warranty, 9-hour weekday toll-free support. SUMMARY: Stylish model with backup button has the best cost per gigabyte here. Maxtor plans to issue a faster version by the time you read this. Retested this month. (★★★★★)
2	Western Digital Dual-Option Media Center find.pcworld.com/44338	\$330/ \$1.32	87	250	Good/ Very good	FEATURES: 7200 rpm, USB 2.0 and FireWire 400, 8MB buffer, 8.6 by 6.1 by 1.7 inches, backup software, eight-in-one media card reader, one-year warranty, 10-hour Monday through Thursday and 9-hour Friday and Saturday toll-free support. SUMMARY: Two backup buttons and a flexible media card reader make up for this drive's plain looks. (*****)
3	SimpleTech SimpleDrive Deluxe Portable Hard Drive find.pcworld.com/44336	\$469/ \$1.17	84	400	Very good/ Outstanding	FEATURES: 7200 rpm, USB 2.0, 8MB buffer, 8.1 by 6.1 by 1.7 inches, backup software, three-year warranty, 11-hour weekday toll-free support. SUMMA-RY: Large capacity, high speed, easy-to-use backup software, and comprehensive support compensate for this model's sparse feature set and for its lack of printed documentation. (************************************
	CMS Products Velocity SATA Automatic Backup System	\$586/ \$1.47	84	400	Outstanding/ Good	FEATURES: 7200 rpm, external SATA, 8MB buffer, 8.3 by 5.3 by 1.6 inches, backup software, three-year warranty, 11-hour weekday toll-call support. SUMMARY: High-capacity external SATA drive is lightning fast and can serve as a bootable backup drive. Model plugs into an internal SATA port, which limits portability, (大 * 大 * * * *)
4	find.pcworld.com/44326					

FOOTNOTE: Given in order: length, width, height. HOW WE TEST: See find.pcworld.com/44378 for details. All rights reserved. CHART NOTES: Each drive's overall rating is based on price (30 percent), performance (35 percent), features (20 percent), and technical support policies (15 percent). See find.pcworld.com/10860 for details on PC World's Star Ratings.



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\*Vs. ordinary alkaline. Results vary by device.





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## **TOP 10 DIGITAL CAMERAS**



Visit find.pcworld.com/44252 for reviews of all products tested this month and ranked in this chart.

IN THIS MONTH'S CROP of new cameras, Sony's Cyber-shot DSC-F88 immediately caught our eye: Its lens, flash, and optical viewfinder reside on a rotating bar—a most unusual design that gives you the freedom to take shots at numerous angles. The DSC-F88 produced agreeable images, but a rela-

tively high price tag and merely basic controls prevented it from ascending the chart. Canon's PowerShot A400, in a nod to fashion, comes in four colors, and it fared well in our image-quality tests. Fujifilm's FinePix E550 performed even better, with images that showed fine detail and rich color.

	POINT-AND-SHOOT CAMERA	Street price (9/3/04)	Overall rating	Image quality	Ease of use	Battery life/ shots	Comments'
1	Canon PowerShot A75  GUY find.pcworld.com/42004	\$250	82	Good	Very good	Very good/ 325	FEATURES: 3.2-megapixel resolution, 32MB CompactFlash card, 35mm to 105mm focal range, 640 by 480 video with audio, 10.8 ounces. SUMMARY: A great price for a camera with semiautomatic and manual shooting modes, and optional accessory lenses. Photos had fine color but erratic sharpness. (★★★: Aug 04)
2	Best Sony Cyber-shot DSC-W1 EUY find.pcworld.com/42834	\$400	82	Very good	Very good	Very good/ 342	FEATURES: 5.1-megapixel resolution, 32MB Memory Stick, 38mm to 114mm focal range, 640 by 480 video with audio, 8.8 ounces. SUM-MARY: The DSC-WI is relatively compact but boasts a huge 2.5-inch LCD, provides some advanced controls (such as full manual exposure), and takes optional lenses. (*****) Aug 04)
3	Nikon Coolpix 3200 find.pcworld.com/42054	\$249	82	Very good	Good	Good/ 220	FEATURES: 3.2-megapixel resolution, 14.5MB internal memory plus SD Card slot, 38mm to 115mm focal range, 640 by 480 video with audio, 6.7 ounces. SUMMARY: Small, inexpensive, and easy-to-use model produces fine images for a 3.2-megapixel camera. Includes 15 scene modes and white-balance calibration. (************************************
4	Kodak EasyShare DX7630 Zoom find.pcworld.com/42264	\$400	81	Very good	Very good	Very good/ 355	FEATURES: 6.1-megapixel resolution, 32MB internal memory plus SD Card slot, 39mm to 117mm focal range, 320 by 240 video with audio, 9.6 ounces. SUMMARY: Dazzling 2.2-inch LCD highlights this relatively small camera, which also includes controls for aperture-priority, shutter-priority, and full manual exposure. (************************************
5	Canon PowerShot A400 new find.pcworld.com/44150	\$180	81	Very good	Good	<b>Fair/</b> 160	FEATURES: 3.2-megapixel resolution, 16MB SD Card, 45mm to 100mm focal range, 640 by 480 video with audio, 7.5 ounces. SUM-MARY: Basic, bargain-priced camera with optical zoom would suit casual photographers. It has a sturdy design that feels well made and comes in four color accents. (★★★☆☆)
6	HP Photosmart R707 find.pcworld.com/41998	\$349	81	Very good	Good	Good/ 270	FEATURES: 5.1-megapixel resolution, 32MB internal memory plus SD Card slot, 39mm to 117mm focal range, 320 by 240 video with audio, 7.4 ounces. SUMMARY: Flexible and simple-to-use compact camera has built-in help for novices and a unique in-camera red-eye removal function. (****july 04)
7	Fujifilm FinePix E550 find.pcworld.com/44208	\$350	80	Very good	Fair	Very good/ 325	FEATURES: 6.3-megapixel resolution, 16MB XD-Picture Card, 33mm to 130mm focal range, 640 by 480 video with audio, 9.3 ounces. SUMMARY: Bulky camera with a Z-inch LCD earned high scores on our image-quality tests. It has a broad selection of controls, but some of them could have been better designed. (★★★☆☆)
8	Olympus C-60 Zoom find.pcworld.com/42830	\$449	79	Outstanding	Good	Good/ 225	FEATURES: 6.1-megapixel resolution, 32MB XD-Picture Card, 38mm to 114mm focal range, 320 by 240 video with audio, 7.1 ounces. SUM-MARY: Powerful yet compact unit offers a fine selection of semiautomatic and manual exposure modes; a wireless remote trigger makes for easy self-portraits. (************************************
9	Olympus D-580 Zoom find.pcworld.com/41948	\$250	79	Very good	Good	Fair/ 127	FEATURES: 4-megapixel resolution, 16MB XD-Picture Card, 35mm to 105mm focal range, 320 by 240 video with audio, 7.6 ounces. SUM-MARY: No frills, but bargain-priced for a 4-megapixel camera. Most controls are in well-designed menus, but deleting photos is a chore. The small rocker zoom control is awkward. (** ** ** Carb July 04)
10	Sony Cyber-shot DSC-F88 find.pcworld.com/44172	\$449	π	Good	Good	Very good/ 325	FEATURES: 5.1-megapixel resolution, 32MB Memory Stick, 38mm to 114mm focal range, 640 by 480 video with audio, 7.0 ounces. SUM-MARY: Compact camera has an unusual rotating bar holding the lens, the flash, and an optical viewfinder. Its viewfinder is great for quick snaps, while its LCD suits shooting from odd angles. (****)

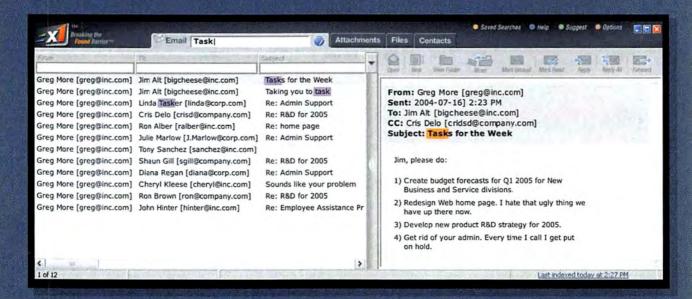
FOOTNOTE: Resolutions are expressed in effective pixels, focal range is identified as 35mm equivalent, and camera weights include batteries. HOW WE TEST: To gauge picture quality, we take a series of shots, with and without flash, at the camera's highest resolution and at its default automatic settings. We photograph a complex still life and a mannequin to see how well each camera captures details and subtle colorings. A panel of judges reviews the on-screen and printed photos and assigns image-quality scores; we then average those scores. Data based on tests designed and conducted by the PC World Test Center, All rights reserved. CHART NOTES: Each camera's overall rating is based on price (25 percent), picture quality, ease of use (20 percent), features (10 percent), battery life (10 percent), and support (10 percent). For all ratings, higher is better. See find.pcworld.com/10860 for details on PC World's Star Ratings.



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## TEST Center

## **MORE REVIEWS**

MISSED AN ISSUE OF *PC* World or passed your copy along to a friend? Here's a recap of other *Top 100* topics from previous issues. To read reviews of the products ranked on these Top 10 charts, go online and type in the *PC World* Find-It

URL at the top of each chart. Next month, the *Top 100* section will include reviews of inkjet printers, PDAs, and rewritable DVD drives. Our Spotlight review will take a closer look at several new advanced digital cameras.



LG ELECTRONICS' Flatron L1710SK LCD monitor delivers fine, sharp text and bright images. It includes a button that lets you select the best settings for text, movie, or photo viewing according to ambient light conditions.

THE SMALL BUT RUGGED Canon PowerShot S60 has an extensive set of controls-including a focus illuminator to aid in low-light conditions-and the camera can easily be tucked in a bag.



	17-INCH LCD MONITORS			REWRITABLE DVD DRIVES		POINT-AND-SHOOT DIGITAL CAMERAS		ADVANCED DIGITAL CAMERAS				
	find.pcworld.com/43872			find.pcworld.com/43878		find.pcworld.com/43850		find.pcworld.com/43324				
1	Best Flatron L1710SK find.pcworld.com/43420	Th. 5 15	1	Best Plextor PX-712A BUY find.pcworld.com/42466	1	Best DSC-W1 find.pcworld.com/42834	1	Olympus C-8080 Wide Zoom find.pcworld.com/41860				
2	Best Sharp LL-172A-B BUY find.pcworld.com/43422		2	Best Super-Multi GSA-41208 find.pcworld.com/43252	2	Best Nikon Coolpix 3200 find.pcworld.com/42054	2	Olympus C-5060 Wide Zoom find.pcworld.com/39527				
3	Dell UltraSharp 1703FP find.pcworld.com/39407		3	Lite-On SOHW-1213S find.pcworld.com/43810	3	Canon PowerShot A75 find.pcworld.com/42004	3	Canon PowerShot Pro1 find.pcworld.com/43164				
4	ViewSonic VP171s find.pcworld.com/43412	INTERNAL DRIVE	4	TDK Internal IndiDVD 12x+/8x- Multiformat Burner find.pcworld.com/43812	4	HP Photosmart R707 find.pcworld.com/41998	4	Olympus C-770 Ultra Zoom find.pcworld.com/43174				
5	Samsung SyncMaster 173P find.pcworld.com/39383	2	5	Pacific Digital Mach 8 8x+/- DVD-Burner find.pcworld.com/42468	5	Kodak EasyShare DX7630 Zoom find.pcworld.com/42264	5	Canon EOS Digital Rebel find.pcworld.com/38810				
6	Sony SDM-HS74P find.pcworld.com/43408		6	Sony DRU-540A find.pcworld.com/43802	6	Olympus C-60 Zoom find.pcworld.com/42830	6	Nikon Coolpix 8700 find.pcworld.com/41862				
7	NEC MultiSync LCD1735NXM find.pcworld.com/43416		7	Pioneer DVR-A07 find.pcworld.com/40421	7	Canon PowerShot S60 find.pcworld.com/43541	7	Panasonic Lumix DMC-FZ10S find.pcworld.com/42260				
8	Samsung SyncMaster 172X find.pcworld.com/40877		1	Double Layer find.pcworld.com/43808	8	Olympus D-580 Zoom find.pcworld.com/41948	8	Olympus C-5000 Zoom find.pcworld.com/39530				
9	IBM ThinkVision L170p find.pcworld.com/37499	TERNAL DRIVE	TERNAL DRIV	TERNAL DRIV	EXTERNAL DRIVE	TERNAL DRIVE	2	Memorex True 8X External Dual-Format DVD Recorder find.pcworld.com/42872	9	Canon PowerShot S1 IS find.pcworld.com/42038	9	Casio Exilim Pro EX-P600 find.pcworld.com/42832
10	Eizo Nanao FlexScan L557 find.pcworld.com/39377	EX	3	TDK External IndiDVD+/-R 880N Multiformat Burner find.pcworld.com/42470	10	Canon PowerShot S500 Digital Elph find.pcworld.com/41916	10	Sony Cyber-shot DSC-F828 find.pcworld.com/40802				
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## HERE'S HOW

EDITED BY MICHAEL S. LASKY AND DENNIS O'REILLY



## OFFICE TIPS

WOODY LEONHARD

## Take Command: Make Office Work Your Way

SOMETIMES MICROSOFT'S Office suite seems to be a benevolent monster—like Godzilla. When it's on your side, it's a powerful ally. But when it's rampaging all over your files, you want to run screaming through the streets of Tokyo. Here's how to leash the Office beast.

## **NUKE WORD'S CANVAS**

SURELY THE MOST obnoxious new feature (introduced in Word 2002) is the Drawing Canvas, which confuses the living daylights out of novices and gurus alike. Whenever you use a tool in the Drawing toolbar in Word 2002 or 2003 (or click Insert•Picture•New Drawing). Word insists on creating a box—called a "canvas"—to hold the graphic. When you put pictures, lines, squares, ovals, or other drawings in the canvas, Word treats them as a group, so you can move or resize them as one unit or add snap-to connectors between the drawing elements. Microsoft says it wanted to help users move

or resize drawings quickly—but I think the company invented the Drawing Canvas to get snap-to connectors to work without investing in a costly redesign.

To get rid of the Drawing Canvas, click Tools•Options•General, and uncheck Automatically Create Drawing Canvas When Inserting AutoShapes. To move or resize drawings as a group, select the drawings by pressing **<Ctrl>** while clicking them, and then choose Draw•Group on the Drawing Toolbar. If you need to use snapto connectors, click Insert•Picture•New Drawing to place a big, ugly Drawing Canvas inside your sleek, svelte document.

## REORDER THE MY PLACES BAR

EVERY TIME YOU open a file in an Office XP or 2003 app by clicking File Open or by pressing <Ctrl>-0, a list of icons appears in the left pane. The My Places Bar lets you open folders with just one click; but even though it rates as a first-class time-saver, this feature suffers from one of the worst user interfaces in all of Office-dumb, er, dom. To add a folder to the My Places Bar, select the folder and click Tools. Add to "My Places" near the top-right of the dialog box. To show ten small folder icons on the My Places Bar instead of five big ones (see FIGURE 1), right-click the bar and choose Small Icons. You can rearrange the folders in the bar by right-clicking a folder and choosing Move Up or Move Down, one step at a time. Blecch!

The homely interface notwithstanding, My Places' biggest problem is that it's buggy. If you've removed a few icons from the list, the options Move Up and Move Down may appear grayed out on the menu. When this happens, rearranging the icons requires a trip to the Windows Registry. Before you begin, make

## 186 WINDOWS TIPS

Get more from your mouse's scroll wheel; make your scrollbar easier to use; a free mouse-wheel supercharger.

## 190 INTERNET TIPS

A world of free books, music, and movies awaits on the Web; the latest free text- and media-reader releases.

## 192 HARDWARE TIPS

Is it time to put your graphics on the PCI Express, or should you stick with AGP? Plus: Intel's free app accelerator.

## ANSWER LINE

Clear out the garbage uninstalled programs leave behind; streamline your startup; view reluctant Web images.

## **EDITOR'S NOTE**

Continuing in this issue, Here's How features one in a revolving lineup of new columns. Office Tips replaces Step-By-Step this month.



sure you have a Registry backup for safety's sake. Visit find.pcworld.com/43700 for step-by-step backup instructions.

When your backup is complete, click Start. Run, type regedit, and press (Enter). Navigate in the left pane to HKEY\_CUR-RENT\_USER\Software\Microsoft\Office\ 11.0\Common\Open Find\Places (in Office XP, the fifth key in the sequence is 10.0,

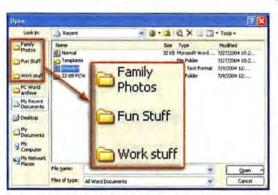


FIGURE 1: ADD FOLDERS TO the My Places pane in Office's Open dialog box-and make more information fit.

not 11.0). Under both the Standard Places and UserDefinedPlaces keys, you'll discover entries for each My Places icon. Select the icon that you want to appear first on the My Places Bar, double-click the Index entry in the right pane, change its 'Value data' to 1, and click OK. (If there is no Index entry, right-click the right pane, select New DWORD Value, type Index, and press (Enter).) Repeat these steps for the other My Places icons, giving each one a different Index value (a value of '0' will cause the icon not to appear. unless all icons are set to '0', in which case the Desktop is displayed). The next time you open Office with the My Places Bar showing, the icons will appear in the pane ordered in the sequence you previously specified in your Registry edit.

## **GIVE WORD NEW STYLE**

YEAH, YEAH, YEAH, You know you're supposed to use Word's styles to simplify navigating and editing long documents. But styles are a royal pain in the neck, and Word's default styles just don't look right: Type a line in a document, and choose Heading 1 from the drop-down Style list

(usually located on the left side of the Formatting toolbar); Word renders the line of text in eye-popping 16-point bold Arial. Choose Heading 2, and the line appears in bold italic, for heaven's sake-a formatting no-no that draws the ire of typographers everywhere.

We can all be thankful that Word's built-in styles are so easy to customize. In Word XP or 2003, simply choose Format. Styles and Formatting, click the down arrow that appears

when you move the pointer over the style you want to change, and select Modify (or Modify Style). In Word 2000 and 97, click Format. Style, select the style, and choose Modify. In all versions of Word, use the Formatting options to make the changes that you want to see. If you wish, click the Format button in the bottom left of the Modify Style dialog box and make further alterations to the font or other styles; then click OK (see FIGURE 2). Check Add to Template and click OK again. From now on, all new documents will follow the formatting style that you've chosen.

## REMARGINIZE WORD

THE ANGUISH involved in setting the top margin of a Word document so that the header and the top of the text appear where you want them is enough to make you long for an IBM Selectric II typewriter. Forget about figuring it out from Microsoft's documentation. Here's the bottom line on margins in Word.

Word saves room at the top of each page of a document for a header, and at the bottom of each page for a footer. When you click File Page Setup, you can tell Word how big to make the top margin, and how far to position the header from the edge of the paper. (The location of the settings and the terminology for identifying them vary depending on which version of Word you use.)

When formatting a page, Word moves down it by the Header From Edge distance (the default Header From Edge is usually 0.5 inches). Then the program pours in whatever header you've specified-text, graphics, line spacing, in-line pictures, the works. If the last line of the header has a Space After setting of, say, 18 points, Word reserves an additional 18 points at the bottom of the header.



FIGURE 2: GIVE WORD'S built-in Styles a new look via the Modify Style dialog box.

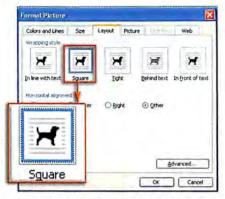


FIGURE 3: WRAP TEXT AROUND an image in Word docs with the Format Picture option.

Finally, Word starts laying out the first line of text on the page. When that line is ready, Word checks to see whether the distance from the top of the first line to the top of the page is less than the Top Margin setting (in most cases, the default Top Margin is 1 inch). If the distance is less than the Top Margin amount, Word moves the first line down so that it leaves the Top Margin part of the page clear.

In Word paragraph-spacing parlance, the Header From Edge measurement is an 'Exactly' measurement, and the Top Margin setting is an 'At Least'. Footers behave similarly, with Footer From Edge being an 'Exactly' measurement and Bottom Margin being an 'At Least'.

So if you can't figure out why Word seems hell-bent on moving the first line on a page below the place where you want to put it, try reformatting the contents of the header. Don't bother trying to jimmy the Top Margin setting-it won't work.

## MAKE WORD PICTURES FLOAT

TO PUT A PICTURE inside a Word document, just click Insert. Picture. From File, pick the file, and-bada-bing-bada-boom —the picture appears. In most cases, you get exactly what you want: a picture that flows in line with the text. Word treats inline pictures the same way it does big characters. If you type in front of an inline picture, it will get pushed out on the same line, just as if it were text. If you center the line that includes an in-line picture, the image will appear centered on that line. You can even draw a box around an in-line picture or underline it, precisely as you would with a font character.

Sometimes, though, you don't want your picture to act like a character. In particular, you may want text to flow around the image. The simplest way to coax Word into flowing text around a picture is to make the picture float. When a picture floats. Word removes it from the text on the page and places it in an imaginary plane, commonly called the "drawing layer," that lies above or below the text.

To make a picture float, right-click it and choose Format Picture. On the Layout tab, select either Square or Tight under 'Wrapping style', and click OK (see FIGURE 3). Word sticks the picture in the drawing layer and wraps text around it. When you move the picture in the document's drawing layer, Word obediently reflows the text, making way for the picture.

## PASSWORD-PROTECT NEW DOCUMENTS AUTOMATICALLY

DO YOU COMMONLY make documents and spreadsheets that require password protection? Do you commonly forget to password-protect them? Yeah, me too.

A friend of mine, Ax Kramer, showed me a way to ensure that I always protect documents that need to be kept safe by password-protecting the Word and Excel templates I use to create them. That way, every new document or spreadsheet I open that's based on these templates will also be protected by the password.

To create a password-protected template in Word or Excel, open a new document, click File-Save As, and choose Document Template (just Template in Excel) in the 'Save as type' dialog box near the bottom ('Files of Type' in Word 97 or 2000). Type a name for your new template, and then click OK. To set a password in the 97 and 2000 editions of Word and Excel. click Tools. Options. Save; in the XP and 2003 versions, click Tools. Options. Security (see FIGURE 4). Enter a password to open the file (and if you like, enter another password to modify it); then click OK.

The next time you want to make a new password-protected document or spreadsheet, click File. Open and choose your protected template. The new document will inherit the template's password.

If you want to change the password of the document in Word 97 or 2000, click Tools. Options. Save and change the entry in the password boxes. In Word XP or 2003, click Tools-Options-Security to access your password settings.

## PRINT REPEATING HEADINGS

EXCEL USERS frequently ask me how to set up multipage printouts that repeat the same column headings on each page. If the headings that you want to print are also the column headings in the first few rows of your spreadsheet, it's easy to get them to show up on each printed page.

First, make sure that at least one row in your spreadsheet contains the headings you want to see on the printout. Then click File Page Setup Sheet, and click the Collapse Dialog icon on the right side of the box marked 'Rows to repeat at top'. Back in your spreadsheet, you'll see that your pointer has become a right-pointing arrow. Click and drag that arrow over the rows containing the text that you want to appear as headings on the printout. After



FIGURE 4: PROTECT WORD and Excel files by creating a password-guarded template.

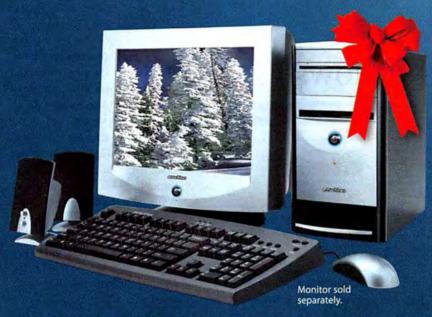
you make your selection, click the Expand Dialog icon located on the right of the collapsed dialog box. Click Print Preview to make sure that your headings look right. If everything appears to be in order (don't forget to check page 2), click Print.

Woody Leonhard's tome, Office 2003 Timesaving Techniques for Dummies, will get you home sooner. For more Office tips, check his Web site, www.wopr.com.



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## WINDOWS TIPS

SCOTT DUNN

SCROLL IN EXCEL VIA THE KEYBOARD **GET MORE OUT OF** YOUR SCROLLBAR

**FLYWHEEL GIVES** YOUR MOUSE WINGS

## Get on a Roll With Freewheelin' Windows

Windows MOST MICE HAVE a wheel control between the left and 98 ME right buttons. The wheel

makes scrolling through documents a breeze, but that's just the start of its talents. Follow these steps to wheel yourself around Windows in style.

Master basic moves: You probably already know that your mouse wheel doubles as a clickable button in addition to moving the open file up and down in the active window. But with many programs, clicking the wheel once puts you into a panning mode. To start the document window panning upward or downward, nudge the mouse in that direction; continue panning until you either nudge the mouse in the other direction or click one of its buttons. In some applications (such as Notepad with the Word Wrap feature turned off), this technique pans right or left. Note that some programs require



FIGURE 2: MAKE THE MOZILLA browser scroll Web pages at the pace you select.

you to keep the middle button pressed continuously to get this effect.

These functions may vary depending on your mouse manufacturer and on the driver you use. Still, if you're not getting these extras, it doesn't hurt to visit the Web site of your mouse vendor to make certain that your system has the latest mouse software and drivers.

Customize increments: If your wheel makes your screen jump too far with each click, or if you have to twirl constantly to scroll the desired amount, try adjusting the wheel's sensitivity. In the Address bar

> of any Windows Explorer window, type Control Panel\Mouse and press (Enter). Click the Wheel tab (it may also be la-

beled Scrolling or some similar term), and use the controls listed there to adjust how many lines (or how fast) your pages scroll with each wheel click (see FIGURE 1).

Fast

If you use Mozilla as your Web browser, you can make it scroll one screen at a time while all other apps continue to scroll at a chosen number of lines per click. First, set the number of lines for most applications in the Mouse Properties dialog box, as shown earlier. Then launch Mozilla and choose Edit-Preferences. Double-click Advanced (or click the + sign next to that entry), and choose Mouse Wheel. On the 'No modifier key' tab, select Scroll a page up or a page down (see FIGURE 2).

If you prefer to scroll some Web pages by screens and others by a set number of lines, select the option that you want to use for most pages (the top option for number of lines or the second one for screen-by-screen). Then click a tab corresponding to the key (Alt, Control, Shift, or No modifier key) that you want to hold down for a different scrolling increment, and select the desired option there. When you're done, click OK. The next time you scroll through a Web page, your wheel

> will advance by one increment when no key is held down, and by another when you turn the

wheel while pressing the specified key. Zoom in: Many browsers and other applications give you advanced features with your wheel. For example, in Internet Explorer, hold <Ctrl> and rotate the mouse wheel forward or backward to decrease or increase the size of text in Web pages. If this doesn't work in your copy of IE, choose Tools-Internet Options and click Accessibility on the General tab. Check Ignore font sizes specified on Web pages and click OK twice. To get this effect in Mozilla, choose Edit-Preferences, double-click Advanced (or click the + sign next to it), and then click Mouse Wheel. Select the tab for the key (Alt, Control, Shift, or No modifier key) that you want to hold down when adjusting text size, and then click Make the text larger or smaller. Click OK.

This trick works even better in recent versions of applications like Microsoft Word, Adobe InDesign CS, and the Opera browser (free to try, \$39 to keep). In these apps, <Ctrl>-wheeling enlarges or reduces the magnification level of your entire page (including graphics) rather than just adjusting the text display size (sweet!). InDesign zooms in on the area under your pointer, letting you mag-

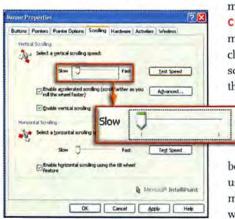


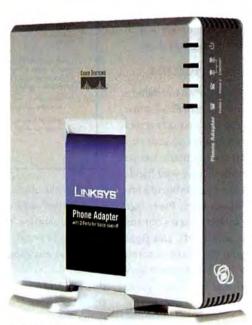
FIGURE 1: CHOOSE TO SCROLL fast or slow via the Mouse Properties Control Panel.

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drop-down list is active, unless you deliberately want to change the selection in the list.

nify a specific spot just by pointing and wheeling. And Opera lets you return your Web page to its default '100%' view by <Ctrl>-clicking the wheel once.

In Adobe Photoshop CS, hold (Ctrl) and the spacebar while clicking to zoom in, or press <Alt> and the spacebar while you click to zoom out. But with the mouse wheel, just hold either key combination (<Ctrl>-<Space> or <Alt>-<Space>) as you wheel forward or back to zoom in or out on the spot under your pointer.

Navigate the Web: Your mouse wheel can also replace your Forward and Back buttons in your Web browser. In Internet Explorer, Mozilla Firefox, and Opera, hold down (Shift) as you rotate the wheel forward or back and-voilà!-your browser moves ahead or back one link.

To do the same thing in Mozilla, go to the Mouse Wheel portion of the Preferences dialog box, as explained in the previous tip. Select the tab for the desired modifier key, and choose Move back and forward in the browsing history. Click OK. Beware of drop-down dangers: If your Web page or document uses forms with drop-



FIGURE 4: TWEAK THIS SETTING in Display Properties to change your scrollbar's size.

down lists, take heed! When you choose an option in a dropdown list and then rotate the wheel to scroll down the page. you may-as shown in FIGURE 3-change your selection inadvertently rather than scrolling through the page. (This could

explain why your favorite Web shopping site sent you 200 lawn gnomes last year instead of just 1.) To avoid unpleasant surprises, be sure to click the Web page (but not a link) outside the drop-down control when you finish making your selection. Then double-check to confirm that the appropriate choice is highlighted before you scroll onward.

Discover more wheel tips: For more ways to use the mouse wheel in your applications, click the Help menu to open an application's main help page, and then search for wheel or mouse wheel. Alternatively, go to your mouse maker's Web page and search for those terms there.

## **EASY EXCEL SCROLLING**



Windows ONE ADVANTAGE of using a mouse wheel in Excel is that 98 ME you can scroll visually across

the spreadsheet without losing your current selection. But if your mouse has no wheel, or if you want to leave your hands on the keyboard, use your keyboard's oftforgotten <ScrollLock> key. Press it (a light may appear to show that it's on) and then use the up, down, left, and right arrow keys on your keyboard to scroll around your page. To have the arrow keys resume their normal functions, press <ScrollLock> again to turn the feature off.

## CUSTOMIZE YOUR SCROLLBAR



Windows IF YOU USE these mousewheel tips, you may not use 98 ME your scrollbar as often. On

the other hand, if your mouse doesn't have a wheel, you may depend on your applications' scrollbars for navigating large files. Either way, you can make the scrollbar larger for easier clicking, or smaller to get it out of the way. To adjust the scrollbar's size, right-click the desktop and choose Properties. Appearance. (In Windows XP, click the Advanced button at WINDOWS TOOLBOX

## Flywheel Teaches Old Apps New Mouse Tricks

SOMETIMES THE OLD utilities are still the best. Flywheel, which debuted a number of years ago, makes even the most stubborn applications wheel-friendly. Besides allowing you to use your mouse wheel in more applications, Flywheel lets you customize the wheel's behavior. application by application, so the wheel can scroll faster in some programs than it does in others. And good of Flywheel appears to work just fine in even the latest versions of Windows. Because Flywheel's developers no longer support the program, you can obtain it for free. To

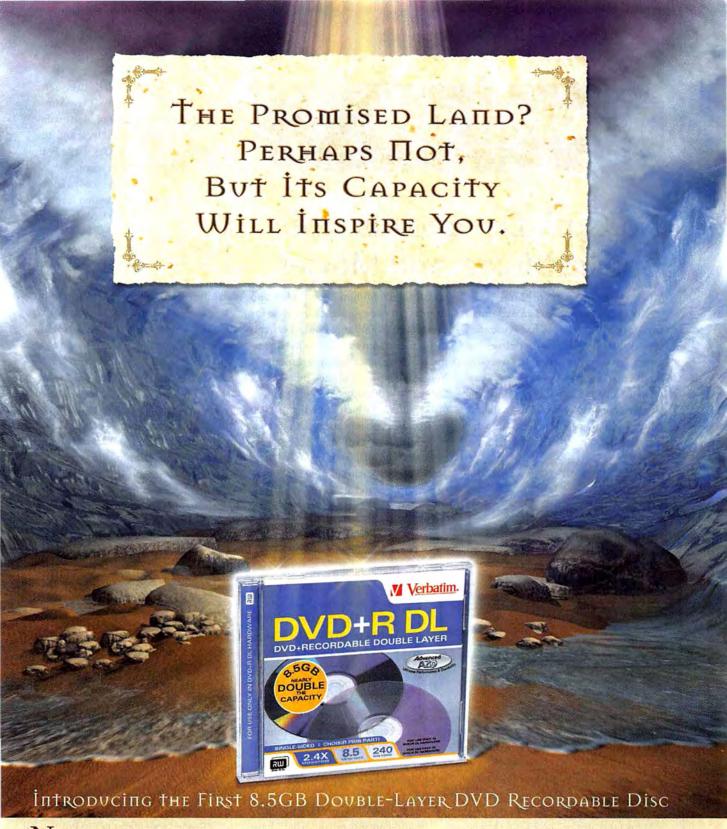


register the utility, type I Am Free as the registration name and give 13601409 as the registration number. Point your browser to find.pcworld.com/43724 to download your copy of Flywheel.

this point.) In the Item drop-down list, choose Scrollbar. Use the numeric control to the right to enlarge it or shrink it (see FIGURE 4). Click Apply (or OK and then Apply in XP) to try out the new size. When you're satisfied, click OK as many times as needed to close the dialog boxes.

For more scrolling tips, read "Let the Good Times Scroll" in last month's Windows Tips (find.pcworld.com/43722).

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.



Need a little inspiration? Verbatim's new Double-Layer DVD+R disc is the biggest thing to happen to DVD. This singlesided disc delivers nearly twice the storage of standard DVD media. Which means you can record up to 4 hours of DVD quality video or archive up to 8.5GB of data using a double layer DVD recorder. Plus, you get the guaranteed performance and reliability that's made Verbatim the preferred choice in DVD. So if you're looking Verbatim.

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## **INTERNET TIPS**

SCOTT SPANBAUER

## No-Guilt Downloads: Free Books, Music, and Movies

"INFORMATION WANTS to be free." newmedia gadfly Stewart Brand exclaimed famously in 1984. Brand has yet to start giving away his own books online, but others have, in the belief that word-ofmouth marketing will yield a bigger payoff in the long run. A few brave musicians similarly post free copies of their albums online and allow people to record and distribute their concerts for free. In most

including the Million Book Project and Project Gutenberg, which account for more than 20,000 free books between them. Ibiblio.com's Ebooks collection features, among other things, technical and historical works, and the Digital Book Index (www.digitalbookindex.com) lists 90,000 titles, of which more than 50,000 are free. Most e-books are in plain-text format, though some appear in Adobe's PDF or LizardTech's DjVu format (see "Free-Media Toolbox" at lower right for links to several readers and audio tools).

You can read plain-text e-books in any ordinary text editor, including Microsoft

> Word or Notepad, but I find the free Windows version of Palm Digital Media's EReader utility convenient for formatting the pages and bookmarking my spot in The Two Gentlemen of Verona (see FIGURE 1). Most ebooks reside in the public domain, though a small number of contemporary volumes have been released by their authors under the Creative Commons license. For an explanation of how this license works, visit www.creativecommons.org or

read Stanford law professor Lawrence Lessig's free (of course) 2004 book Free Culture (find.pcworld.com/43624).

Up-and-coming music artists have been posting their studio work online for a while, and bigger-selling acts are starting to do the same. Alternative countryrock band Wilco offered for a limited time its most recent album, A Ghost Is Born, as a free download through Apple's ITunes. Many more bands allow their fans to tape,

digitize, and distribute their live shows online. The Internet Archive's Live Music Archive offers thousands of high-quality live recordings of Bela Fleck and the Flecktones. Cowboy Junkies. Little Feat. Grateful Dead, and scores more.

Most of these shows are encoded in one of two lossless file-compression formats: .flac (Free Lossless Audio Codec) or .shn (Shorten). Unlike MP3 files, lossless formats lose none of their original recording quality when compressed. The easiest way to decode .flac files is with the dragand-drop FLAC Frontend utility. To do the same with .shn files, grab the MKW Audio Compression Tool (commonly seen as "mkwACT"), which also serves as a handy free MP3 encoder/decoder. In some cases, you'll need to install the Bit-Torrent file-sharing program—featured in last August's column-to download files (find.pcworld.com/42042).

Compared with the selection of books and music, free film pickings are a bit slim. Nevertheless, the Internet Archive's Movie Archive offers various films and videos in MPEG format, including such cultural icons as Night of the Living Dead and Reefer Madness, plus westerns, animation, and much more.

Send your questions and tips to nettips@ spanbauer.com. We pay \$50 for published items. Go to find.pcworld.com/31523 for more Internet Tips. Scott Spanbauer is a contributing editor for PC World.

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FIGURE 1: READ, HIGHLIGHT, and bookmark electronic books using Palm Digital Media's free EReader.

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Shuttle XPC G5 9500 System

## The PC of the future

Don't be fooled by its size, the Shuttle XPC G5 9500 is one of the highest performance PC's ever. Available with an AMD Athlon FX-53 processor, the G5 9500 makes mincemeat out of games and content creation applications.

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## **HARDWARE TIPS**

KIRK STEERS

## Graphic Content: Is It Time to Take the PCI Express?

IF YOU'RE PLANNING a PC purchase, you have to decide whether the time has come to let your graphics ride the PCI Express. The new standard replaces the PCI and AGP slots that connect graphics cards and other components to your PC.

## Bandwidth Gets Bigger

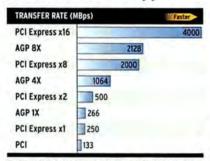


CHART NOTE: PCI Express can send data in two directions at once, unlike PCI and AGP; all transfer rates shown are for either direction.

FIGURE 1: THE PCI EXPRESS BUS provides more bandwidth than AGP and PCI buses do.

Available since the summer, systems based on Intel's 915 and 925 chip sets (aka Grantsdale and Alderwood) come with PCI Express bus slots on the motherboard. (Sometimes PCI Express is called PCIe or PCIx, but not PCI-X; that's a different implementation.) Such slots are hot-swappable, which means that you can add and remove cards without turning off the computer. They have external connectors, too, and they deliver three times the wattage of a PCI slot-a big plus for power-hungry graphics cards. But the biggest improvement is the extra bandwidth that PCI Express provides.

The original PCI bus was introduced more than ten years ago, when CPUs ran at frequencies of less than 100 MHz. For years the bus worked reasonably well, but eventually graphics cards outgrew PCI's 133-MBps throughput limit. Hence, the AGP bus was created. But today's Ultra ATA hard drives, Serial ATA hard drives. gigabit ethernet, and other high-speed devices need a new, faster standard.

The PCI Express bus is a data superhighway (see FIGURE 1). Every device connected to the old PCI bus shares its 133 MBps of bandwidth. With PCI Express, each device has a serial connection consisting of one or more lanes. Each lane offers up to 250 MBps of throughput into and out of your PC. So a device that both sends and receives data has an effective throughput of 500 MBps per lane.

A PCI Express slot is designated by the number of lanes it supports: An x1 slot supports a single lane, an x2 slot supports two lanes, and so on. Theoretically, slots may be x1, x2, x4, x8, x12, or x16. An x16 slot can handle 4 GBps of bandwidth in a single direction, twice the bandwidth of an AGP 8X device.

But don't throw your PCI cards out just yet. The latest computers and motherboards typically come equipped with a single x1 slot, a single x16 slot for the graphics card, and several original PCI slots. The old standard is more than fast enough for business card readers, basic sound, and other low-speed devices.

## ADIÓS, AGP?

THE AGP SLOT IS definitely on its way out. Dell, for example, has made plans to stop offering consumer desktop computers that support AGP graphics in early October 2004, according to Lionel Menchaca, Dimension PR manager at Dell.

But that doesn't mean AGP will disappear overnight. Motherboards and systems using a Via Technology chip set that supports both an x16 PCI Express slot and an AGP slot should be available by the end of the year. And Ujesh Desai, general manager of desktop products for NVidia, assures us that AGP cards should remain on the market well into 2006.

You can't really make a head-to-head comparison of PCI Express and AGP because systems differ in so many other ways (including in the graphics boards themselves) that it's impossible to say which component is responsible for any performance variation. The new chip sets/motherboards may also have other variable performance characteristics unrelated to the graphics bus. Visit find. pcworld.com/43728 for the results of our first tests of PCI Express systems.

Unless you're on a tight budget or you just bought a high-end AGP graphics card for your current system, a PC equipped with PCI Express is a sound buy. If you're not in hurry, however, wait awhile. PCI Express cards are scarce and untested, as is software that can take advantage of the newly available bandwidth.

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. Kirk Steers is a PC World contributing editor, PC World Test Center Senior Performance Analyst Elliott S. Kirschling contributed to this column.

## PERK UP PC PERFORMANCE

UNFORTUNATELY, the device drivers that come with Windows aren't always the best ones available. If your PC uses one of Intel's 800 series chip sets, install the latest version of Intel's Application Accelerator to give your system's hard drives, DVD drives, and other ATA devices a welcome boost. Browse to find. pcworld.com/43730 to download the program. Not sure whether your chip set is eligible? Visit find.pcworld.com/43732 to get the Intel Chipset Identification Utility and chip set compatibility list.

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## **ANSWER LINE**

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TRIM YOUR LIST OF STARTUP APPS

SHOW RELUCTANT WEB IMAGES

**GET A SNAPSHOT** OF YOUR REGISTRY

## Clean Up What a Messy Uninstall Leaves Behind

I RECENTLY installed a program, decided I didn't want it, and uninstalled it. But there are still bits and pieces of it all over my computer. How do I truly get rid of this program?

Alexander Sitt, Gillette, New Jersey UNINSTALL ROUTINES seem to be written by people who can't imagine that anyone would ever want to remove their

folder Options General View File Types Offine Files Registered file types Extensions File Types MP2 Wnamp media file - MP3 Winamp media file MPEG Video Details for MP3 extension Change... Opens with S Winamp Files with extension 1MP3 are of type Winamp michange settings that effect all Winamp meda file Advanced. Adyanced OK Cancel

FIGURE 1: YOU MAY HAVE to reassociate some file types after uninstalling a program.

beloved program. Too many uninstall routines leave too much behind, including alterations that mess up Windows.

Here are tricks for cleaning up after an uninstall. But don't expect miracles. I've tried to err on the side of caution; 'tis better you see an occasional obsolete menu option than render Windows unusable.

If you uninstalled the program only a

few days after installing it and you didn't install anything else in between, simply restore the Windows Registry from a backup made before the installation. See find.pcworld.com/43734 for instructions.

If a Registry restoration isn't possible, open Windows Explorer and navigate to the C:\Program Files folder (you may get a warning that you shouldn't go there; just click the link that takes you there anyway). If the folder for the offending app is still listed within Program Files, keep the window open and handy for a bit. Eventually you'll delete the folder, but for now you just want easy access to its name.

Next, make sure that the program isn't still loading every time your system boots. Select Start. Run, type msconfig, and press <Enter>. Click the Startup tab and look for anything that appears to be related to the outgoing program. (Windows 2000 lacks the System Configuration utility, so visit find.pcworld.com/43736 to download and install Mike Lin's free substitute, Startup Control Panel, if you use that OS.)

Now verify that no file types are associated with the unwanted program. In Windows Explorer, select Tools-Folder Options (View-Folder Options in Windows 98). Click the File Types tab and check the list of file types for any mention of the unwanted program (see FIGURE 1).

If you find one, consider whether that file type should be associated with some other program (this is primarily an issue with such common file types as .jpg and .mp3). To reassign a file type, click the Change button and follow the instructions. Otherwise, just delete it by clicking the Delete button and confirming your decision. Don't worry, this doesn't delete any actual files, just the associations. The next time you attempt to open a file of that type, Windows will prompt you to choose a program to open it with.

To do a thorough job of uninstalling, you need to clean the Registry. This is a slow and potentially dangerous chore. Before undertaking it, make sure that you have backed up the Registry. Visit find. pcworld.com/43738 for more details.

Once you've backed up your Registry, select Start-Run, type regedit, and press <Enter>. Navigate the left pane of the Registry Editor as if it were Windows Explorer until you get to HKEY\_CLASSES\_ ROOT\Applications. Click the plus sign next to this key (Registry-speak for a folder), and look for a subkey that matches your program's file name (you may have to guess at this a bit). If you find one, right-click it and select Delete. Yes.

Now navigate to HKEY\_CURRENT\_ USER\Software, click the plus sign, and look for a subkey named for the vendor of the program. If you find it, click the plus sign there, too. Delete the subkey for the program you've uninstalled (if it's there). Otherwise, delete the vendor key entirely. Do the same in the HKEY\_LOCAL\_ MACHINE\SOFTWARE key.

Press <Home> to return to the top of the Registry Editor's left pane. Press <Ctrl>-F to open the Find dialog box. Enter the

## VIEW REGISTRY CHANGES

WANT TO SEE, and save, the changes a software installation made to your Registry? The free, open-source RegShot utility takes before-and-after snapshots of your Registry and outputs a .txt or .html file that reports the differences. Click 1st Shot. Shot and Save in the program to exit RegShot after taking the first shot (before an installation), and then reenter it after the installation to take the second one and compare the two. What does RegShot itself do to your Registry? Nothing. It runs without being installed. Browse to find.pcworld.com/ 43742 to download RegShot.

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program name in the 'Find what' field, make sure that all of the options under 'Look at' are checked, and click Next or Find Next, depending on your version of Windows. If a match turns up, delete the entry and then press <F3> to search again.

When there are no matches left, run the same search using the file name, vendor name, and path-if you have this infor-

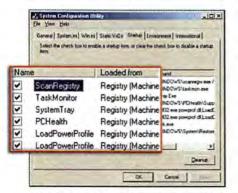


FIGURE 2: KEEP THESE programs checked when paring apps from Windows' startup.

mation. When you're done, close the Registry Editor and reboot your PC.

Lastly, check to see whether the folder for the program still exists inside the C:\Program Files folder. If it does, now is the time to go back and delete that folder.

## TRIM YOUR STARTUP

A LOT OF PROGRAMS set themselves up to load automatically at startup. Which ones really need to run every time I boot?

Nick Perez, via the Internet VERY FEW PROGRAMS need to load automatically at startup, but those that do generally fall into one of two categories: security programs and Windows components.

To see what programs your PC runs at startup, select Start. Run, type msconfig, press (Enter), and click the Startup tab. (If you have Windows 2000, browse to find. pcworld.com/43736 to download Mike Lin's free substitute, Startup Control Panel.) Uncheck any items listed under the Startup tab that you don't want loaded automatically with Windows, which will probably be most of them. However, on the list too are some programs you absolutely, positively want to load when Windows starts. (Note that in Win 2000 there are no required startup programs.)

In Windows 98 and Me, keep ScanRegistry, TaskMonitor, and SystemTray checked (see FIGURE 2). Keep both listings for Load-PowerProfile checked. If you use Scheduled Tasks, keep SchedulingAgent checked; otherwise, uncheck it. Windows Me users need PCHealth and StateMgr checked.

In Windows XP, leave msmsqs checked. You'd probably like to get rid of Windows Messenger (not to be confused with the MSN Messenger instant-messaging client), but Windows objects if you try.

Your firewall and your antivirus application need to load programs when they boot. Let them. You can generally figure out the relevant listings by examining the entry name, but here are some common ones: Norton Internet Security 2004 loads two files, ccApp and UrlLstCk. PC-cillin loads pccquide, PCClient, and TMOAgent. ZoneAlarm loads either zlclient (for the free version) or ZoneAlarm Pro (for the Professional version).

You shouldn't find any hardware drivers on the Startup list. Some drivers, though, load extra programs with bells and whistles, so don't be surprised if you see them. You can probably uncheck them, but be wary: You may have to restore the entries later if the devices start to misbehave. You can generally recognize a driver-related program because its name is similar to that of the hardware-for instance, "NvCpl" for some NVidia cards.

## **BASHFUL WEB PICTURES**

WHY IS IT THAT some Web pages can't display their pictures? Quite often one of my computers will show the page's images, but another displays only a white box with an icon in the corner.

Richard Ketchum, Eden Prairie, Minnesota ONE POSSIBILITY is that the pictures reside on an overworked server, causing it to fail frequently but not consistently. Click the browser's Refresh button (or press <F5>) to give the server another chance. Or try to load the page again in a few minutes (or hours, depending on the quality of the site's servers).

If you still can't get the images to display, and the problem occurs on more than one site, clear your browser's cache:

In Internet Explorer, select Tools-Internet Options. General; in the 'Temporary Internet files' section, click Delete Files, check Delete all offline content (if that option exists), and click OK.

You may also want to confirm that IE's Show Pictures option is enabled. To do so, select Tools. Internet Options. Advanced, and make sure that 'Show pictures' is checked in the Multimedia section (see FIGURE 3). If it isn't, check the box next to the entry and click OK.

In Windows XP, the "pictures" you can't see may actually be Java programs.



FIGURE 3: IF IMAGES DON'T show on Web pages, check IE's Multimedia settings.

Earlier versions of Windows supported Java; XP does not. (Note that despite their similar names, Java has nothing to do with JavaScript, which IE does support.) Various free Java runtime environments (which allow Java applets to run) are available for XP. Browse to find.pcworld.com/ 43740 for more details.

Odd though it sounds, language encoding can affect image display in browsers. Select View Encoding Western European (Windows) to see whether that brightens the image situation. If it doesn't, try View. Encoding. Western European (ISO).

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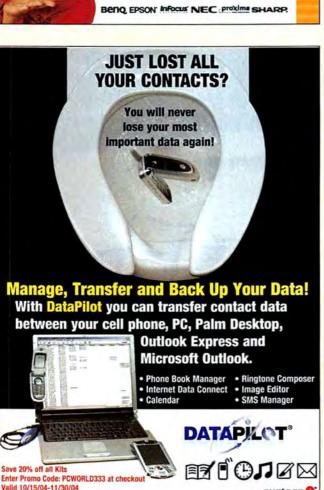
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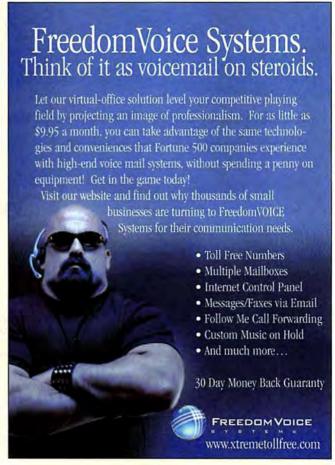
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In 1923, a Swiss watchmaker crafted the most advanced watch of its time. After 80 years, the Steinhausen watch has finally been "reborn," preserving its mastery of technology and classic design. Once only displayed in high priced collections, this rare timepiece from history can now be yours.

Tep back in time to Steinhausen, Switzerland circa 1923. A master watchmaker works for months, trying to create the world's most perfect watch. Finally he succeeds-the first of its kind to display the date, day and month, and the only one to designate AM/PM.

## Collectors Pay Thousands \$\$\$\$

He makes a limited number of these distinctive handmade timepieces, which eventually find their way onto the wrists of only the world's most distinguished gentry. Today, collectors are willing to pay thousands of dollars to add one of these original Steinhausen masterpieces to their own collection.

## **Reborn After 80 Years**

Until now, that was the only way you could own a Steinhausen, still one of the world's rarest and most prized wristwatches. But for the first time in 80 years, the original Steinhausen masterpiece is now being painstakingly reproduced for modern day collectors. Still manufactured by hand, this 21st-century reproduction carries the same graceful styling and features as the original. The scratch-resistant crystal comfortably rests in a surgical grade stainless steel case and bezel, which provides the ultimate in precision and protection.

## Powered by You

This handsome timepiece has been updated with a kinetic automatic movement that is powered by the motion of the wearer's arm, so the watch never needs winding or batteries.

## Hand-crafted Elite Movement

The Steinhausen movement consists of 185 parts, that are assembled entirely by hand. To prevent wear on gears, fine watches use tiny gemstones to reduce friction. The Steinhausen features up to 35 jewels, 15 more than most of the worlds elite watches. The movement is then rigorously tested for flaws and accuracy. Only 6% of the movements made ever meet the stringent requirements to be placed in this noble timepiece, making the Steinhausen one of the most accurate in the world.

## THE STEINHAUSEN REBORN

## Old world craftsmanship & new world technology

- . Transparent rear crystal displays movement.
- · Kinetic movement requires no battery or manual winding. · 185 precision parts assembled
  - Interchangeable 8.25" leather black or brown bands.
  - · Handsome Storage Case.
  - -Polished stainless steel construction
  - · Water resistant to 50 meters

Kinetic movement...never needs batteries ... never needs winding!

## THE HISTORY OF WATCH MAKING

1868

Steinhausen masterpiece is created in a wrist watch

Girard-Perregaux introduces the Swiss quartz watch

Patek Philippe makes first wrist watch

1923

Lips produced the first battery powered watch

1966

Steinhausen masterpiece is reproduced for first time

\*S14.95 Trial Offer entitles customers to receive one of our Steinhausen watches for review for 30 days with the right to return the watch in that period with no additional charges (minus s&h). Customers who elect to keep the watch will be billed the corresponding purchase price plus applicable taxes for the model they choose either in full or through available payment options.

## Adapted from Swiss Technology

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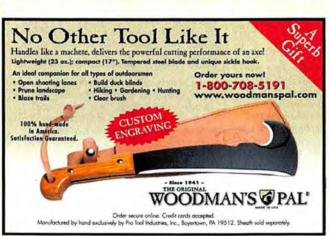
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instead of the generic brand in the slot.

Or you click Print for your rush job, and you hear the printer whir into action. But all you get is an ad recommending you use the printer company's official paper instead of the reams-for-cheap stuff you picked up at the warehouse store.

Today, those scenarios are fictional-or at least I hope so. But what's real is the

colonization of PCs by adware that doesn't even need to sneak in from a rogue Web site-because it's installed on your machine when you buy it.

HP calls the concept "Updates From HP" (on Compaq systems it's "Compaq

Connections"), and it's an insult to customers. On the Media Center PC I tried, a few minutes after I finished setting up Windows, the program popped up with an ad for the HP Personal Media Drive.

This is the culmination of the dubious trend of using your desktop as a sales tool. Boot up a new system today, and the desktop is likely to be larded with icons pitching stuff you don't want. Good manners would suggest putting it all under a single "special offers" icon, but never underestimate the obnoxiousness of a marketer with a product to unload.

Updates From HP takes this to new lows. Its FAQ notes that security programs may try to block it, since it "phones home" for info. The privacy policy says the program sends a bit of nonpersonal data (which isn't shared with third parties) back to HP. On the PC I tried, it followed the ad with a pop-up noting "Important information about upgrading to SP2." The pop-up links to a Web page that explains how to keep Updates From HP running when Windows XP Service Pack 2's firewall tries to whack the program's Internet access. Then the page attempts to sell you broadband, two Symantec products, and memory that it vaguely insinuates SP2 might need.

All of which may well distract you from the link leading to information that you really need. For the PC I was using, that page recommended installing seven downloads (for problems with everything from system restoration to XP Media Center itself) before installing SP2.

Updates From HP knows your PC configuration, so why couldn't it deliver that information in the first place-along with the downloads in one handy package?

> You can deactivate the Updates app, but if you do so, you'll "miss

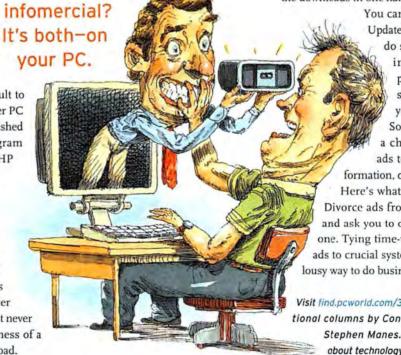
> > important support notices... specifically for your PC model." So you're left with a choice: Tolerate ads to get useful in-

formation, or give up both.

Here's what HP should do: Divorce ads from information and ask you to opt in for either one. Tying time-wasting pop-up ads to crucial system support is a

lousy way to do business.

Visit find.pcworld.com/31595 to see additional columns by Contributing Editor Stephen Manes, He has written about technology for two decades.



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- Microsoft® Windows® XP Media Center Edition 2004
- 160GB2 Serial ATA Hard Drive (7200 rpm)
- DVD+R Double Laver DVD±RW Drive 128MB ATI® RADEON™ X600 XT (PCI Express™ 16x) Graphics Card
- Multimedia Card Reader<sup>18</sup>
- 1-Year Limited Warranty
- PictureGear Studio™ Software
   VAIO Media™ Software
- Click to DVD™ Software

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## UPGRADES Hard Drive (7200 rpm)

- Upgrade to a 1.6 Terabyte Serial ATA
- 3-Year On-site Service<sup>11</sup> for \$299.99
- Add the SDM-HS74P/B 17" XBRITE™ Flat Panel Display for \$599.99

## PCV-W700G

- Intel® Pentium® 4 Processor 2.80GHz¹
- Microsoft® Windows® XP Home Edition
- DVD±RW/CD-RW Drive<sup>4</sup>
- · Wireless LAN Card Included 1-Year Limited Warranty
- ctureGear Studio™ Software
- VAIO Media<sup>™</sup> Software
- Click to DVD™ Software

W Series

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- 200GB<sup>2</sup> Hard Drive, 512MB RAM

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Surround yourself with more entertaining possibilities. Sony® VAIO® computers are designed to look beautiful, and engineered to work beautifully with other Sony products-creating a network of compatible devices that makes it easy for you to enjoy your music, photos and movies.



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- LCD Display

   TFT Active Matrix with XBRITE \*\* Technology
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Combines XBRITE™ technology-the Sony standard in picture quality-with brilliant images, sharp text and eye-dazzling colors. Innovative floating-frame design complements any room in your home.



## DCR-PC350 MiniDV

- Handycam® Camcorder
   3.0 Megapixel Advanced HAD™ CCD Imager
- Professional-Quality Carl Zeiss\*
   Vario-Sonnar\* T\* Lens
   10X Optical/120X Precision Digital Zoom
- Handycam<sup>®</sup> Station Camera Dock Included

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Capture memories that will last a lifetime. This compact camcorder allows for excellent still images at 3.0 megapixels, as well as incredible video.



## NW-HD1 Kit Network Walkman<sup>114</sup>

- Digital Music Player

  20GB Hard Drive Digital Music Player,
  Includes USB Cradle for PC Connection
- and Rechargng (Pictured)
  G-Sensor™ Shock Protection Provides

- G-sensor\*\* Shock Protection Provides Impact Protection Up to 30 Hours Playback with Bult-In Rechargeable Battery\*\* Free Carrying Case (HDCASE1) with Purchase—a \$14.95 Value (while supplies last) \$399<sup>95</sup> No Interest, No Payments

The NW-HD1 is compatible with Sony's Connect™ Online Music Store, it plays back in ATRAC3™ or ATRAC3plus™ audio format and supports the most popular Internet audio formats, including MP3, WMA and WAV."



## DSC-T1 Cyber-shot®

- Digital Camera 1/2.4° 5.0 Megapixel Super HAD™ CCD Imager • Professional-Quality Carl Zeiss\*
- Vario-Tessar\* Lens
- 3X Optical/2X Digital Zoom
   Large 2.5\* Hybrid LCD Monitor in a
- Compact Design

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The high-end camera that fits in your back pocket.



## SONY

Sony® VAIO® Notebook PCs with Intel Processors and Sony exclusive preinstalled software not only strike the perfect balance between form and function, but their mobility lets you explore a world of entertaining possibilities wherever you are and wherever you're going. With build-to-order versatility, wireless capability and interactivity, now there's no excuse for not living life on your terms.

## Sony recommends Microsoft® Windows® XP.



## PictureGear Studio™ Software Preinstalled on every VAIO® PC.

Explore your creative side with PictureGear Studio™ software, Sony's exclusive software that lets you import, organize and customize all your digital photos. PictureGear Studio™ software makes it easy to create photo albums or turn your pictures into a custom calendar, postcards, greeting cards, labels or stickers. Let your imagination run wild. PictureGear Studio™ software will handle the rest.



Compact Design

## **TR Series**

## PCG-TR5AP

- Intel<sup>®</sup> Centrino<sup>™</sup> Mobile Technology Intel® Pentium® M Processor Ultra Low Voltage 733 at 1.10GHz. Intel® PRO/Wireless Network Connection 802.11b/g
- Microsoft<sup>®</sup> Windows<sup>®</sup> XP Professional
- 40GB<sup>2</sup> Hard Drive, 1GB<sup>2</sup> RAM
- 10.6\* Widescreen XBRITE™ LCD display
- Integrated DVD-RW/CD-RW Drive
- 1-Year Limited Warranty<sup>3</sup>
- PictureGear Studio™ Software VAIO Media™ Software



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## . Privacy Screen for \$79.99

 Sony VAIO<sup>®</sup> Large-Capacity Lithium Ion Battery for \$349.99



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## S Series

- Build-to-Order VGN-S170 Intel® Pentium® M Processor 735 (1,70GHz. 2MB L2 Cache, 400MHz FSB)
- Microsoft® Windows® XP Home Edition
- 40GB<sup>2</sup> Hard Drive, 256MB RAM
- 13.3\* WXGA Display
  Integrated CD-RW/DVD-ROM Combo Drive
- . 1-Year Limited Warranty
- ictureGear Studio\* Software
- VAIO Media™ Software

\$1,849<sup>99</sup>

No Interest, No Payments

## **UPGRADES**

- Upgrade to a 60GB<sup>2</sup> Hard Drive for \$50
- Integrated Wireless LAN 802.11b/g for \$50

## **Essential Computing**

## A Series

## Build-to-Order VGN-A130

- Intel® Celeron® M Processor 1.40GHz¹ (1MB L2 Cache)
- Microsoft® Windows® XP Home Edition
- · 40GB2 Hard Drive, 256MB DDR SDRAM
- 15" SXGA (1400x1050) TFT Display
- Integrated CD-RW/DVD-ROM Combo Drive
- 1-Year Limited Warranty
- ctureGear Studio" Software
- VAIO Media™ Software

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- UPGRADES . Upgrade to a 60GB Hard Drive for \$80
- Integrated Wireless LAN 802.11b/g for \$50

## Limited Supply!



Performance Art

X505 Series

## VGN-X505ZP

- . Intel® Pentium® M Processor Ultra Low Voltage at 1,10GHz1
- Microsoft® Windows® XP Professional
- 20GB<sup>2</sup> Hard Drive, 512MB RAM (64MB Shared with Video RAM)
- 10.4" XGA (1024x768) LCD Display
- · Amazingly Thin and Extremely Light, Weighing Only 1.85 lbs?
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- ictureGear Studio™ Software
- VAIO Media™ Software

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## UPGRADES

- · Add an Extra Sony VAIO® Standard Lithium Ion Battery for \$299.99
- Add a Portable DVD±RW Drive for \$399.99

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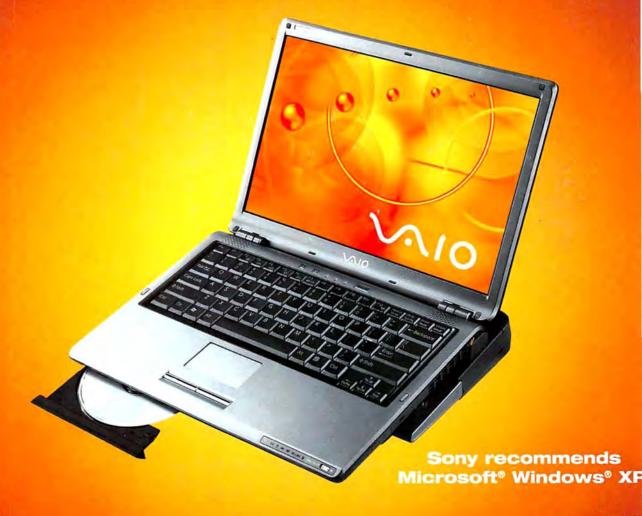
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As stylish as they are varied, Sony® VAIO® notebooks and desktops offer everything you want in a PC. No matter what your needs are, there's a Sony VAIO® that meets them perfectly. Not only is every VAIO® PC designed to work with other Sony products and accessories, they're also built with the same quality and dependability you've come to expect from Sony. Which makes it easy to take your creativity wherever it wants to go.

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