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**WINDOWS FIXERS
WEB ADD-ONS
OFFICE TOOLS
PHOTO EDITORS
AND MORE...**

A composite image for a Samsung monitor advertisement. The background shows a man in a dark swimsuit diving into a swimming pool. The pool's edge is visible, and the water is a clear blue. In the foreground, a Samsung monitor is positioned on a dark wooden desk. The monitor's screen displays the same scene of the man diving. The monitor has a silver bezel and a black stand. A keyboard is partially visible on the desk in front of the monitor. The text "Designed to fit the way you live." is overlaid on the upper left portion of the image, appearing as if it's part of the scene.

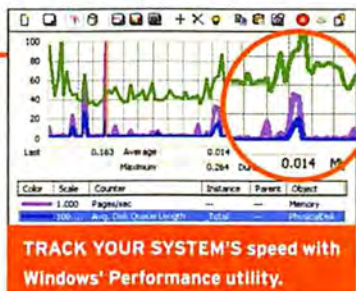
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CHECK YOUR SPEED

IF YOUR COMPUTER has slowed down, the Performance tool can help you find out why. Choose *Start•Programs* (or *All Programs*) • *Administrative Tools* • *Performance*. The program's "counters" measure and analyze specific activities. Before you add memory, upgrade your hard drive, or make some other system change, take some measurements from this tool beforehand, save the

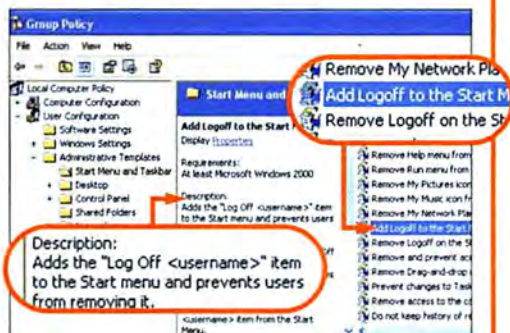


TRACK YOUR SYSTEM'S speed with Windows' Performance utility.

data in HTML format, and measure again after the change to check the difference. This tool definitely calls to our inner geek, but you also get helpful info along with customized performance graphs. To get these, right-click in the graph, choose *Add Counters*, and under "Select counters from list," choose a counter you may need. Now click the *Explain* button to see a description of the metric in a pop-up window.

GET WITH THE GROUP

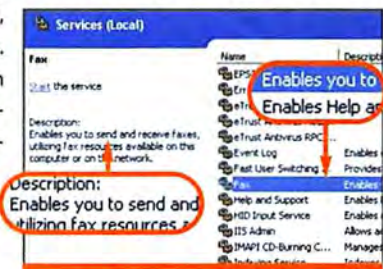
AMONG OTHER system-management tasks, the group policy utility lets you restrict areas of Windows for yourself or for several people who share a PC. To launch it, choose *Start•Run*, type `gpedit.msc`, and press *<Enter>*. To turn off or restrict access to common Windows features, navigate in the tree pane on the left to *Local Computer Policy* \ *User Configuration* \ *Administrative Templates*. Select an item to see the available options on the right. Choose an option to see an explanation and the consequences of changing it. Double-click to save the change, but back up the Registry first for safety's sake.



GROUP POLICY MAKES it easy to change settings or restrict access on a shared PC.

SHED SUPERFLUOUS SERVICES

WINDOWS' SERVICES TOOL lets you turn off the services you don't need (or at least set them to start only when they're required). However, like the Group Policy tool, use this utility with care. The program can be run from the Computer Management console, or by choosing *Start•All Programs* • *Administrative Tools* • *Component Services*. Visit find.pcworld.com/42930 for more on this tool and how to use it.



GET ONLY THE Windows services you need via the Services utility.

RULE THE REGISTRY

YOU SEE IT DISCUSSED on the Web and in the pages of *PC World* constantly: the Windows Registry. Curiously, the Registry Editor, one of the most valuable customizing tools Windows provides, is not found among the Administrative Tools, nor on any Start menu or in the Control Panel. To launch it, choose *Start•Run*, type `regedit`, and press *<Enter>*. Visit find.pcworld.com/42928 for the full scoop on this utility and tips on how to use it to fine-tune your Windows setup.

PC World Contributing Editor Scott Dunn writes the Windows Tips column.

AT YOUR COMMAND

Peekaboo: Other Tools Windows Hides

ALL THESE WINDOWS services can be launched by typing their names in the *Start•Run* command line. Depending on the configuration of your PC, some of these may not be available to you. Here is a brief description of what they do.

CALC.EXE: Gives you a quick way to call up the Calculator (which is also found

at *Start•Programs•Accessories*).

CLEANMGR.EXE: Removes all deleted files permanently.

COMPAGMT.MSC: Optimizes disk performance (same as Disk Defragmenter).

DEVMGMT.MSC: Manages the system's hardware configuration (same as Device Manager in System Properties).

DISKPERF.EXE: Manages your hard disk's performance.

EUDCEDIT.EXE: Creates unique characters for your system's fonts.

FAXSERV.MSC: Manages Fax Services if loaded on your system.

VERIFIER.EXE (DRIVERQUERY.EXE IN XP): Shows all device drivers.

PCWORLD

INSTANT REFERENCE GUIDE

Find Hidden Tools That Supercharge Windows

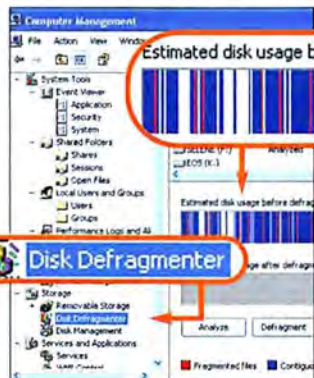
YOU CAN LOOK HIGH and low on Windows' Start menu, but you won't find shortcuts to some of the operating system's most useful tools and utilities. While many of these pro-

grams are intended for advanced users and administrators, others are handy for any Windows user. Here's how to bring them out of hiding.

—Scott Dunn

GET SEVERAL TOOLS IN ONE WINDOW

ONE OF MY FAVORITE WINDOWS administrative tools is the Computer Management console. (If you don't have an Administrative Tools option on your Start menu, see "Put Administrative Tools on the Menu" below right.) Computer Management serves as a one-stop resource for various PC-management tasks. Just navigate the tree diagram on the left and select a utility to see its functions displayed on the right. Computer Management gives you access to several of the utilities that you would normally open by clicking one of the options on the Accessories*System Tools submenu, or by double-clicking a Control Panel icon. One of the programs I frequently run from inside the Computer Management console is Windows' Disk Defragmenter. Note: You can also open the Computer Management console by right-clicking the *My Computer* icon in any Explorer window or on the desktop, and choosing *Manage*.



GET FAST access to Disk Defragmenter via Computer Management.

MANAGE YOUR DISKS

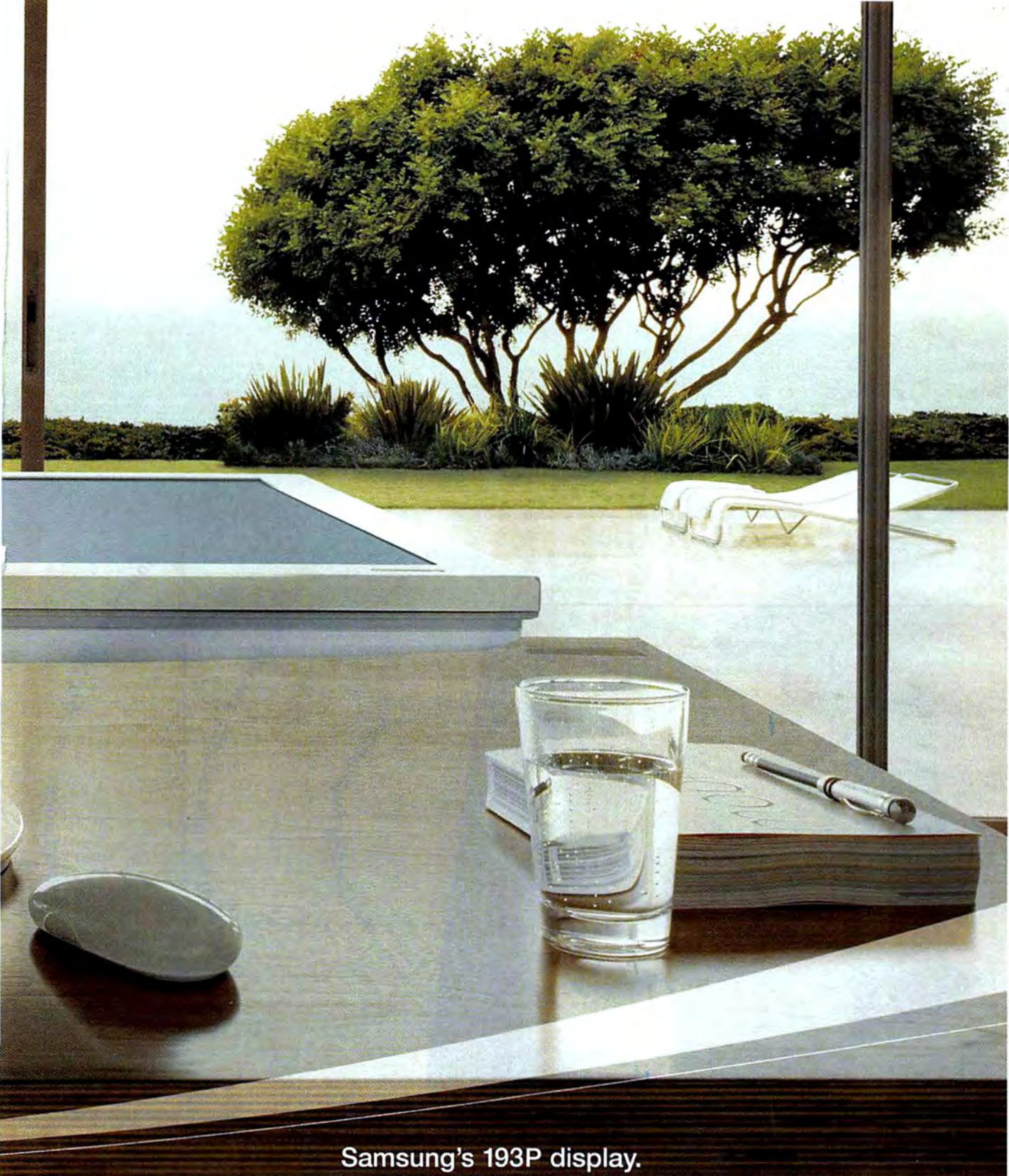
HAVE YOU EVER needed to know which physical drive your E:\ volume is on? Or maybe you simply want to change the volume's drive letter, delete a partition, or do some other disk-wide task. You need Windows' Disk Management tool, which is one of the utilities listed in the Computer Management program described above. If you're in a hurry, open Disk Management by choosing *Start*Run*, typing *diskmgmt.msc*, and pressing <Enter>.



THE DISK MANAGEMENT tool makes it easy to perform PC maintenance chores.

PUT ADMINISTRATIVE TOOLS ON THE MENU

IF YOU DON'T SEE the Administrative Tools submenu off your Start, *Start*Programs*, or *Start*All Programs* menu, right-click the *Start* button and choose *Properties*. If you use the Classic Start menu, click *Customize*. Under "Advanced Start menu options," check *Display Administrative Tools* and click *OK* twice. If you use the new XP Start menu, click *Customize*Advanced*, and scroll to *System Administrative Tools* under "Start menu items." Select *Display on the All Programs menu* or *Display on the All Programs menu and the Start menu*. Click *OK* twice.



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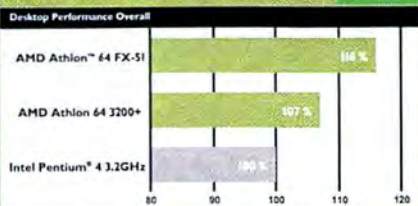
wall, works with your PC or Mac® and lets you wirelessly connect to the



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ZT recommends Microsoft® Windows® XP

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2 x 32-bit, 33MHz PCI

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Dimensions

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3 Years Limited Warranty

Slot Extension

2 x 64-bit 100 MHz PCI-X

Front I/O

1 x Built-in Front Access USB Ports
1 x VGA Port

Dimensions

W 16.9" x H 1.7" x D 23.5"



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Dual Intel® PRO/1000 Server Network Controller
2U SR2300 Rackmount Chassis W/480W power supply
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Slot Extension : 2 x 64-bit 100 MHz PCI-X
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ATI Rage XL 8MB PCI Graphics Controller
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Intel® PRO/1000 XT Server Network controller
Intel® PRO/100+ Server Network controller
Intel® 4U Rackmount Server Chassis
W/860W Dual Redundant power supply
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Slot Extension : 4 x 64-bit, 100MHz hot-plug.
2 x 64-bit, 100MHz PCI-X, 2 x 32-bit, 33MHz
Dimensions : H 4U x W 17.5" x D 28"

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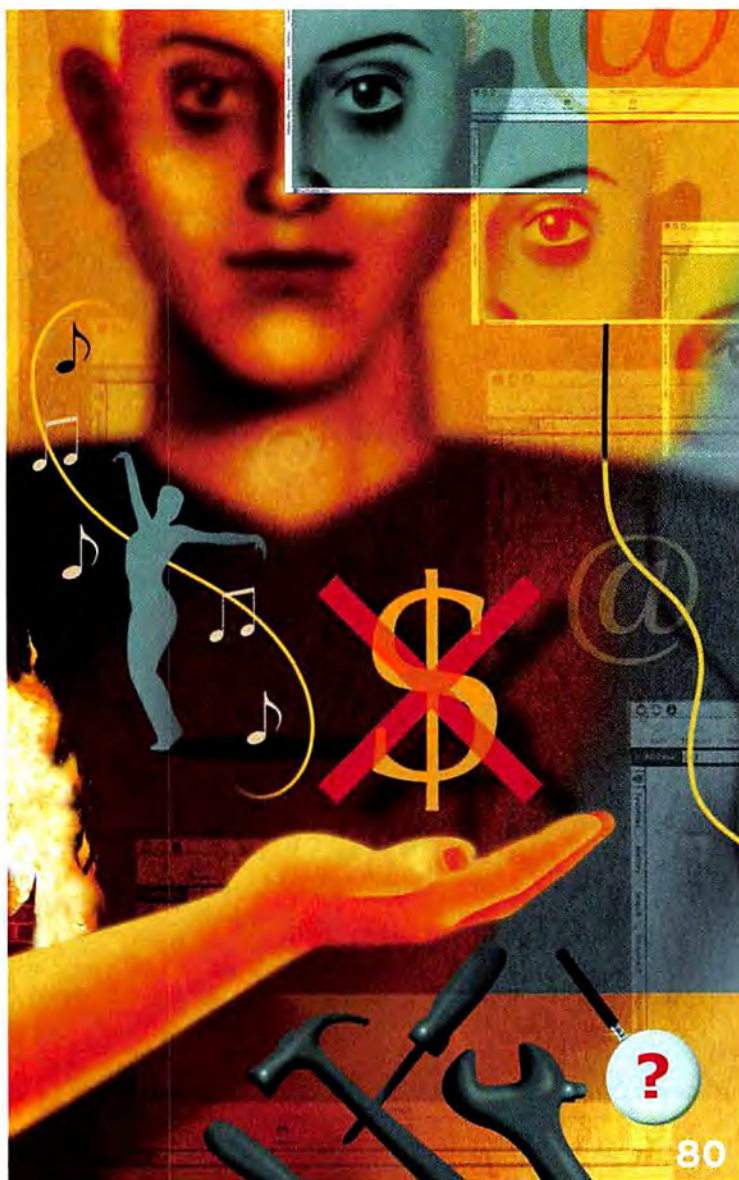
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FREE SOFTWARE

80 The Best Free Software

"Free" software too often fails to live up to that promise. So we've scoured the Web and found 70 of the most useful, full-featured tools—and 24 sites where you can uncover even more—to help you tame Windows, protect your PC, communicate better, and have more fun. And these gems are truly free—no spyware, hobbled features, or time limits.

Cover graphics by Diego Aguirre



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FEATURES

INKJET PRINTERS

92 Printers for Every Purpose

Whether your printing needs run to jack-of-all-trades output or to a specialty like full-size photo reproduction, on-the-road prints, or snapshots, today's inkjets can do the job. Here are in-depth reviews of 15 contenders.

MYTHBUSTERS

107 Busting the Biggest PC Myths

From warnings about Internet threats to advice on preventing damage to your PC, you've heard it all. Which claims are genuine, and which are urban legend? We put common myths to the test.

SECURITY TOOLS

123 Products for the Paranoid

We check out devices and utilities that promise to lock out snoops and protect your data: finger-print scanners, security keys, and encryption software. Do they work?



ON THE COVER





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TELL US WHAT YOU THINK

Visit www.pcworld.com/pcwinput and rate this issue—you could win a Lite-On 5005 DVD Dual Recorder, which currently sells for approximately \$307. You'll need the subscriber number from your mailing label to take this survey online. The site details the official rules and also explains how to participate in the drawing if you're not a subscriber. You can enter from July 12 through August 13, 2004.

COMING UP IN SEPTEMBER

Build Your Ideal PC: It's easier than you think—whether you build one from scratch or just upgrade.

The State of Windows: Will the new XP Service Pack 2 offer the security and features you need?

The Complete Cell Phone Guide: Everything you need to know for the most hassle-free experience.

Back It Up: We test the latest backup technologies and show you how to safeguard your data.



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Prevent unauthorized software installations.



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AMD Athlon™ 64 3800+ Processor
Socket 939 2.4GHz
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\$715.00



AMD Athlon™ 64 3500+ Processor
Socket 939 2.2GHz
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64-bit Processor
Model# ADA3400BOX

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AMD Athlon™ 64 3200+ Processor
1MB L2 Cache
64-bit Processor
Model# ADA3200BOX

\$282.00



AMD Athlon™ 64 FX-53 Processor
1MB L2 Cache
64-bit Processor
Model# ADAFX53BOX

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Motherboards



MSI K8N Neo Platinum
nForce3 250Gb Chipset for AMD
Athlon 64 Socket 754 CPU

\$139.00



Abit VIA K8T800 PRO
Model# AV8 for
AMD Socket 939
Athlon 64 FX CPU

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GigaByte GA-K8NS PRO
nForce3 250
Chipset for AMD
Socket 754

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Video Cards



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eVGA NVIDIA GeForce FX5700LE
256MB DDR 128-bit 8x AGP

\$119.00



Rosewill ATI Radeon 9600LE 256MB
DDR 128-bit 8x AGP

\$90.00

Sound Cards



Turtle Beach Riviera
5.1-Channel PCI Sound Card
Model# TBS-3428-OEM

\$33.00



Creative Labs Sound Blaster
Audigy2 ZS PCI
Sound Card
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OEM

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Crucial 184-pin
256MB DDR SDRAM
PC-2700 4T - OEM



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Appealing Inkjets, Rock-Solid UPS Devices, and a Really Big LCD

AUGUST IS PRINTER MONTH at *PC World*, as we examine some top-notch general-purpose and specialty inkjets. Under the *Top 100* Spotlight, UPS devices provide the power; and in *New Products* we look at

goodies ranging from video editing software to a huge and handsome LCD monitor. And don't miss our "Products for the Paranoid" feature, for great security hardware and software.



- 92 Accomplished Inkjet Printers**
Canon's i860 Desktop Photo Printer is one of nine inkjets in our "Printers for Every Purpose" feature to earn a rating of 4 stars or better.



- 140 UPS Devices You Can Rely On**
APC scored twice in our Spotlight review of uninterruptible power supplies, with its Back-UPS 800 (left) and its Back-UPS ES 725 broadband.



- 60 23-Inch Wide-Screen LCD**
HP's F2304 wide-screen LCD opens new desktop vistas with its vast (23-inch diagonal), high-definition (1920 by 1200 resolution) display. Nice!

THIS MONTH'S CROP OF TOP PRODUCTS

DESKTOP PCs

- 144 IBuyPower Back To School ★★★★★
- 144 Micro Express MicroFlex 34A ★★★★★
- 144 Shuttle Computer XPC G4 8520 ★★★★★
- 144 Sys Technology Sys Performance 3200+/64 ★★★★★

NOTEBOOK PC

- 146 EMachines M6809 ★★★★★

DVD DRIVES

- 149 Memorex True 8X External Dual-Format DVD Recorder ★★★★★
- 149 Sony DRU-700A ★★★★★

19-INCH LCD MONITORS

- 148 NEC MultiSync LCD1980SX ★★★★★
- 148 Samsung SyncMaster 193P ★★★★★

HDTV-CAPABLE LCD MONITOR

- 135 Samsung SyncMaster 173mw ★★★★★

23-INCH LCD MONITOR

- 60 HP F2304 ★★★★★

INKJET PRINTERS

- 94 Canon i80 Color Bubble Jet Printer ★★★★★
- 94 Canon i455 Desktop Photo Printer ★★★★★
- 94 Canon i860 Desktop Photo Printer ★★★★★
- 94 Canon i9900 Photo Printer ★★★★★
- 94 Epson PictureMate ★★★★★
- 94 Epson Stylus Photo R800 ★★★★★
- 94 HP Deskjet 450wbt ★★★★★
- 94 HP Deskjet 9650 ★★★★★
- 94 HP Photosmart 7760 ★★★★★

PDA

- 60 Dell Axim X30 ★★★★★

DIGITAL CAMERA

- 150 Sony Cyber-shot DSC-W1 ★★★★★

HOME THEATER IN A BOX

- 133 Onkyo HT-S777C ★★★★★

UPS DEVICES

- 142 APC Back-UPS ES 725 Broadband ★★★★★
- 142 APC Back-UPS RS 800VA ★★★★★

GRAPHICS BOARD

- 68 ATI Radeon X800 XT Platinum Edition ★★★★★

SUBSCRIPTION RADIO HARDWARE

- 135 Kenwood DT-7000S Sirius Home Tuner ★★★★★

SECURITY PRODUCTS

- 125 APC Biometric Password Manager ★★★★★
- 127 SecuriKey Personal Edition ★★★★★
- 128 Steganos Security Suite 6 ★★★★★

IMAGE EDITING SOFTWARE

- 64 Jasc Paint Shop Photo Album 5 Deluxe ★★★★★

VIDEO EDITING SOFTWARE

- 59 Adobe Premiere Pro 1.5 ★★★★★
- 59 Sony Vegas 5 ★★★★★

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



Gaming Expo: Picks and Pans

find.pcworld.com/42972

Big games, compact gadgets, and one really loud show—here are the best and worst moments from this year's Electronic Entertainment Expo.



Online Music Plays a New Tune

find.pcworld.com/42974

Fed up with spyware or fearful of industry lawsuits, file swappers are going underground for digital music or in some cases giving it up.

FEATURED COLUMN



Dialed In

find.pcworld.com/42970

Senior Associate Editor Grace Aquino taps into the world of mobile phones and services, and provides tips on how to make them work efficiently.

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.

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PRODUCT FINDER

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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

Tools for Your PC

find.pcworld.com/42960

Find the closest hotspot—almost anywhere in the world—with Wi-Fi Hotspot Finder powered by JiWire.com. It's one of many *PC World* tools.



TOP 10 DOWNLOADS

Head to find.pcworld.com/42904 to locate and download these popular files.

1. Ad-Aware 6.181
2. Spybot Search & Destroy 1.3
3. Pop-Up Stopper Free 3.1.102
4. Clean System Directory 1.7
5. Tweak UI 1.33
6. ZoneAlarm 5.0.590.015
7. Motherboard Monitor 5.3.6
8. Sygate Personal Firewall 5.5
9. Norton AntiVirus 2004
10. WebWasher Classic

MOST POPULAR PRODUCTS

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

- **Graphics Card**
ATI Radeon X800Pro Video Card
find.pcworld.com/42962
- **Cable Modem**
Motorola SurfBoard SB5100
find.pcworld.com/42964
- **Home Theater**
Onkyo HT-S760
find.pcworld.com/42144
- **Inkjet Printer**
Canon i9900 Photo
find.pcworld.com/42966
- **Reference Software**
Microsoft MapPoint 2004
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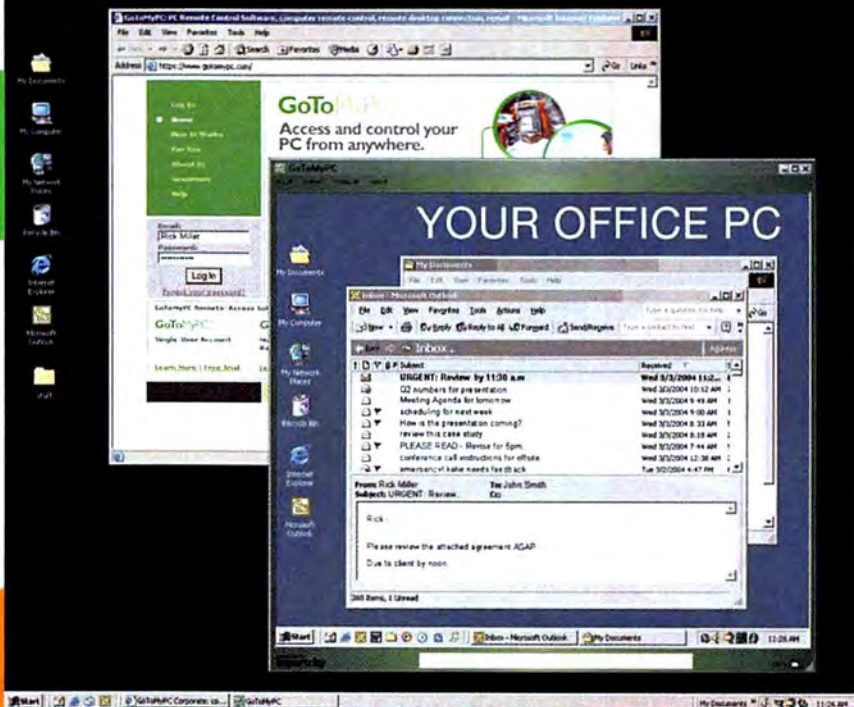
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Confessions of a Software Freeloader

A few tips for getting top-notch, helpful programs at the best price of all.

I'M NOT A CHEAPSKATE BY NATURE. But when it comes to software, I can pinch pennies with the best of them. And whenever I stumble across a useful download that doesn't cost me a dime, frugality never feels like a sacrifice. In fact, it's fun. I'd bet that most of you feel the same way.

Frugal fun is what "The Best Free Software" (page 80) is all about. We rounded up 70 programs, plus pointers to the best download sites; it's a veritable cornucopia of no-charge, no-strings-attached stuff.

If you're already flipping forward to check out our recommendations, I won't blame you a bit. But if you're still with me, I humbly offer these free-software pointers. They've always helped keep my inner tightwad happy.

Trust thy neighbors' judgment. Hey, some of my best friends are professional download critics, such as *PC World's* own Max Green, senior producer for downloads, and Laura Blackwell, staff editor and our *Download This* online columnist. (Shameless plug: Visit www.pcworld.com/downloads to explore our software library, hand-picked by Max and his team; then hop to find.pcworld.com/42924 to peruse Laura's selections.)

But enlightened civilians provide savvy advice, too. Some of the sharpest evaluations of handheld software I know are the



user reviews at PalmGear.com. Almost always, they reveal glitches based on real use in the real world. Often they recommend superior alternatives to subpar products. And when there's a consensus that a particular app is either trash or a treasure, it's usually uncannily accurate.

Let first impressions sway you. When you've sunk some money into so-so software, you feel obligated to struggle with it. Not so with freeware and demo programs. When a download disappoints

me, I move on quickly. With a little more research, I typically find another program that does the same thing—only better.

Remember: Small is beautiful. Unlike bloated commercialware, many free programs simply handle one task really well. One random example from my Start menu: Singer's Creations' StickIt (find.pcworld.com/42926), a handy utility that lets you create digital sticky-note reminders.

Small can also be beautiful when it comes to software vendors. Countless tools have been written by one determined person with a problem to solve. Some of them offer amazing support. More than once, I've reported a bug or suggested a feature and received a program update in hours (try that with Microsoft). And this leads me to one final tip:

Chip in. What, pay for free software? If you love a gratis goodie and its author accepts donations, send a few bucks his or her way. Even developers who aren't out to turn a profit have costs to cover. Donations help—and they let you seek support without feeling like a total piker.

What freeware is in your tool kit? Let me know at mageditor@pcworld.com. ■

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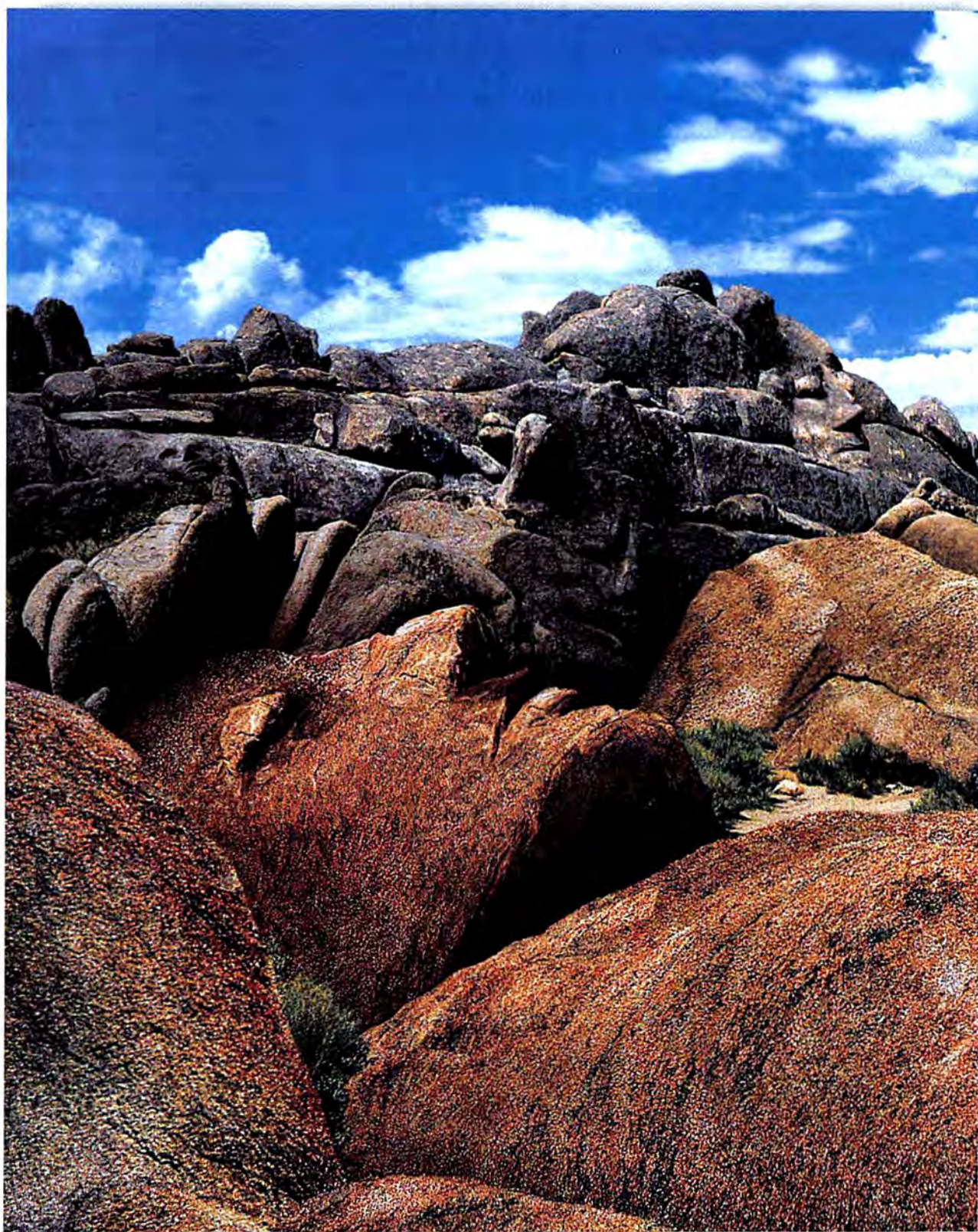


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Search Tangles

INTERNET SEARCH IS BIG BUSINESS. BUT THE DRIVE FOR PROFITS BY SEARCH FIRMS AND THE SITES THEY INDEX IS TAKING ITS TOLL ON THE RESULTS IN YOUR BROWSER. **BY TOM SPRING**

USE GOOGLE TO search for "Ionic Breeze," and you'll likely find that nine of the first ten listings point to sites that sell The Sharper Image's popular air purifier. In early June, the only link that wasn't for an e-commerce site was the last one, which pointed to an Epinions.com review.

Now head over to Yahoo and type in "spas and hot tubs." Again, in early June, the first and fifth results pointed to the Watkins Manufacturing-owned HotSpring and Caldera spas Web sites. Watkins pays Yahoo an annual fee to guarantee that Yahoo will index these sites, and also pays a small sum when someone clicks on a link to the sites in Yahoo's search results.

Yahoo and Google, the King Kong and Godzilla of search engines, have long dedicated portions of their results pages to commercial links, clearly



labeled as "sponsored" and displayed in separate blocks.

But on any search engine, the truly valuable real estate is the "actual results"—the place where you expect to find answers to your queries. And it is here that some search

companies and commercial Web sites are using new tactics, and putting new spins on old tricks, to affect search results. Most of these techniques are legitimate; others are deceptive and unethical.

One thing is clear, however:

Search results are being manipulated to a greater degree than ever. With Google about to become a publicly traded company, and with Microsoft preparing its own search service, search is a big business that is about to get even big-

ger. And the pursuit of profits—by search companies and by Web sites that depend on search engines to drive revenue-producing traffic—is affecting how your search queries are answered.

PAY FOR PLAY

ONE SEARCH ENGINE practice that's become controversial in recent years is called *paid inclusion*. Because even the best search engines can't index the entire Internet, some—namely Yahoo and Ask Jeeves—allow Web site owners to pay a small fee to guarantee that their site will be included in the search engine's index. However, both firms insist paid submissions don't affect search rankings.

Google doesn't accept paid submissions. You can submit a site to Google for free, but there's no guarantee as to when or if the site will be added to Google's index.

Ask Jeeves' Site Submit program for its Ask.com search engine charges a one-time fee of \$30 for the first page submitted and \$18 for each subsequent page. A disclaimer next to Ask.com's search results says that some sites have paid to be indexed.

In March Yahoo rolled out its Site Match Exchange paid-inclusion program. Participants pay a \$49 annual fee for the first URL, \$29 per page for the next nine URLs, and \$10 per page thereafter to guarantee not only that those pages will be indexed but that they will be *recrawled* (Web jargon for reindexed) every 48 hours, compared with a schedule of up to a month for nonpaying sites. Participants can fine-tune content with the latest products and prices, and

they can ensure that their site is completely indexed (search engines normally index only up to 1000 pages per crawl, even on a large site—and they do not index a site's searchable databases at all).

But there's more: Participating sites must also pay Yahoo between a few pennies and 30 cents every time a user clicks on a search result link to the site. (Yahoo allows major non-profits to participate for free; the per-click fee structure varies for larger Web sites



Participating sites must pay Yahoo every time a user clicks on a search result link to the site.

such as PCWorld.com, which participates in Site Match.)

Site Match's impact on search results is highly debated. Critics—and even some supporters—believe participating sites are more likely to rank high in Yahoo's results than nonparticipants. But Keith Boswell, chief operating officer for Marketleap, a marketing firm that resells Site Match, says, "The more quality content you have in your Web site, the more likely [it] will be relevant and rise higher in search results."

Gary Ruskin, executive director of Commercial Alert, a nonprofit dedicated to keeping commercial and public interests separate, says programs like Site Match make "moneyed interests" more visible in Yahoo's search results than smaller firms that can't afford to pay for premium indexing. Ruskin believes that, as more companies pay so as to compete with Site Match customers, Yahoo's search engine will become little more than a searchable yellow pages directory masquerading as unbiased, noncommercial Web search results.

Search engine companies bristle at the notion that their search results are tainted by money. A Yahoo representative said that Yahoo's quality speaks for itself. "People wouldn't return to Yahoo if they didn't trust us," she said.

Similar to Ask Jeeves, Yahoo displays a "What's this?" link (just above the search results area) that goes to a disclaimer stating that about 1 out of every 100 sites in its index has paid to be included. But several other sites that use Yahoo's search results—including Dogpile.com, Excite.com, and MSN—do not display such a disclaimer.

MSN, however, plans to end its relationship with Yahoo and implement its own search technology. In the meantime, MSN and Ask Jeeves both say they plan to more clearly identify Yahoo-produced paid and commercial listings.

GOOGLE GAMES

GOOGLE, THE NUMBER ONE search engine, has its own problems, many caused by a cottage industry of so-called optimization firms that ▶

IN BRIEF

Product Pipeline



LAWN POTATOES: After Sony's LocationFree TV hits the market later this year, you'll be able to tote around its sleek panel to watch Donald Trump fire people—from anywhere in range of the TV's small wireless base station. The \$1500 LF-X1 model weighs about 5 pounds, with a 12.1-inch screen; the \$1000 LF-X5 weighs 1.2 pounds, with a 7-inch screen find. pcworld.com/42912

Tidbyte



HOME-FRONT E-MAIL: Chicago-based Operation Homelink seeks donations of used PCs to refurbish and send free of charge to families of U.S. troops. Founder Dan Shannon says soldiers usually have e-mail access, but their loved ones often don't own a computer. Corporate donations of large quantities of older desktops and notebooks in good working order are the most efficient. Individuals may donate money via credit card or PayPal. For more information, go to find.pcworld.com/42894.

promise to boost rankings of customers' Web sites. Their efforts can reduce the quality of Google's search results.

Some techniques are legitimate. Marketleap and Position Technologies, for example, help site owners analyze content and better describe products so search engines can more easily identify and rank relevant content. These measures help explain why product searches mostly yield links to vendors rather than to reviews or news.

But some ratings-boosting techniques are controversial.

A practice called *cloaking* occurs when a page appears one way to a search engine's indexing technology but looks quite different to people who click on the link to it.

Cloaking can have perfectly legitimate uses. One example:

National Public Radio creates cloaked pages with rough transcripts of its radio programs. People who click on search engine links to these pages get to the archived audio files of the broadcasts and don't see the transcripts. *PC World* similarly uses cloaking for articles in its database.

CLOAKED CONTENT

BUT THE DESKTOP advertising company WhenU ran afoul of Google in May over cloaked pages that Google believed had misled people who searched on "WhenU." The cloaked pages, which included media reports critical of WhenU's practices, placed high in Google's results, but when users clicked on those links, they saw positive reports only. Google banned WhenU from its index for violating its

policies, a ban that was still in place at press time.

In an e-mail response to *PC World*'s queries, WhenU said a search optimization firm created the pages without WhenU's knowledge, and that the company "instructed the outside firm to reverse their actions" as soon as it learned about the cloaked pages.

Another way companies try to change results is by using multiple domains to sell the same products. This increases the odds of being found by search engines and being listed multiple times.

Google tries to excise manipulated results, but it's easy to find pages that violate its policies. Google, in a quiet period before its initial public offering, did not comment.

It's easy to see why Google and Yahoo wield such power:

They serve more than 90 percent of results at the top 25 search engines, says ComScore QSearch. And Jupiter Research projects that U.S. search engine ad sales will reach \$2.1 billion in 2004, up from \$1.6 billion last year.

But observers say consolidation of the search market hurts users. "Fewer voices in search mean fewer options for consumers," says Danny Sullivan of the Search Engine Watch online newsletter.

WHAT'S NEXT?

WEB SEARCHING is clearly evolving. Microsoft's initiatives should heat up the competition (see "The Future of Search"), and new search tools are on the horizon. With any luck, the search engines that win this race will be the ones with the most relevant results.

PRODUCTIVITY

THE FUTURE OF SEARCH: THIS TIME IT'S PERSONAL

THE NEXT STAGE OF search is focused on you and your desktop. Microsoft is leading the charge with new technology that will let you scour your e-mail, networked PCs, or even an external hard drive to find that digital needle in an ever-growing data haystack. MSN says desktop search will be available long before Microsoft's 2006 release of its next version of Windows, code-named Longhorn, which is expected to include advanced search capabilities.

Yahoo says it is considering similar desktop search technology, but declined to provide details. Google was in a quiet period leading up to its initial public offering; published reports, however, suggest it too is working on desktop search software.

Hints of where things may be headed are online right now. Search for "Chinese food Houston" at Yahoo, for example, and the top results are not links but the names, addresses, and phone numbers of Chinese



restaurants close to Houston's geographic center. Yahoo believes searchers prefer immediate answers to links. Over 140 million people have volunteered their personal information to Yahoo, and it plans to use that data to make search more relevant and personal to them, the company says.

MSN, meanwhile, says its upcoming search engine also will focus on offering personalization and delivering answers.

Amazon.com is pushing the search enve-

lope with a trial search engine called A9.com. Launched in early 2004, A9 ties regular Web search results from Google (enhanced with additional details such as names of sites popular with other visitors to the link) to "Search Inside the Book" results from Amazon. It also stores the user's recent A9 search history.

Eurekster, launched earlier this year, combines social networking with personalized search. Results are based on search preferences and behavior of your Eurekster contacts as well as your own search history. If you choose classical sites when you search for music, they will dominate your results the next time you search for music.

You can perform a search tied to a Eurekster special-interest group—either a public one such as Parents or Organic Gardening, or a private group. Results from these searches will include sites popular among other group members.



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NETWORKING

Wi-Fi Security Still Spotty

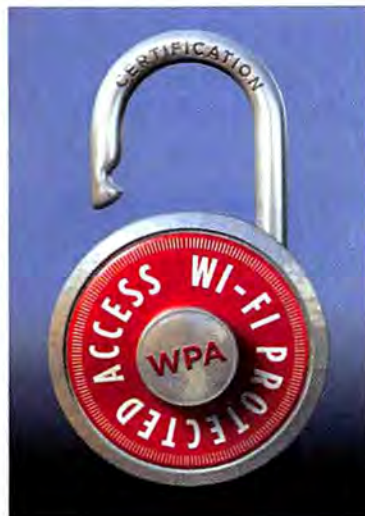
A YEAR AFTER WPA'S LAUNCH, MANY PRODUCTS AREN'T CERTIFIED.

IN ADDITION TO being faster than their predecessors, new Wi-Fi-certified 802.11g wireless products promise better protection from snoops, thanks to Wi-Fi Protected Access (WPA) encryption technology. But even though the WPA standard was introduced about a year ago, some 802.11g products may not support it.

The good news: In our informal tests with a half dozen Wi-Fi access points and 14 internal and external adapters, WPA worked on all products certified for interoperability by the Wi-Fi Alliance industry group. Also, a Windows XP patch that Microsoft issued last fall can fix some incompatibilities. The bad news: Certification is far from universal, especially in certain Wi-Fi product categories; some uncertified products had problems; and it's not always easy to tell what offerings (and technologies) have been certified.

CERTIFIED TROUBLE

THE WORST OFFENDER in improperly representing certification was Microsoft. Its MN-700 access point/router displays the Wi-Fi Alliance's certification label for WPA prominently on the box, but the device failed to establish a WPA connection with any of six 802.11g wireless PC Cards (including Microsoft's own MN-720 model) and with six of eight tested notebooks us-



ing integrated 11g wireless. Not all of these notebooks and cards were certified for WPA, but all connected with several other WPA-enabled routers.

Wi-Fi Alliance representa-

It's not always
easy to tell
what products
have been
certified as
interoperable.

tives say the Alliance certified the MN-700 for the 802.11b and 802.11g standards with security turned off. Spokesperson Brian Grimm says the Alliance will contact Microsoft about updating its labeling.

Microsoft announced in May that it was leaving the wireless networking business, but it

intends to continue supporting its products. A spokesperson says that the company plans to issue a patch enabling WPA in July, although throughput will drop to about 7 megabits per second—well below the minimum 12 to 14 mbps that industry experts estimate users should expect with devices that have WPA enabled.

The Wi-Fi Alliance accurately reported Microsoft's certifications in the product database on its Web site (www.wi-fi.org). The database is a good resource to consult before you buy, although we did find some instances where items appeared in the wrong category. For example, D-Link's DWL-G650 PC Card appeared on the list of internal cards, not external cards as it should have.

DON'T ASSUME WPA

TECHNICALLY, WPA IS NOT part of the 802.11g standard, but in September 2003 the Wi-Fi Alliance began making WPA support a requirement for most products to pass 11g certification tests.

But 802.11g certification is no guarantee of WPA compliance. That's because products submitted for testing before last September—including the Microsoft MN-700—were exempt from the Wi-Fi Alliance's WPA requirement.

Other name-brand Wi-Fi products we tested were also certified for 802.11g but ▶

IN BRIEF

Product Pipeline



SERIOUS MUSIC: If you want a dignified digital music player, check out Creative's MuVo Slim. Its credit-card shape and black-and-silver motif won't jar the boardroom, and its voice recorder may capture a deal-winning idea. Also included: an FM radio and 256MB of memory. find.pcworld.com/42908

Tidbyte



DANGEROUS DUST? A study of dust from CPUs and PC monitors in some 16 U.S. locations found residue of brominated flame retardants in every case. Experts disagree on health dangers of long-term exposure to these chemicals, used in electronics manufacturing. But until the chemicals are completely phased out, Ted Smith, national coordinator for one of the study's sponsors, the Computer Take Back Campaign, advises careful, regular dusting of electronic components as a stopgap measure. Read the study at find.pcworld.com/42932.



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 **TEXAS INSTRUMENTS**

not WPA. Still, most managed to work together with WPA enabled. The only exception, besides the Microsoft MN-700, was IOGear's GWA 501 access point/router, which is not Wi-Fi-certified for anything. It did establish WPA connections with four cards and three notebooks; but it failed with two other cards and five other notebooks we tested, including two using the Wi-Fi chip in Intel's Centrino mobile technology.

How important is Wi-Fi certification? Corporate IT departments generally demand it, but it appears to be less important to small businesses and to home users. So some vendors, such as IOGear, skip certification altogether, while others begin selling a product before it has been certified, assuming that it will pass later on. Netgear's new WGT634U Wireless Media Router, for ex-

ample, has been on the market since April but was still awaiting certification at press time. The Wi-Fi Alliance, however, says that about one in four products fail the test on their first attempt, mostly because of WPA glitches.

Regardless of the equipment you have, you can increase its

WPA wasn't required for certification of 802.11a products until December.

chances of working with other products by installing the manufacturer's latest drivers and firmware and Microsoft's latest updates. The original Windows XP update adding WPA capabilities had bugs that sometimes killed connections. Go to find.pcworld.com/42916 for the fix.

WPA-certified products may

be hard to find in certain categories. That's because WPA wasn't required for 802.11a products (including 11a/11g combos) until October of last year—and even then it was required only for basic equipment such as access points, access point/routers, notebook and desktop cards, and note-

weaker predecessor. A few access points, such as those from SMC, can support both WPA and WEP clients simultaneously. But in that case, a hacker could access the network by cracking the weaker WEP encryption. And if your access point doesn't support both encryption schemes simultaneously, you'll have to use WEP unless all of your equipment supports WPA.

Bottom line: WPA provides strong security for wireless networks, but be sure that you buy the latest Wi-Fi-certified products to avoid incompatibilities. Products on the Wi-Fi Alliance's certified list are the safest; contact the vendor if you're in doubt. And be prepared to wait anywhere from several months to as long as a year for specialty equipment with WPA certification to become widely available.

—Seán Captain

STANDARDS

STRONGER SECURITY, STREAMING MEDIA STANDARDS COMING

WHILE WPA IMPLEMENTATION stumbles along, a newer version of the technology is already on the way. It's called WPA2, and its main selling point is stronger encryption using the Advanced Encryption Standard, which the federal government requires for handling its sensitive information. WPA2's use of AES will appeal to companies with ultrastrict security requirements. But for most firms, the current WPA's respected RC4 encryption should be good enough.

WPA2 is the Wi-Fi Alliance's marketing name for the IEEE's 802.11i wireless security standard, which was scheduled for ratification in June. The original WPA was a response to the huge demand for better Wi-Fi security than the easily crackable WEP (Wired Equivalent Privacy) encryption of the first Wi-Fi products. Certification for WPA2 products, which require an additional co-processor that many WPA products don't have, is due to commence in September.

The same two-step rollout will apply to the 802.11e standard for quality of service (QoS), which aims to help multimedia data move

smoothly through the network so that streaming audio and video don't skip or stutter. Wi-Fi-enabled cell phones and streaming multimedia players are among the likely users of the technology.

The first part of 802.11e, called Wireless Multimedia Extensions, allows Wi-Fi equipment to recognize priority tags placed on data packets. Programs that create the data can attach high-priority labels to it. Few applications currently can do this, but RealNetworks says that it will add the capability shortly after the specification is ratified, and Microsoft says that it's looking into doing the same thing. (Apple Computer declined to comment.) The Wi-Fi Alliance also expects to begin WME certification testing in September; and WME-certified products, such as media receivers, should start to appear before the end of the year.

The full 802.11e specification will support WME but will also include alternative QoS technology called Wireless Scheduled Multimedia. The IEEE expects to finalize the standard by year's end, with the first 802.11e products anticipated in 2005.

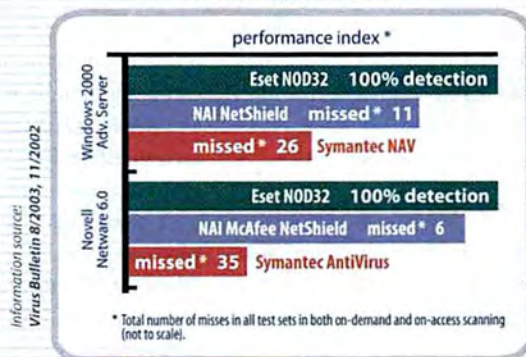




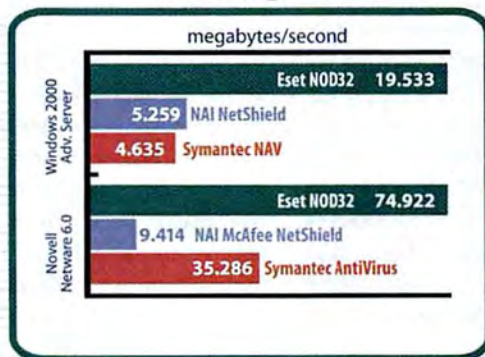
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CHIP SETS

Get Aboard the PCI Express

INTEL'S LATEST CHIP SETS OFFER A FAST NEW BUS, DDR2 MEMORY, AND BETTER GRAPHICS.

ALTHOUGH CHIP SETS—the hard-working assistants on a motherboard—rarely make front-page news, Intel's latest, designed for Pentium 4 systems, definitely deserve your attention. First, they mark the debut of PCI Express, the faster PCI bus that will supersede the AGP bus for graphics and will eventually replace current PCI slots. And second, they introduce such features as speedy dual-channel DDR2 memory, third-generation integrated graphics, and optional built-in wireless networking.

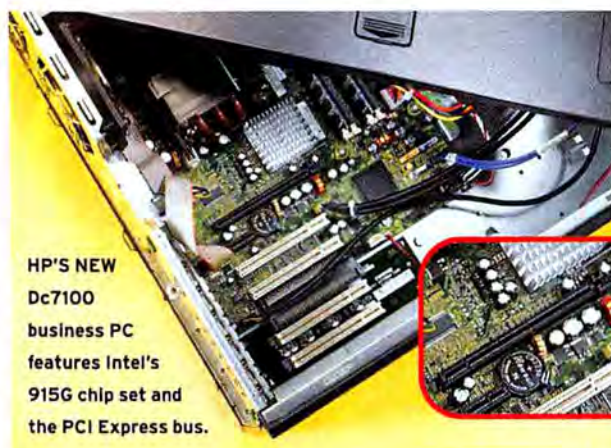
By press time, Intel will ship three new chip sets to replace its 865 and 875 chip sets. The 915G and the 915P Express (both code-named Grantsdale) will appear in everyday consumer and business desktops,

while the 925X Express (code-named Alderwood) will go into gaming and enthusiast PCs. All three chip sets lack AGP slots, but motherboard makers may add them later.

SCORE SHEET

TO GET A PEEK at the new chip sets' prowess, we tested a pre-production HP Dc7100, the new, \$1349 flagship business model with the 915G chip set. We compared it with an identically configured, \$1299 HP D530 (which the Dc7100 replaces) using the 865G chip set (prices without monitors).

The two PCs earned nearly the same scores on most tests (see the chart below), but they differed considerably on 3D games. There, the Dc7100 significantly outperformed the



D530, thanks in part to its new integrated graphics, which support DirectX 9 and can use up to 224MB of the PC's main memory for graphics versus 64MB for older versions.

Oddly, though, with an AGP graphics card, the older D530 outran the Dc7100 with a PCI Express card on Return to Castle Wolfenstein. That may be because the Dc7100's graphics card drivers are new and not yet highly optimized. (Look for in-depth tests on PCI Express graphics cards next month.)

EXPRESS FEATURES

THE MOST SIGNIFICANT new feature in the 915 and 925 chip sets is the PCI Express

bus. The old bus worked at 133MB per second, and read and write tasks had to share that bandwidth. In contrast, PCI Express X1 provides dedicated bandwidth for read and write tasks, at 250 MBps each. And the PCI X16 slot, a longer slot for add-in graphics cards, performs at up to 4 GBps—or nearly twice the 8X AGP's 2.1 GBps. This should spur development of more-powerful cards that handle more data and deliver smoother, more-realistic effects for gamers and graphics pros. The new and old buses should coexist for a while, so users won't have to throw out all of their old cards.

The principal differences between the 915 and 925X chip sets are in graphics and memory support. The 915G has integrated graphics; the others do not. And 915 PCs can use either DDR2 or traditional DDR (as our HP unit did), whereas the 925X uses only DDR2 memory. All three support fast, Serial ATA hard drives and Intel High Definition Audio (enabling support for all popular audio formats and multichannel streaming).

All in all, whichever new chip set you buy, you'll get a performance winner, and you won't pay much more for it.

—Laurianne McLaughlin

TEST REPORT

INTEL IMPROVES INTEGRATED GRAPHICS

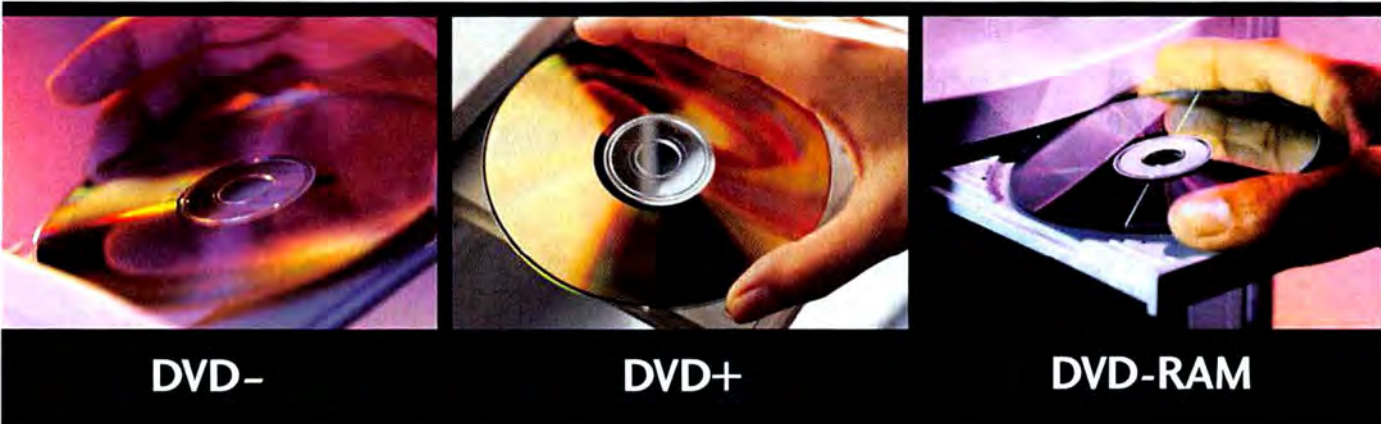
The new 915G chip set beats the older 865G, although results are mixed with graphics cards.

CHIP SET	System	Graphics	PC WorldBench4 score <small>Faster</small>	TIME (IN SECONDS) REQUIRED TO RUN TEST		FRAMES PER SECOND	
				AutoCAD	VideoWave 1.5	Return to Castle Wolfenstein	Unreal Tournament 2002
915G	HP Dc7100	Integrated	132	226	70	50	95
865G	HP D530	Integrated	128	229	71	35	50
915G	HP Dc7100	ATI Radeon X300 (PCI Express)	129	229	72	73	135
865G	HP D530	ATI Radeon 9200 (AGP)	131	234	74	89	126



FOOTNOTE: ¹ At 1024 by 768 resolution, with 16-bit color. **HOW WE TEST:** All systems had a 3.2-GHz Pentium 4 CPU and 1GB of DDR400 RAM, and ran Windows XP Professional. A higher score is better on PC WorldBench 4 and on the gaming tests; elsewhere, lower is better. See find.pcworld.com/42922 for more details on tests and system configuration. All tests developed and performed by the PC World Test Center. All rights reserved. **CHART NOTE:** Bold denotes best score.

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CONSUMER ALERT

Fees Surprise Unwary Web Shoppers

SURFERS UNAWARE THAT CREDIT CARD INFORMATION IS SOMETIMES SHARED.

SURPRISED—THAT'S how Las Vegas resident Heidi Speidel felt when she found a puzzling \$100 charge on her credit card for a service called Simple Escapes. She told American Express she suspected her credit card number had been hijacked, and then discovered her ISP, America Online, had helpfully supplied her billing information.

Speidel says she did not subscribe to Simple Escapes, a membership service that provides entertainment discounts and travel services. It is operated by MemberWorks, a Stamford, Connecticut, direct marketing firm.

Speidel never typed in her credit card number for Simple Escapes. Instead, MemberWorks asserts, she authorized the company to retrieve her credit card number from AOL, which had it on file.

In a written statement, MemberWorks says Speidel was offered a \$25 Kmart gift card to join Simple Escapes, and had clicked "yes" to accept the offer on a page that included terms, conditions, and an explanation that, after a 30-day trial period, a "fee would be charged to her credit card on file with AOL."

The company says in its statement that Speidel was sent a "thank you" page that confirmed her enrollment. In addition, MemberWorks says,

it sent Speidel two e-mail messages that outlined the program's terms and charges, and described its cancellation procedure.

Speidel canceled, MemberWorks says, and received a full \$100 refund under its "no-questions-asked refund policy for unauthorized charge complaints."

"I'd never heard of this company and never wanted their services," Speidel says. It took about a month to sort out the matter: "The whole mess was a nightmare," she adds.

SHARING DATA

SPEIDEL IS AMONG hundreds of online users who are finding they have credit card charges that stem from offers of cash back and gift cards. Many say they didn't realize

"I'd never heard of this company and never wanted their services."
—Heidi Speidel, Web shopper

they accepted a trial membership when they took a "free" gift card from MemberWorks, Trilegiant, or other membership services firms. What's more, it doesn't matter that they didn't send billing information to these companies directly; their credit card number is often shared by other businesses with which they had a different transaction.

For example, airline ticket-



WEB SHOPPER Heidi Speidel says the fees were unexpected.

buyers at Orbitz could get "\$10 cash back" at the end of their transaction by accepting trial membership in Connections, a MemberWorks program. Billing data came from records Orbitz had on file.

Orbitz recently reinstated

ners due to "a change in customer policy," says Nicholas Graham, an AOL spokesperson.

TO THE COURTS

THE FLORIDA attorney general sued MemberWorks last October, alleging it violated state deceptive trade practices laws by charging customers' credit cards without authorization and by engaging in "unfair, fraudulent, and deceptive business

practices," according to its complaint. A fifth of the nearly 1000 incidents prompting the suit involve online transactions; the rest are from telemarketing sales, according to the Florida AG's office.

MemberWorks calls the allegations "unfounded." In a statement, it says, "The company believes that any legitimate concerns have previously been fully addressed, including our implementation of industry-leading best marketing practices and voluntary agreements incorporating those practices."

Florida officials also confirm the state is investigating similar complaints against Trilegiant, a Norwalk, Connecticut, affiliate of Cendant, the rental car and travel giant.

An Illinois class action suit against Trilegiant describes the company's sales methods as "inherently abusive."

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to our customers' satisfaction," says Todd Smith, director of corporate communications for Trilegiant.

Better Business Bureaus in several states are also investigating both MemberWorks and Trilegiant. In Nebraska, where MemberWorks was founded, the BBB in December 2003 suspended the company's good standing while investigating complaints—normal procedure during an investigation.

Scott Mecham, Nebraska BBB president, says the number of complaints is not disproportionate for a company of MemberWorks' size, but the bureau is concerned they are all similar: Users didn't understand they would be charged a fee and were upset that a company unknown to

Offer Details:

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automatically charged to

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CONSUMERS MUST click through promo materials to find caveats.

them obtained their billing info without their consent.

The Connecticut BBB has received 1760 complaints about Trilegiant, many involving online transactions, says Paulette Hotton, president. The overwhelming majority involve consumers alleging unauthorized charges to their credit cards and difficulty canceling the service, she adds.

NOT-SO-FREE CARDS

PC WORLD LOOKED AT SOME of MemberWorks' and Trilegiant's online promotions

and found disclaimers that the companies obtain billing data from other firms with which they do business—but that disclosure information is often literally in fine print.

For example, placing an order at credit-rating site MyFICO.com in May prompted a MemberWorks invitation for a free \$25 Lowe's gift card and a 30-day trial for HomeWorks Plus, a shopping discount service. At the bottom of the page, an "Offer Details" section explained: "After your 30-day FREE trial, it's just

\$9.95 for a full month of savings, automatically charged to the credit card you used today with MyFICO.com." A second disclaimer appeared beneath the form to enter an e-mail address twice to accept the terms of the agreement.

More prominent was the text "\$25 Gift Card Details" and "Find out how," both linking to a section on collecting the \$25 gift card. A link to decline the offer was at the bottom of the page.

In a written statement MemberWorks said, "We believe that MemberWorks has the most stringent pro-consumer policies of any company in our industry."

Nevertheless, online shoppers will be wise to heed this old advice: Read the fine print.

—Tom Spring

THREE MINUTES

So-Called Spam King Sounds Off

ALTHOUGH HE'S BEEN called the Spam King, been labeled one of the most prolific spammers in the world by Spamhaus's Registry of Known Spam Operations, and been sued for spamming, Scott Richter calls his business electronic marketing. His company, Opt-inRealBig, sends more than 100 million e-mail messages every day.

You refer to yourself as a high-volume e-mail marketer but not a spammer.

Because we don't spam. The biggest problem is when people get an e-mail that they think they didn't sign up for or don't remember signing up for, and they call it spam. Well, that's not spam.

Has the CAN-SPAM law changed your business?

No, it's just added more legitimacy.

How do you react to people who challenge your business from an ethical standpoint?

There are a lot of people who have a lot of time on their hands. I wish those people would take all that time and help find a cure for cancer, help puppies at the shelter, clean up the highways.

You don't think the price of Internet access would go down if there were no spam?

No. I think all you would have is a bunch of spam-filtering companies out of business.

Do you get run-of-the-mill spam, like everyone else?



Yeah, I get that, too. And antispam groups should be going after these people who send the messages that you can't remove yourself from—these are the people that need to be targeted.

Does it bother you when you get spam?

No, I just click Delete and remove myself from the mailing lists.

It's been said that your goal is to be a media celebrity.

You know, I'm going to give the public what they want. I enjoy what I do, I like the business. If the antisammers didn't harass me so much, I probably would have retired by now. But you know what, that's what gives me my drive to keep going.

(To read an extended version of this interview, point your browser to find.pcworld.com/43018.)

—Liane Cassavoy ■

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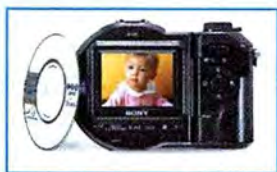


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ANTISPAM FREE-FOR-ALL

I WAS DISAPPOINTED with "Spam-Proof Your In-Box" [June], in that Logan G. Harbaugh evaluates only spam filters that cost users money. I've found two *free* filters that work better than retail products.

One filter is called POPFile, available from popfile.sourceforge.net; it uses an Outlook interface that is available for free from www.vargonsoft.com/Outclass. The other program is called SpamBayes (from spambayes.sourceforge.net).

Carey Holzman
Author, *The Healthy PC*
Glendale, Arizona

HARBAUGH OMITTED SpamAssassin. Since installing and configuring it on my computer, I have had no spam e-mail messages pass through.

Bill Muir, via the Internet

I CAN'T BELIEVE you ignored Spamnix (www.spamnix.com). This \$30 product uses both Bayesian filtering and the point system of SpamAssassin. I have used it for over a year now, and it works great.

Dave Barnes, Denver

I GAVE Cloudmark's SpamNet another try based on your writer's recommendation. SpamNet 2.0 for Outlook Express is

certainly better than version 1.0 was. The first time I ran it, however, it allowed five spam messages into my inbox that Mail-Washer Pro never would have let in.

Jim Bass, Lompoc, California

Editor's response: We received many letters from happy users of spam filters that were not listed in our roundup. With dozens of such filters available, we limited our testing to a) filters in the antivirus suites reviewed in the companion "Bigger Threats, Better Defense" story and b) commercial tools (if you are disappointed by freeware, at least you don't lose your money). We trained the filters with more than 1000 spam messages before testing their accuracy; readers' experiences may vary.

—Andrew Brandt

E-VOTING VS. PAPER BALLOTS

I THINK YOUR AUTHOR wrote off optically scanned paper ballots too quickly ["Is E-Voting Safe?" June]. We use them in Arizona, and everyone I've talked with thinks they're great. You can recheck the ballot, then slip it into the scanner. If you make a mistake, you can get a new ballot.

James McDonnell, Phoenix

LETTER OF THE MONTH

Is E-Mail Dying a Slow Death?

I HAVE DETECTED a troubling trend. I am a secretary or treasurer in three diverse organizations: a political party, a church, and a service club. For several years e-mail has been a real boon to groups like these, and I have used e-mail heavily to communicate with members.

Here is the trend: Lately I have been getting fewer (and slower) responses to my messages. Why? People tell me that they are tired of opening up their e-mail and getting spam, viruses, and worms, not

VOTING SYSTEMS could use electro-mechanical keys in a specialized version of the keypunch machines that worked with mainframe computers. Punched cards recorded sensitive and precise information accurately, efficiently, and inexpensively for most of the 20th century.

The current marketing of electronic voting systems raises serious concerns about the security of the democratic process and is motivated by the appearance of a wind-fall opportunity for profiteering.

Andrew Tierman
Saginaw Valley State University
University Center, Michigan

PROACTIVE PC SECURITY

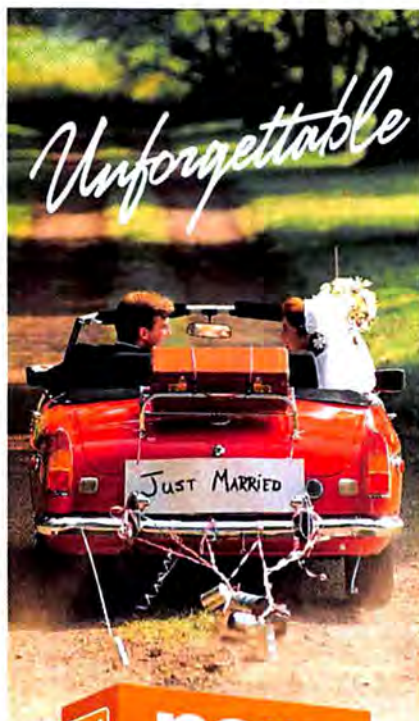
I NOTE YOUR anti-spyware picks were Spybot Search & Destroy and Lavasoft's Ad-aware ["Bigger Threats, Better Defense," June]. Although I find both very effective, they are what I term after-the-fact products. If you have something on your system, they do work well; but I see no mention of proactive software such as SpywareBlaster or SpyGuard, and you could not review Spysweeper 2.2, as it was not available in time. I use all three, ►

to mention other alarming messages, and with having to handle security updates, firewalls, filters, and so on.

How long would people keep their newspaper subscription if they had to wade through a pile of garbage at their front door every morning just to get the paper? Will e-mail become the medium of choice only for some scary fringe of society?

I guess it will soon be back to the telephone and snail mail for me and my groups.

Maynard Gross, Homer, Alaska



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AHEAD
SOFTWARE

LETTERS

and my after-the-fact software now has nothing to do but sit and take up space.

John T. Ellis, Dublin, California

THE BEST FILTER?

ON PAGE 88 of the June issue, you have a sidebar titled, "The 100 Percent Accurate Spam Filter." But you don't say a word about where to get it. How about a hint?

Bill Davis, via the Internet

Editor's response: One challenge/response mail service is Mailblocks; see find.pcworld.com/42900. The Mailblocks site is located at about.mailblocks.com.

CABLE VS. SATELLITE

IN "The Cable-or-Satellite Conundrum" [Consumer Watch, June], giving the advantage award to satellite in the category of monthly costs is unfair.

CORRECTIONS

DUE TO AN EDITING error, June's "Bigger Threats, Better Defense" did not make clear that AV-Test's outbreak response survey of 22 antivirus companies did not include Eset's NOD32. Therefore, that survey and the article's conclusions about heuristics and the Netsky virus did not apply to NOD32.

The same story misstated the overall malware detection scores for several antivirus scanning programs. The correct results are: NOD32, 94 percent; AVG Anti-Virus Professional, 82 percent; Panda Platinum Internet Security, 92 percent; Symantec Norton Internet Security 2004, 99 percent; and Trend Micro PC-cillin Internet Security 2004, 92 percent. The errors did not change how the programs scored relative to each other.

Also, the chart on page 80 should have said that InterMute SpySubtract Pro does allow scanning of select folders. InterMute says a new version—out as you read this—will include a monitoring feature designed to intercept spyware as it's about to be installed.

May's *New Products* should have said that Beyond TV 3 requires a DirectX 9-compatible card.

PC World regrets the errors.

My cable bill has increased negligibly in the past several years, but I have had the same plan during that time. The reported 41 percent increase in average monthly cable spending tells me that people are taking advantage of services not offered before and are paying to get them.

You acknowledge that "the monthly costs of cable and satellite service are generally in the same ballpark for roughly comparable packages" and that "cable tends to have more...costs for individual features than satellite"—which sounds like support for my position.

Kevin Plaskett, Santa Cruz, California

WHEN PRODUCTS FAIL

IN "Digital Camera Goes Kaput" [On Your Side, June], Grace Aquino quotes HP's Jim Kemp as saying, in response to Alex Nord's complaint about an HP camera's failing just after the warranty period, "cameras fail."

That lets today's manufacturers off the hook entirely too easily. If only a few cameras fail in a short time, then surely the manufacturers can afford to replace them. If even "less than half of 1 percent of PhotoSmart 612" cameras fail within, say, a year of the warranty's expiry, those camera owners have a justified complaint.

Considering the few moving parts digital cameras have compared with traditional cameras, expecting them to last longer is not unreasonable either.

C. M. Laucht, Winnipeg, Manitoba

MACs BECOMING MAINSTREAM?

LIKE HARRY MCCracken, I recently purchased an Apple laptop (in my case, an iBook G4) and was amazed at how far it approaches being a mainstream alternative to Windows [Up Front, June].

For less than the price of most laptops (\$1299), I got a machine that runs quickly and silently, and is both very dependable and easy to set up.

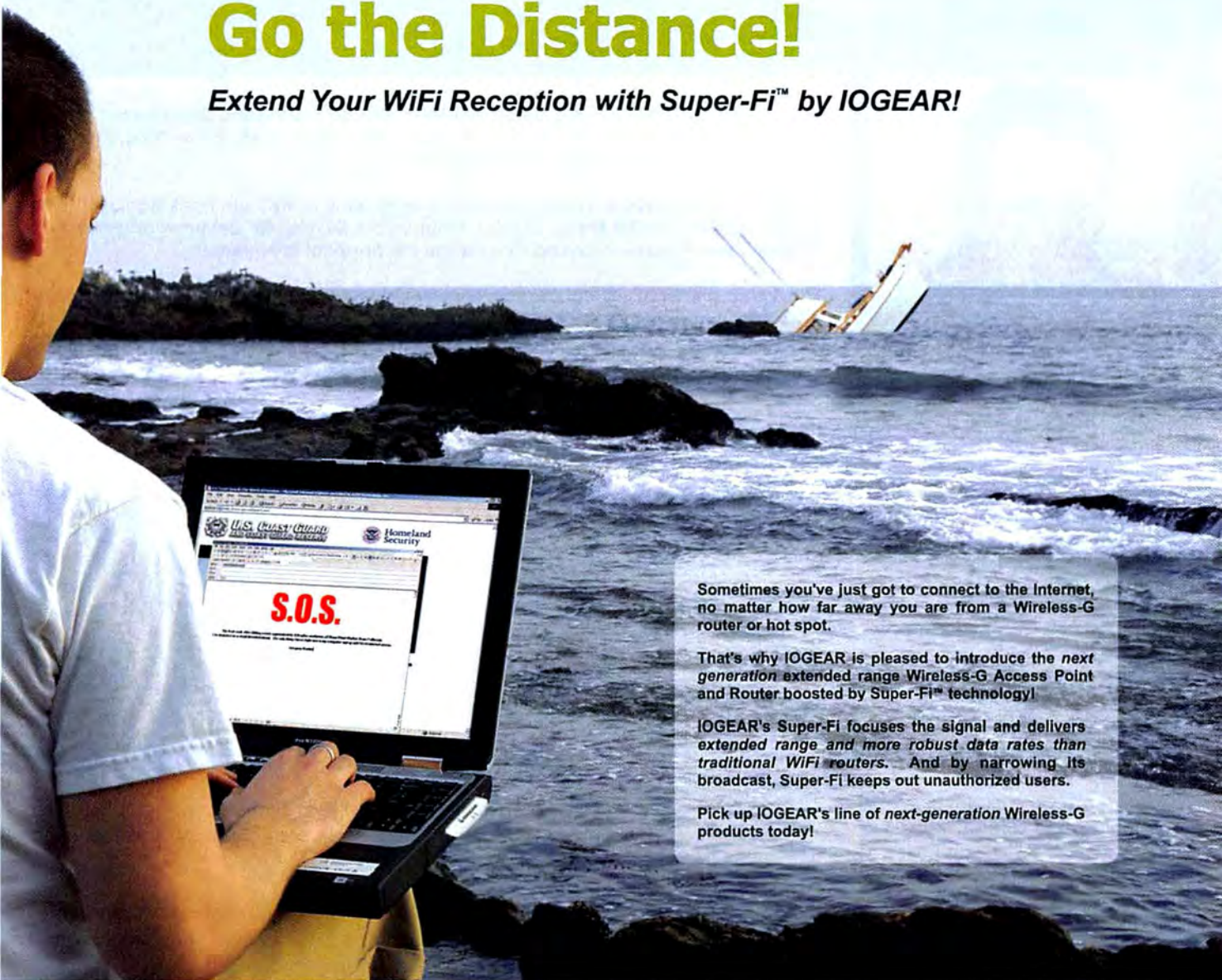
Snobbishness toward Macs may quickly become a thing of the past.

Paul Ellsworth, Woburn, Massachusetts

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

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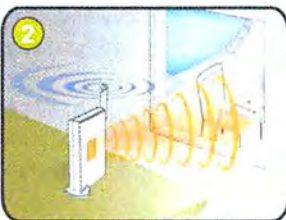
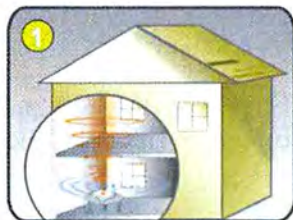


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GWPS12

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I was pleasantly surprised that tech support got back to me quickly and their answers were courteous, accurate, and succinct. Great!
- Alan

I am very impressed with how fast you got back to me, I feel great knowing that I can e-mail you with a problem and know that I will receive a response within minutes.
- Susan

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 easier 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. Thanx again.
- Dusty

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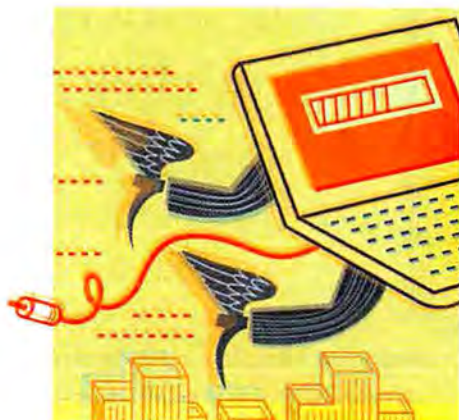
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Plus: Double-fast video, smart shoes, and upgradable notebook graphics.



1 Broadband on the Go

The Buzz: Honest-to-goodness broadband wireless has arrived, at least if you're in San Diego or Washington, D.C. For \$80 a month Verizon Wireless is offering its high-speed EvDO (Evolution Data Only or Evolution Data Optimized, take your pick) service in those two cities, with more markets coming this year and next. Verizon Wireless guarantees a minimum throughput of at least 500 kbps—plenty fast for streaming media or video downloads. When mobile users leave their coverage area, the system seamlessly hands off to the carrier's slower 1xRTT network. Customers

need a laptop (compatibility with certain handhelds is on the way) equipped with an EvDO PC Card to connect.

Bottom Line: For not much range, \$80 is a lot of scratch. But as more cities come online, utility will rise and prices will drop. Verizon merits praise for evolutionary thinking. Darwin would be proud.

2 Double-Fast Graphics

The Buzz: The latest games—loaded with complex textures and lighting—can max out the graphics capabilities of even the hottest systems. Alienware has a solution: Its new Video Array runs PCI Express graphics cards in parallel. Each card draws one section of the screen, and the system balances the rendering load frame by frame. Systems that are equipped with the Alienware Video Array (due in the third or fourth quarter) will have a newly designed motherboard, plus a bulked-up power supply, water-based cooling, and all the fixings. Good thing, too, because they'll start at roughly \$4000 apiece.



Bottom Line: Just don't mention Doom 3 to your IT department. You need the Video Array for CAD/CAM projects and for 3D rendering apps. Yeah. That's the ticket.

3 The Sole of a New Machine

The Buzz: Sneaker sultan Adidas has created a microchip-equipped running shoe that employs sensors, a magnet, and a motor-driven cable to accommodate a runner's stride by continuously adjusting the cushioning. The brainy "Adidas 1" shoe will debut in December for approximately \$250 per pair. And Adidas plans to design similar shoes for other sports.

Bottom Line: How much do you want your sneaker to know about you? "Hey, Bob, been putting on a little weight, have we?"

4 Upgradable Notebook Graphics?

The Buzz: You'll have to wait till fall, but Nvidia's MXM technology based on the upcoming mobile PCI Express bus will allow users to upgrade their notebook graphics by swapping in new chips. If this technology catches on with other vendors (it's a published spec), it could provide a graphics plug-in standard for laptops, much like today's cards on desktops.

Bottom Line: Graphics upgradability sounds more useful than it really is. By the time you're ready to goose your portable's graphics, you'll probably want to upgrade your CPU and other parts, too. In other words, time for a new system. ■

NAGGING QUESTION

Why Are Progress Bars Inaccurate?

YOU'RE DOWNLOADING a file, the progress bar zips to 99 percent done—and then you wait...and wait...and wait. What's going on?

Turns out, indicator bars aren't standardized. They reflect how the software developer defines *progress*—whether it be as the number of files transferred, the percentage of data copied, or whatever. Furthermore,



indicator accuracy can be affected by "a number of variables, including PC speed, available memory, and the item being downloaded,"

says Windows XP product manager Tracy Overby. Here's a secret: Some progress bars are essentially bogus. They exist only to let users know that something is going on and that their PC hasn't locked up.

Contributing Editor Steve Fox covers buzz-worthy products, ideas, and trends. Contact him at steve_fox@pcworld.com. Visit find.pcworld.com/31643 for more Plugged In.

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CONSUMER WATCH

ANNE KANDRA

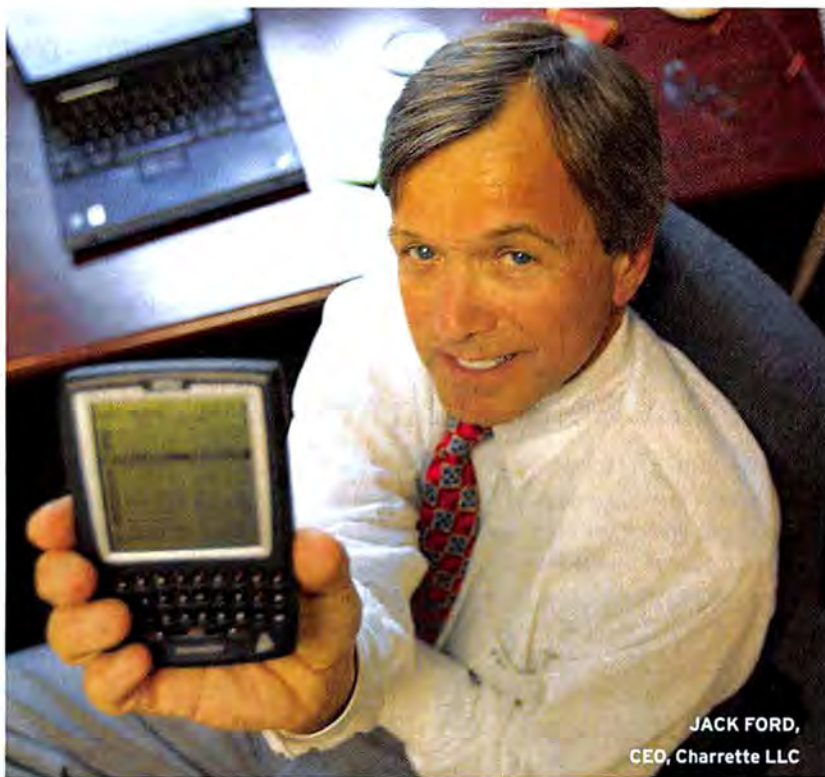
**PROTECTING NOTEBOOKS,
PDAs, AND CAMERAS**

**PRIVACY WATCH: SPAM
IN PERSONAL PROFILES**

**ON YOUR SIDE: SALES
PROMO GOES AWRY**

Keep Your Hands on Your Handhelds

How to prevent laptops and other portable devices from being stolen or lost.



JACK FORD,
CEO, Charrette LLC

IT WAS THE PLUGGED-IN executive's worst nightmare. Jack Ford, having just finished a tennis match at his health club, decided to check his messages before heading back to the office. But when he reached for his trusty BlackBerry—you guessed it—the wireless communicator was nowhere to be found.

"It was an incredible inconvenience, and very disorienting," says Ford, CEO of Charrette LLC, a Boston-based company that distributes equipment for professional designers.

Fortunately, Ford had backed up the PDA/phone regularly, so he didn't lose much vital information. But the time he

spent arranging for the manufacturer to deactivate the unit, ordering and waiting for a replacement, transferring his data, and simply worrying about lost calls and possible security breaches added up to a whole lot of hassle—and expense, since his insurance policy's deductible made filing a claim for the loss impractical.

If Ford's story sounds painfully familiar to you, you have a great deal of company. Researchers estimate that more than 600,000 laptop PCs, PDAs, and mobile phones were lost or stolen in the United States in 2001, and other research suggests that the number could double every year as portable devices (including digital

cameras) become more commonplace.

The statistics are alarming, but relax—even if your current portable digital devices are as insecure as an applicant to *Extreme Makeover*, you can do plenty to help make sure they'll be there the next time you reach for them.

Start by registering your devices with their manufacturers. It's the easiest way to establish a record of what you own. In addition, hold on to all receipts, warranty details, and other documentation pertaining to each device; that way, if you do lose something, you can provide any necessary paperwork for insurance claims, police reports, or other follow-up.

PARENTING YOUR PORTABLE

WHEN YOU'RE OUT and about, treat your portable device as you would a wayward toddler: Use common sense about where you take the device, and don't let it (or at least the bag it's in) out of your sight—not even for a minute. Jack Ford says, "I don't bring my BlackBerry to the health club, or other public places where I might need to put it down, anymore."

Staying at a hotel? Never leave your PC, PDA, or camera in the room when you're not around. Most hotels take no responsibility for lost or stolen items, even if they disappear from a locked room. If you're not taking your device with you, use the safe in your room (if there is one), or ask the hotel manager to store it in another locked, secure place while you're gone.

Nearly all portable computers offer some sort of password-based security option. Use it, even if you're the only one who works with the machine. Password protection might not prevent a theft ►

from occurring, but it could help protect the information stored on your computer from falling into the wrong hands.

Any information that you keep on your computer and don't want publicly known should be encrypted. A variety of robust third-party applications for both handhelds and laptop PCs will do this and will provide other security enhancements as well. PDA Defense Professional (\$30, www.pddefense.com) is a good encryption tool for Palm devices. (You can also find biometric security peripherals such as fingerprint scanners for laptop systems. For more on biometric security devices and PC encryption software, see "Products for the Paranoid" on page 123.)

Here's a no-brainer that bears repeating: Back up your data, or sync your PDA to your PC, regularly and frequently. Decide on a standard time—say, every day while you're at lunch or before you shut your device down—and stick to it. Then,

even when all seems lost, all won't be lost.

If you've taken all the precautions above but still feel vulnerable, consider using extra physical protection such as a lock and cable or an alarm. Cable systems can secure your notebook at a cost of \$50 or less (although an experienced thief can make short work of most such tethers). Alarms, which use motion sensors and about 120 decibels of raucous screeching to scare thieves, typically run \$100 and up.

Don't forget the armor. Safeware, an insurance agency that specializes in covering computer equipment, reports that more claims result from accidental damage than from loss or theft, and that in many cases a sturdy protective carrying case could have prevented the damage.

PORTABLE RETRIEVERS

SOMETIMES ALL THE preventive measures in the world won't stop a determined criminal. Some products claim

they'll help get your device back after it's stolen. LapTrak, for instance is software you install on your laptop's hard drive. If you report to the company that the system has been stolen, the software connects to the company's monitoring station and reports its physical location, all the while hiding your sensitive data. You have to wonder, though, how many police departments will drop everything to track down a notebook that's phoning home.

A number of companies, such as Stuffbak (www.stuffbak.com) and Boomerang-It (www.boomerangit.com), sell ID labels (prices range from about \$10 to \$35 for multiple labels) that you affix to your device; if it gets lost later, your device can be returned to you. I'm a little skeptical of this approach as well—after all, why not just turn your 7-year-old loose with some blank stickers and a box of crayons?

There's probably no way to guarantee that you'll get a device back once it's gone.

PRIVACY WATCH

Does Your Online Profile Say Something You Wouldn't?

AOL USERS LOVE TELLING the world about themselves, judging by the personal profiles many publish in that service's online directory. But some AOL users have discovered recently that their profiles are saying things they would never repeat in polite company.

I was alerted to the unsettling phenomenon by reader Steve Wilson, who wrote: "The past few weeks, I've noticed links to porn sites and spyware installers in the 'personal quote' field [of some friends'] AOL profiles. They appear there without the member's permission."

A spokesperson for the ISP says that online criminals may be stealing AOL users' account passwords and using the profiles to advertise their sleazy wares.

The personal quotes section is just one of several user profile fields you can modify, but it gets a lot of attention from bad guys because AOL lets you style the personal quote portion with embedded images and links to outside Web sites. The profiles show up in AOL's member directory Web pages, which the scammers can use to advertise to unsuspecting Web surfers.

Malicious hackers can get access to your profile page in a couple of ways, says AOL spokesperson Andrew Weinstein. Some Trojan horse programs, spread through regular e-mail or through AOL's instant messaging service, can log keystrokes as an AOL sub-

scriber enters their user name and password. And people still fall for phishing scams—e-mail messages that claim to be from AOL, ask users to update their log-in information, and then deliver the information to a cybercriminal. Once someone gets your password,



that person can do anything with your account that you could, including add their sleazy billboards to your profile.

The hijacking of profiles isn't limited to AOL. It can happen on "any online service that lets you publish a personal profile," Weinstein points out.

If you find something in your profile that you didn't put there, you need to perform a full-system virus scan to determine whether there's a Trojan horse or other piece of malware on your system. Weinstein recommends that you change your

password by going to AOL keyword: Password. AOL also wants to investigate these kinds of security breaches, so Weinstein asks that you alert its security team by going to keyword: Notify AOL.

The best way to keep your profile from being hijacked is to follow typical security procedures: Keep your antivirus software up-to-date and run a software firewall; don't click on unsolicited links in instant messages; and never give your AOL password to anyone, even someone who claims to be an AOL employee. Your online reputation is at stake.

—Andrew Brandt

Free-Card Fiasco

I DECIDED TO buy PalmOne's Zire 71 handheld after the company offered a free 128MB memory card with purchase. The card didn't arrive, so I e-mailed PalmOne. A rep said I was supposed to buy the card separately and then get a rebate for it. But the order sheet didn't say that. And the ad said the memory card "will be included with your order." The ad was misleading, and I want my free card.

Mary Ann Petry, Richmond, Virginia
On Your Side responds: A spokesperson for PalmOne confirms that shoppers had to add the SD card to their online shopping carts before checking out. But because of a technical glitch, Petry was unable to add the 128MB SD card to her order. PalmOne sent Petry a free SD card after I contacted the company.

Before entering your credit card number, take a few minutes to read the details of any promotional offers. If you can't get clear answers online, call the vendor before buying.

—Grace Aquino

But you can at least get compensated for the loss you suffer.

Most homeowners' insurance policies don't cover—or provide limited coverage for—portable computing devices like laptops and handhelds. But you should be able to get an extension that includes coverage for PCs and other portable devices.

Whether it's a PDA that goes everywhere you go or a digital camera that comes out only for an occasional wedding, your portable device is an investment—treat it that way. ■

Anne Kandra is a contributing editor and Grace Aquino and Andrew Brandt are senior associate editors for PC World. You can send them e-mail at consumerwatch@pcworld.com. If you would like to read previously published Consumer Watch, Privacy Watch, or On Your Side columns, visit find.pcworld.com/31703, find.pcworld.com/31706, or find.pcworld.com/31709, respectively.

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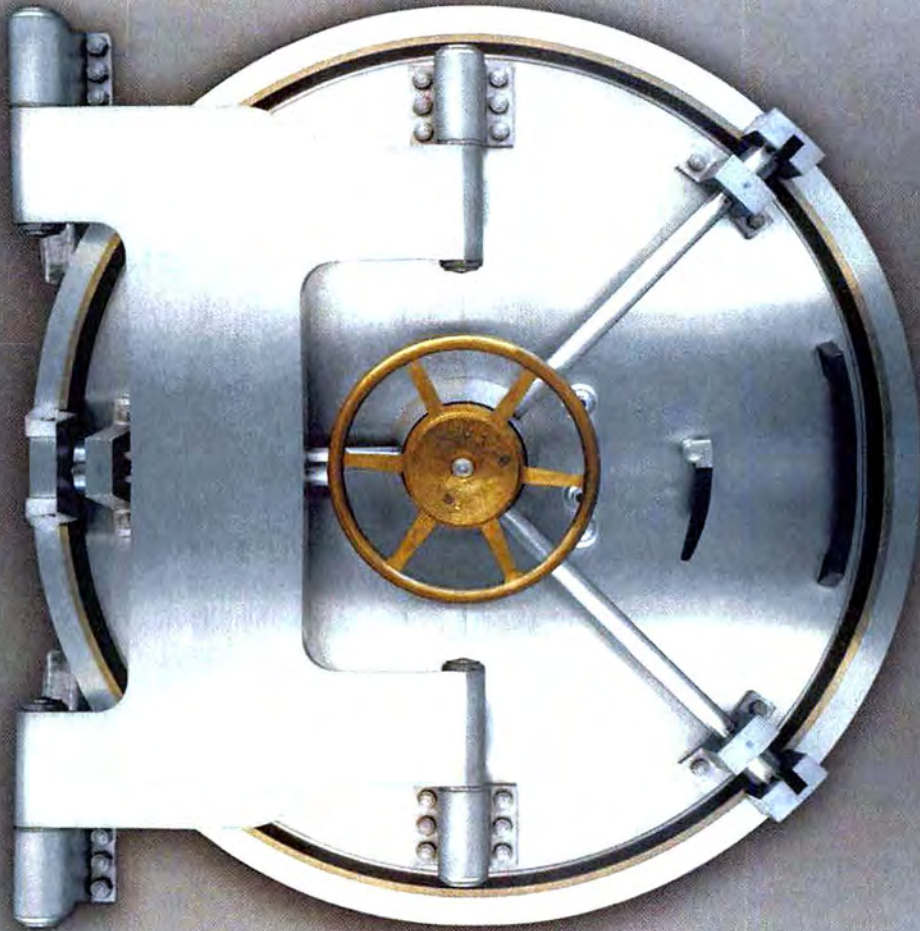
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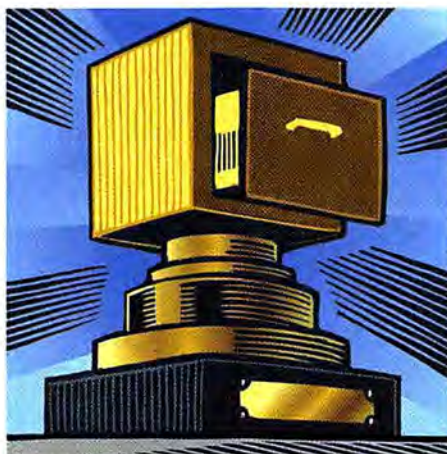
These winning utilities put your vital information at your fingertips.

EVERY SUMMER I eagerly await our annual World Class Awards. This year's winner in the Utility category is Novatix's ExplorerPlus, a productivity tool that I rely on daily. If Bill Gates used the \$40 file manager just once, he'd never bother with Windows Explorer again. (Visit find.pcworld.com/42408 to read about ExplorerPlus and all of this year's other World Class winners.)

When it comes to file management, though, there are plenty of world-class contenders. TaskTracker, for example, offers a supercharged version of the Start menu's My Recent Documents folder. TaskTracker gives you split-second access to the files you opened yesterday, last week, three months ago, or even last year. The program lists more types of files than My Recent Documents, yet you can exclude specific file types from the list. I sort my files by most recent use, but you can sort them alphabetically or by how often you have opened them, if you prefer. Though TaskTracker is free for personal use if you renew it every 90 days, be a mensch and support the author by making a donation. Go to find.pcworld.com/42412 to download the program.

Some of you may remember Magellan, the indispensable DOS-search-tool-cum-file-manager-cum-file-viewer from a decade ago. Well, it's back as Idealab's X1, a program that offers the same instant search results that made Magellan famous. X1 indexes the data on your hard drive and searches in four categories: files, e-mail (Outlook, Outlook Express, Netscape, and Eudora), e-mail attachments, and Outlook contacts.

X1's interface is much like Windows Explorer's: As you scroll through the found files listed in one pane, the pro-



gram's viewers show you the files' contents in another pane. The viewers can show any of 255 different file types; you can even watch videos or listen to audio files. One drawback of X1 is that it won't let you rummage around the entire drive at once; instead, you must search one of its four categories at a time. That rates a score of "Dumb" on the Bass Feature Meter. The company claims to be working on a tab that will search across all your data categories. (Hurry up, okay?) Useful though X1 is, the \$99 price is steep—but I hope that this doesn't dissuade you from paying a visit to find.pcworld.com/42414 and downloading the 15-day trial version.

ONE SOUR NOTE

TO ME, LAST YEAR'S most disappointing product—and I'm glad it didn't receive a World Class award—was Microsoft's OneNote file manager. This \$199 program was supposed to be a quick and nimble tool, and I was hoping I could use it to capture and organize random notes, images, to-do lists, and maybe URLs or photos. If I had a tablet PC (I don't), I'd be able to add handwritten notes, doodles,

and other undecipherable scribbles.

Maybe it's my attention deficit disorder, but I never got comfortable with OneNote—it just wasn't intuitive for me. I found myself laboring to make the program work, rather than using it to be productive. For instance, figuring out how to use OneNote's pages, subpages, sections, and folders drove me batty—and even today I'm still unsure how everything works together.

A service pack update for OneNote should be available when you read this; check "Microsoft Updates OneNote" at find.pcworld.com/42416 for a review of the new features. (If you want to play around with OneNote yourself, browse to find.pcworld.com/42418 to download the 60-day trial version.)

Instead of supporting OneNote, my World Class vote in the note-taker category goes to TexNotes, a brilliantly simple (and dirt-cheap) text organizer. The \$35 program is rich in features, yet I had it customized to my liking in only 20 minutes. And whereas OneNote saves files only as Word documents or in its own proprietary format, TexNotes supports .txt, .rtf, WordPerfect, and five other formats. For such an unstructured guy, I'm feeling amazingly organized these days. Go to find.pcworld.com/42420 to download the 60-day trial version.

I'll describe more of my favorites—including a video-capture utility and worthwhile substitutes for the RealPlayer and QuickTime media players—in upcoming Home Office newsletters. Visit find.pcworld.com/38942 to sign up. ■

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

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BUGS & FIXES

STUART J. JOHNSTON

How to Get Help With Patch Problems

Your PC maker is obliged to deal with software woes during your warranty.



PATCHING SOFTWARE is an unfortunate fact of life. Month after month, I tell you about the most important fixes you need for Windows or other Microsoft products. We all know that these updates are necessary, but unfortunately they can also cause problems of their own. So when you run

into patch trouble, where should you go for help?

If you're still covered by the manufacturer's software warranty, your first call should be to your PC maker. (Browse to find.pcworld.com/42838 for the big-name manufacturers' tech support phone numbers and Web support links.) But if the misbehaving Microsoft software is something you bought separately, call Microsoft. (Go to find.pcworld.com/42612 for

details on how to navigate Microsoft's support policies.)

When it comes down to it, however, you might find that your PC company will only go a certain distance to help you. And don't be surprised if your PC maker is vague about its patch support in specific scenarios. In fact, during four

months of doing research on this topic for *Bugs and Fixes*, I repeatedly ran into complicated and sometimes hazy responses from Dell, Gateway, HP, IBM, and Sony.

If you have trouble with your PC after installing a Windows update, for example, your PC maker may help you return your software to its original factory configuration. This solution isn't always satisfactory, however: If you uninstall a troublesome service pack, say, you might run into problems later; Microsoft typically requires you to have the newest service pack so you can install future patches.

In a case where you need to make things work with XP SP1, say—as opposed to uninstalling it—your PC maker may instruct you to contact Microsoft. Your query to the software giant will cost \$35.

However, if you're having trouble with security updates specifically, Microsoft does offer free support (and a toll-free number) for download and installation issues. If you fall into this category, call 866/727-2338. Maddeningly, this support doesn't cover service pack snags, even though service packs usually include a ton of security fixes.

After your software warranty is up, you can pay for patch support from your PC manufacturer. My take: Your best

bet is to go right to Microsoft for help. You'll be communicating (you hope) with technicians who have a better understanding of patch pain. ■

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

IN BRIEF

New XP Patch

MICROSOFT plugged a hole in Windows XP that could let an attacker use Windows XP's Help and Support Center function to access data or take over your PC. Visit find.pcworld.com/42618 for the fix (numbered 840374).

Big Update for Outlook Express

MICROSOFT released a cumulative security update to Outlook Express that includes all previous security patches, as well as a fix for a new hole. At risk: Windows 98 through Windows XP—even if OE is not your default e-mail program. Go to find.pcworld.com/42280 to get the fix (numbered 837009).

HEY MICROSOFT, WHAT'S UP WITH YOUR CD?

I RECEIVED A LOT of complaints about Microsoft's new Windows Security Update CD, which includes all fixes through October 15, 2003, for all Windows versions from 98 through XP. The biggest gripe? Many readers had trouble ordering the free CD online (go to find.pcworld.com/41294 for the order form). The Web page did not finish processing CD orders in some cases, and readers asked whether the CD can be ordered offline. It can. Call 866/727-2338.

Among those who received the disc, some readers complained that the CD automatically updated their browser to IE 6—without asking. In some cases, the updating antics broke readers' PCs. Microsoft's spokesperson says that the IE upgrade is necessary because you can install the disc's updates only if your PC is running IE 6. For all CD installation issues, call the same number.

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NEW PRODUCTS

EDITED BY TOM MAINELLI

Polish Your Videos Like a Pro

VIDEO EDITING

HIGH-POWERED video editing tools once restricted to well-funded filmmakers are now available to anybody with an adequate PC and some cash to spend. The latest versions of two such programs—Adobe's **Premiere Pro 1.5** and Sony's **Vegas 5**, both \$699—offer a slew of new features designed to streamline the editing process. But don't be fooled: These apps are not intended for beginners creating a simple home movie.

In addition to commanding hefty price tags, the extensive feature sets in Premiere and Vegas impose a cost in complexity. Both applications are powerful but remarkably intricate beasts that take some time—and patience—to learn.

Of the shipping versions I tested, Premiere felt a little

Latest packages from Adobe and Sony offer long feature lists and steep learning curves.

less cluttered than Vegas, but both programs put an awful lot of buttons on your screen at once. As you start to learn your way around the apps, however, each becomes easier to use.

The two packages approach editing in the same way: You import video, identify the clips you want to use, add titles and effects, and then output the

results to tape or DVD. Both also use a timeline to represent the video's sequence, and you can apply transitions or effects on the timeline.

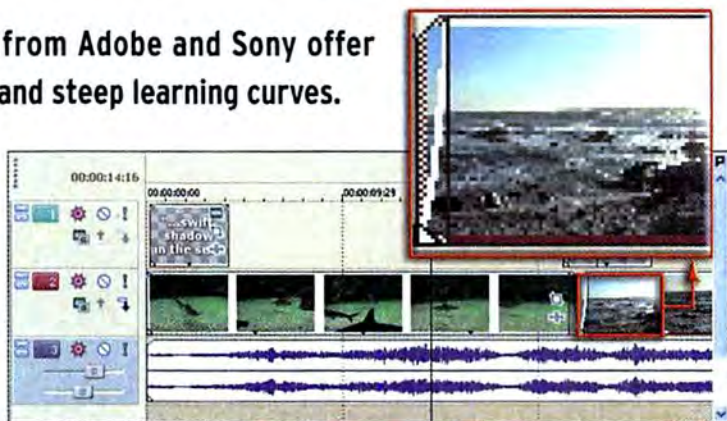
In each application you can customize the experience by altering the look and feel of the interface—hiding tools that you don't need and saving your preferred layouts. You can even switch quickly between layouts. This lets you, say, create one layout for editing audio and another one for editing video, and then switch between them as required.

MORE CAPABILITIES

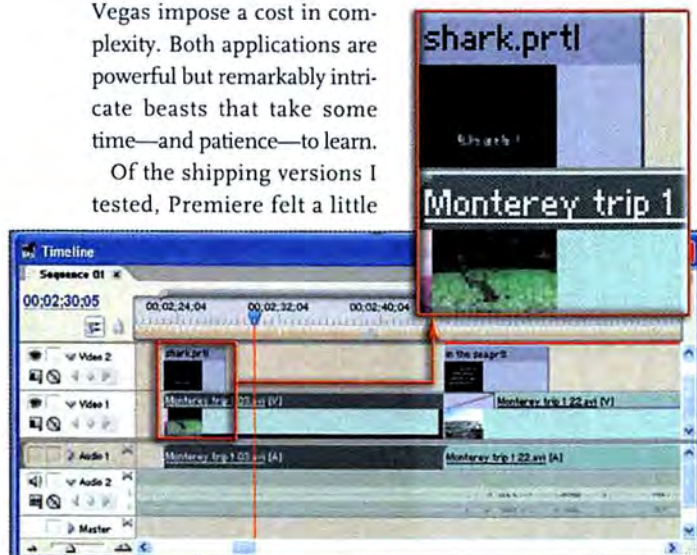
THE LOOK and feel of the Windows XP-only Premiere has not changed much from previous versions, but the pro-

gram's assortment of new features—once learned—can simplify the process of working with video. For instance, you can now collect all of the files you've created for one project and copy them to a new location in a few mouse clicks (useful for making regular backups of big projects). Similarly, you can save the settings on a video effect as a favorite and quickly apply them from a menu—a simple idea that saves a lot of time.

Premiere's color-correction feature, which lets you fix video that suffers from bad coloration caused (for example) by poor lighting, has also been greatly improved. Although it can't work miracles, the color-correction filter did



VEGAS TIMELINE: The app creates thumbnails to show the video in progress.



PREMIERE TIMELINE: Each block represents an individual video clip or title.

- 58 VIDEO EDITING SOFTWARE**
Adobe Premiere Pro 1.5, Sony Vegas 5
- 60 MONITOR**
HP F2304
PDA
Dell Axim X30
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Linksys Wireless-B Media Link for Music, Netgear MP101 Digital Music Player
INPUT DEVICE
BenQ M310

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TABLET PC
Motion Computing M1400 Tablet PC
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Sony VAIO VGN-X505ZP
PRINTER
Samsung ML-1740
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ATI Radeon X800 XT Platinum Edition, BFG GeForce 6800 Ultra OC

- 70 OFFICE SUITE**
Corel WordPerfect Office 12
BROWSER PLUG-IN
Viewpoint Toolbar



let me rescue several video clips I'd previously deemed unusable. A new Color Match filter can equalize the colors in two video clips, useful for correcting the odd colors camcorders often record in different lighting situations.

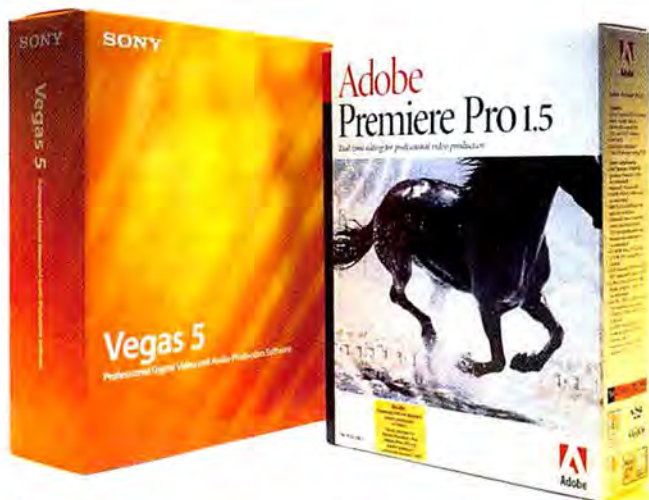
Vegas, which runs on XP or Windows 2000, has many new features of its own, including a set of powerful 3D compositing tools. These enable you to lay video clips on top of each other and move them in three dimensions to create the sort of fancy effects television news broadcasts use. I found these tools relatively easy to master: With a feature called *key framing*—where you define the start and finish positions of a movement and the computer calculates the steps in between—I quickly produced a complicated-looking sequence in which several video clips rotated in 3D.

Both Premiere and Vegas have improved on their predecessors'

unexceptional ability to provide real-time previews of edits and effects (though previews can still be rather rough and jerky if you apply too many effects or filters at once). The beauty of improved previews is that you can tweak your edits as much as necessary before performing the final rendering, which can take some time depending on the power of your PC and the desired effects. For example, one particularly complex 5-minute sequence that I created took nearly an hour to render on my 2.8-GHz Pentium 4 system with 1GB of memory.

Audio is another area where the two packages supply a huge array of tools. Though Vegas offers more integrated audio features than Premiere does, they feel more awkward to work with. Both applications can create 5.1-channel surround-sound audio.

Likewise, Premiere and Vegas can both burn video to



DVD, but neither can create customized menus or other high-end DVD features. To accomplish that, you'll need additional software.

Adobe and Sony each offer combination bundles with apps that provide more DVD authoring functionality. Adobe's \$999 Video Collection Standard includes Premiere Pro, the audio editing program Audition, the DVD authoring application Encore DVD, and the video effects program After Effects. Sony's \$999 Vegas+DVD Production Suite includes Vegas 5 plus the DVD authoring program Video Architect 2; however, it lacks additional audio and effects applications.

Both stand-alone video editing programs are incredibly powerful, and as a result both have a relatively severe learning curve. Despite the smorgasbord of features that each offers the serious video editor,

I liked Premiere Pro 1.5 better, largely because it's slightly easier to learn and use. Combine that with Adobe's sweet deal on the Video Collection Standard package—\$999 for pretty much every type of video editing application an aspiring filmmaker could ever want—and you have a bargain that's hard to pass up.

—Richard Baguley

Premiere Pro 1.5

Adobe

★★★★☆

Massive array of features takes time to learn; but once mastered, it's a powerful tool.

List: \$699

find.pcworld.com/42868

Vegas 5

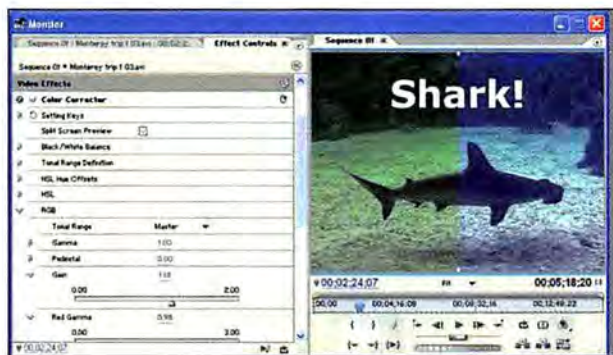
Sony Media Software

★★★★☆

Fine selection of editing tools remains slightly awkward to use.

List: \$699

find.pcworld.com/42870



PREMIERE'S powerful filters let you improve the appearance of video.

HP's Big, Beautiful LCD

MONITOR

MY RECENT switch to a high-quality 17-inch LCD monitor at work dimmed my affection for the aging 19-inch CRT I use at home. Now I'm testing HP's 23-inch, wide-screen, high-definition **F2304** LCD. Boy, is my CRT toast.

HP's \$2199 model is a sleek stunner that has more extras than a loaded Escalade and offers enough screen space to hold a Pop Warner football

game. What do you do with all that real estate (and a mind-boggling 1920-by-1200 screen resolution)? You open a huge spreadsheet, and you watch a movie—at the same time.

In my informal tests, the shipping unit produced sharp text plus vibrant photos and graphics. Thanks to its speedy 16-millisecond refresh rate, it nimbly displayed standard DVDs, too. But the F2304 really shone with high-definition content, where it offered some of the most remarkably crisp and colorful images I've seen.

This monitor's capabilities don't stop there. Aside from standard analog and digital PC inputs, you'll find television inputs that let you plug in



THE HP F2304 has a 23-inch-wide screen and integrated speakers.

F2304

HP

★★★★★

Truly massive high-definition display makes work and play fun.

Street: \$2199

find.pcworld.com/42826

external devices such as DVD players or HDTV tuners.

I didn't like everything about the F2304. The integrated speakers are good but not great (few are), and I wanted a more adjustable stand.

But these issues are minor. The F2304 is a spectacular

monitor, with a long list of features and a big ole price tag to match. If you're a multitasking monster who enjoys a little play with your work, and you have the budget for the best, this supersize LCD may well be the monitor for you.

—Tom Mainelli

Dell's Axim: Still the Best Pocket PC Deal

HANDHELD

DELL MAY NOT win style awards for its PDAs, but you won't find a better bargain-priced Pocket PC with cutting-



DELL'S affordable Axim X30.

edge technology than the company's Axims. The new **Axim X30** adds Intel's latest mobile chip, Bluetooth, and better security to the already impressive feature list of last fall's Axim X3—all at a slightly lower launch price of \$349.

I tried out a shipping Axim X30 with a 624-MHz PXA270 processor (code name, Bulverde), Intel's latest CPU for personal digital assistants. Bulverde processors aren't just faster than the X-Scale CPUs employed in previous Axim models; they have the PDA equivalent of Intel notebook CPUs' SpeedStep technology, which prolongs battery life by adjusting power requirements depending on the applications in use.

In appearance, the X30 is

identical to the silvery, lightweight X3; and with its stubby antenna, it looks bulkier than HP's IPaq 4150 (though at 4.9 ounces it's not much heavier). The unit's 240 by 320 display remains one of the brightest, sharpest PDA screens available, and the silver recharging cradle's second slot for accommodating a second removable, rechargeable battery is a smart and useful extra.

The X30 runs Microsoft's Windows Mobile 2003 Second Edition; this latest version of the OS for handhelds permits landscape-mode display orientation, lets Internet Explorer force Web pages into a single column, and adds support for Wi-Fi Protected Access (WPA), the most recent Wi-Fi security scheme.

Dell also markets a \$279 version of the X30, offering all the same trimmings but a slower 312-MHz Bulverde processor. A third alternative is a \$199 version providing the slower chip, no integrated Wi-Fi, and 32MB each of flash ROM and SDRAM (compared with 64MB each in the more expensive models). The two lower-cost X30 versions come with a syncing cable instead of a recharging cradle—but whichever way you go, Dell continues to set the standard for value in a connected PDA.

—Yardena Arar

Axim X30

Dell

★★★★★

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Networking Hardware Brings MP3s to You



WIRELESS hardware
from Netgear and Linksys.

DIGITAL MUSIC

IF YOU WANT to stream digital music from your PC in the home office to another room in your house, new network devices from Linksys and Netgear are worth considering—though both products still have a few rough edges.

Netgear's **MP101 Digital Music Player** (\$129) and Linksys's **Wireless-B Media Link for Music** (\$180 with speakers, \$150 without) work on wired or wireless networks. Both devices stream music from your computer's hard drive using sub-server software (Netgear has its own application; Linksys uses Musicmatch's Jukebox 8.2 software), and both units make it possible to access the subscription-based Rhapsody online music service.

The Linksys Media Link also provides support for Internet radio stations, which it can access on its own (no Internet-connected PC required). The shipping model I tested came with its own attachable, powered speakers, forming a sort of 21st-century boom box (albeit one that requires an electrical outlet at all times).

Setting up the Netgear MP101 was moderately simple, but when I tried to play some tunes for the first time, I thought I'd walked into a musicians' strike. Three or four tracks would play without a hitch, and then the music would abruptly halt.

The MP101's screen indicated that it remained on the network but had lost its connection to the server. Netgear suggested that I swap out my Netopia router; when I replaced it with another brand, the problems vanished. Subsequent tests with a third router proved problem-free as well, suggesting that the original glitch may have been due to the Netopia hardware.

Initial setup of the Linksys Media Link was a bit trickier. First, I had to connect it by

ethernet cable to my computer to configure it, and then I had to switch it to the wireless network, which required me to perform another configuration sequence—this time using the device's remote (a step that the manual left out).

The Media Link had problems with my Netopia router, too, hanging for minutes on end while it worked out network protocols. Again, switching over to a different router seemed to solve the problem.

AUDIO QUALITY

THE OPERATION and menus of the two devices were remarkably similar. Compared with the display on the Linksys unit, the Netgear device's screen was far more legible from a few feet away—but the Netgear remote performed

QUICK TAKES

Slick Mobile Mouse

BENQ'S ingenious **M310** wireless optical travel mouse provides a convenient slot where you can house its USB receiver when the device is not in use. Eject the finger-size receiver and plug it into your notebook, and Windows automatically recognizes the mouse (no additional software needed). The mouse has a highly responsive 800-dpi optical sensor, three buttons, and a scroll wheel. Among the best of the current crop of portable input devices, the M310 operates on two AAA batteries and sells for a reasonable \$40. find.pcworld.com/42828

—Michael S. Lasky



quite poorly. The Linksys remote worked better, the unit came with an equalizer, and the included speakers emitted decent sound. Both products had good audio quality.

Either the MP101 or the Wireless-B Media Link for Music should be fine for networked digital fans. Both units are supposed to be compatible with any 802.11b or 802.11g wireless router, but be sure you buy from a store with a liberal return policy—just in case you hit the same snags I did. Of the two, I prefer the Linksys, with its Internet radio stations, smoother operation, and extra features.

—Edward N. Albro

MP101 Digital Music Player

Netgear

★★★★☆

Easy to set up and has a bright screen; remote was finicky, and the unit lacks access to Internet radio. Street: \$129

find.pcworld.com/42858

Wireless-B Media Link for Music

Linksys

★★★★☆

Tricky setup, but a good choice for people who enjoy Internet radio. Street: \$180 with speakers, \$150 without speakers

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Easily Archive Your Photos

IMAGE EDITING

JASC OFFERS both beginning and advanced digital photographers an easy way to organize their photos with its new \$49 **Paint Shop Photo Album 5 Deluxe**. The program's simple, Windows Explorer-like interface and its easy-to-decipher toolbar let every member of the family organize their photos so that they all can find and enjoy their images.

Paint Shop Photo Album 5 Deluxe

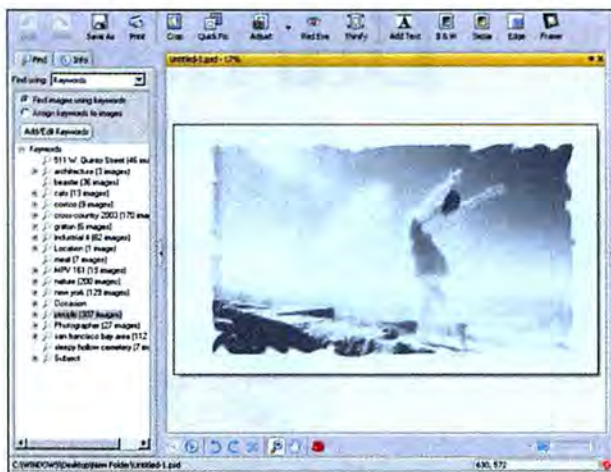
Jasc

★★★★★

Well-designed photo-management tool suits both beginners and advanced users. List: \$49 boxed, \$45 download
find.pcworld.com/42598

To import photos from your digital camera (or memory card reader), you just click the Camera button. You can use the batch command to rename and resize entire folders full of images in a few clicks. The app lets you assign your own keywords to photos and their folders, which makes for easy cross-referencing. An intuitive file tree helps you find images anywhere they reside on your computer.

The clean interface allows you to toggle among keyword, calendar, and folder views. Version 5 also offers PhotoSafe, which archives your pictures to ensure that you never lose a precious image. Working with your own reminder settings (based on adjustable



IN THE ENHANCE WINDOW, you can crop and add effects to your digital image, while keeping the entire file tree in sight on the left.

parameters such as the time elapsed or file size), PhotoSafe warns you when it's time to back up your photos.

In addition, Jasc throws in some basic image editing features such as red-eye reduction and a panorama maker. Though no substitute for real

image editing apps, the extras easily handle basic fixes.

Paint Shop Photo Album 5 Deluxe has an intuitive interface and powerful organizational capabilities. Throw in extras like archiving, and you have an excellent program.

—Kathleen Cullen

Motion Launches Feature-Packed Tablet

TABLET PC

TEST
Center

MOTION'S slate-style **M1400 Tablet PC** adds some interesting goodies—including additional wireless options, improved security features, and innovative visual and audio tools—to the company's excellent M1300 model. The M1400 deserves points for innovation, but I found some of its new features too difficult to use right out of the box.

M1400 Tablet PC

Motion Computing

★★★★☆

Solidly built Tablet PC offers novel features that take some tweaking to master. Street: \$2244
find.pcworld.com/42624

The shipping unit that I tested came with Bluetooth and 802.11g Wi-Fi built in (the M1300 featured only 802.11b). Motion improved security with a biometric fingerprint reader; however, it took some undocumented tips from the company before I could consistently log in with a single finger swipe. The M1400 also includes a light sensor that adjusts the screen brightness to your environment—helpful when you step outside.

Motion added built-in directional microphones for recording voice memos and for use with Windows XP Tablet PC Edition's speech recognition tools. My early test recordings produced with the OneNote note-taking app (part

of an optional \$35 bundle) sounded somewhat faint, but using some new tricks from Motion I adjusted the settings, and subsequent tests yielded better results.

The best feature is the device's Motion Dashboard, a utility that pulls together the various tablet-related hardware control panels into one well-conceived interface.

Our test unit included a 1.1-GHz Pentium M, 512MB of RAM, and a 20GB hard drive. It earned a PC WorldBench 4 score of 106 (about average for comparably configured tablet PCs we've tested) and netted a time of 3 hours, 18 minutes on our battery test.

MOTION'S M1400 Tablet PC has built-in directional microphones.

The M1400's voice recording and biometric tools could increase this solid tablet's productivity potential. But Motion must make these features easier to use right from the start.

—Rebecca Freed



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8-Port 1U Rackmount

- Slim 1U cabinet design with daisy-chain capability
- On-screen display gives you control over all ports



4-Port Desktop

- Compact desktop design with individual port selection button
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2-Port Desktop

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Sony VAIO Goes Superthin

NOTEBOOK PC

TEST Center IF YOU'RE looking to add a little wow factor to your mobile computing life, consider Sony's **VAIO VGN-X505ZP**. Less than an inch thick and ultralight (a smidgen under 2 pounds), this \$3000 ultraportable notebook is sure to turn heads—but you'll pay for its sleek and nimble good looks in more ways than one.

The unit's cylindrical battery forms the notebook's hinge,

VAIO VGN-X505ZP

Sony

Preproduction unit, not rated. Beautiful but pricey ultraportable notebook lacks some usually standard features.

List: \$3000

find.pcworld.com/42836

and the power button resides at the end of that hinge, giving the notebook a spare yet sexy look. While it feels slight, the X505ZP's nickel-carbon body should easily withstand the everyday rigors of frequent business travel.

This VAIO has a 1.1-GHz ultralow-voltage Pentium M processor, 512MB of RAM, a 20GB hard drive, and a 10.4-inch screen. But to keep the laptop svelte, Sony left off such seemingly basic features as a modem, an ethernet jack, built-in wireless, and an optical drive. Sony also forgoes a parallel or serial port. You do get a FireWire port, two USB 2.0 ports, and a PC Card slot.

To keep the X505ZP connected, Sony throws in a small

USB adapter (with ethernet and VGA ports) as well as an 802.11g wireless PC Card. To get a matched Sony external DVD burner, however, you'll have to pay \$400 extra.

The X505ZP's diminutive size also contributes to some ergonomic drawbacks. The keyboard's lower-than-usual 17mm pitch and its lack of a wrist-rest area can make typing for any extended amount of time a bit uncomfortable. Also, the eraserhead pointing device on our review unit felt unusually stiff.

We didn't run performance tests on the preproduction machine (watch for PC World-

Bench 4 results in a future issue), but in our battery test the notebook lasted a respectable 3 hours, 35 minutes.

Despite its limitations, the X505ZP is a stunning-looking laptop that is sure to please on-the-go users who favor form over frills (and maybe even over a few basics). Rarely has paying so much for so little seemed so worthwhile.

—Kalpana Ettenson

THE SONY VAIO VGN-X505ZP.



Samsung's Simple, Inexpensive Laser

PRINTER

TEST Center THE LATEST in Samsung's growing line of few-frills printers at great prices is the \$150 **ML-1740**—the least-expensive monochrome laser unit we've seen. It's no graphics pro, but our tests found that it handles text chores well enough.

The ML-1740 is compact

and boxy, with a white, shiny surface reminiscent of an old-style refrigerator. On top are two lights—one for power and one for toner save (the draft mode)—plus a cancel button. A 250-sheet input tray and a single-sheet manual feed in front, plus a parallel port and a USB port in back, complete the minimalist design.

Our shipping unit printed both text and graphics quickly and surprisingly quietly, outputting 13 pages per minute for text, about a page faster than the average of 12 ppm posted by the other small-office monochrome printers PC World has tested.

Printed at 600 dots per inch on plain paper, text looked dark, sharp, and legible all the way down to 2-point type.

The printer managed fast output of graphics (about 7.5 ppm), but quality was lower. Our gray-scale test photo lost its fine detail and appeared grainy and overcontrasted on both plain and glossy paper. A basic logo-style graphic from

a Word document exhibited noticeable cross-hatching.

A simple software interface lets you set options such as layout, size, paper type, and print quality. You can also add a watermark or an overlay.

Samsung includes a bare-bones manual that discusses setup and general use but doesn't offer software or troubleshooting instructions.

For anyone who prints text but few graphics, the ML-1740 is a solid—albeit unexceptional—printer at a great price.

—Lisa Cekan

ML-1740

Samsung

★★★★☆

Inexpensive monochrome laser produces sharp text but less-than-stellar graphics.

Street: \$150

find.pcworld.com/42616



SAMSUNG'S ML-1740 monochrome laser.



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New Gaming Boards Offer Breakthrough Performance

GRAPHICS

TEST CENTER THE RACE FOR the 3D graphics performance crown is heating up yet again, with both ATI and Nvidia launching new chips. If you're a gamer, you'll want to check out boards based on ATI's 520-MHz **Radeon X800 XT Platinum Edition** and Nvidia's 400-MHz **GeForce 6800 Ultra OC**. Each provides a significant speed boost, besting the previous generation of high-end cards by up to 148 percent.

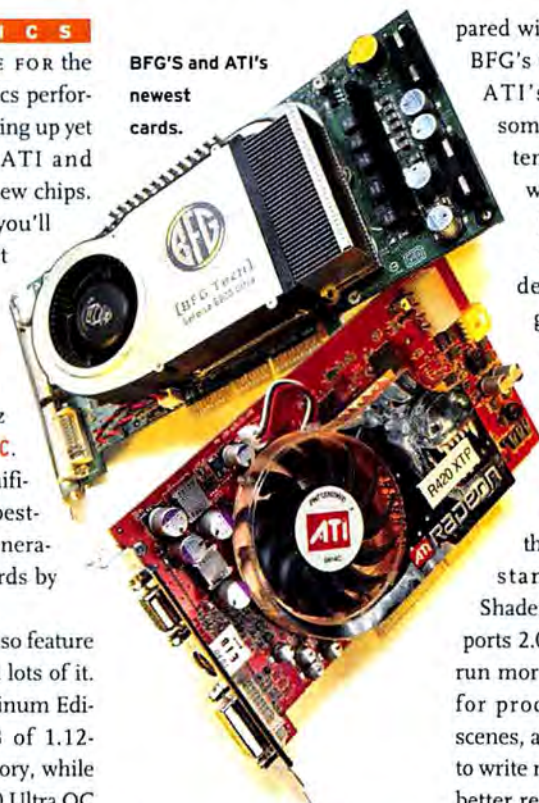
The new boards also feature faster memory, and lots of it. ATI's X800 XT Platinum Edition packs 256MB of 1.12-GHz GDDR3 memory, while BFG's GeForce 6800 Ultra OC includes 256MB of 1.1-GHz RAM. The boards, unsurprisingly, also carry high-powered prices: Both sell for \$499.

THE SPEED YOU NEED

EVEN DEMANDING games such as Halo and Splinter Cell did little to slow down these boards in *PC World's* graphics benchmarks. Our production-level ATI X800 XT ran the tests at 67 and 80 frames per second, respectively, at 1600 by 1200 resolution. Our early preproduction version of BFG's 6800 Ultra OC was close behind, with frame rates of 65 and 77 fps, respectively. By comparison, older Radeon 9800 XT and GeForce FX 5950 Ultra boards averaged approximately 28 fps on Halo and 41 fps on Splinter Cell at the same resolutions.

In light of such similar per-

BFG'S and ATI's newest cards.



formance numbers, as well as equally comparable subjective viewing tests, you'll have to decide between the new cards on the basis of features. ATI's X800 board, for example, takes up just one slot, com-

pared with the two slots that BFG's 6800 Ultra requires.

ATI's chip introduces some new technologies: temporal antialiasing, which smooths out jagged edges, and 3Dc, which will let developers of future games compress textures called normal maps to add detail to 3D objects.

Meanwhile, Nvidia's GeForce 6800 Ultra supports the advanced DirectX 9 standard called Pixel Shader Model 3.0 (ATI supports 2.0). This lets the GPU run more-complex programs for processing data in 3D scenes, and allows developers to write more efficient code to better render effects like displacement mapping.

Most current and near-future games use PS 2.0, but Nvidia claims that developers will be able to patch their games easily to use PS 3.0's additional capabilities.

Radeon X800 XT Platinum Edition

ATI

★★★★☆

Polished single-slot board runs today's most demanding games; our top pick for graphics.

List: \$499

find.pcworld.com/42658

GeForce 6800 Ultra OC

BFG Technologies

Preproduction unit, not rated. Fast but unwieldy two-slot board supports advanced PS 3.0 for a more future-proof investment.

List: \$499

find.pcworld.com/42660

Unfortunately, as of press time we weren't able to run either card with the highly anticipated next-generation games *Half-Life 2* and *Doom 3*. Both titles should better test these cards' maximum capabilities. In the meantime, our current benchmarks indicate that either card would make a fine choice today.

—Eric Dahl

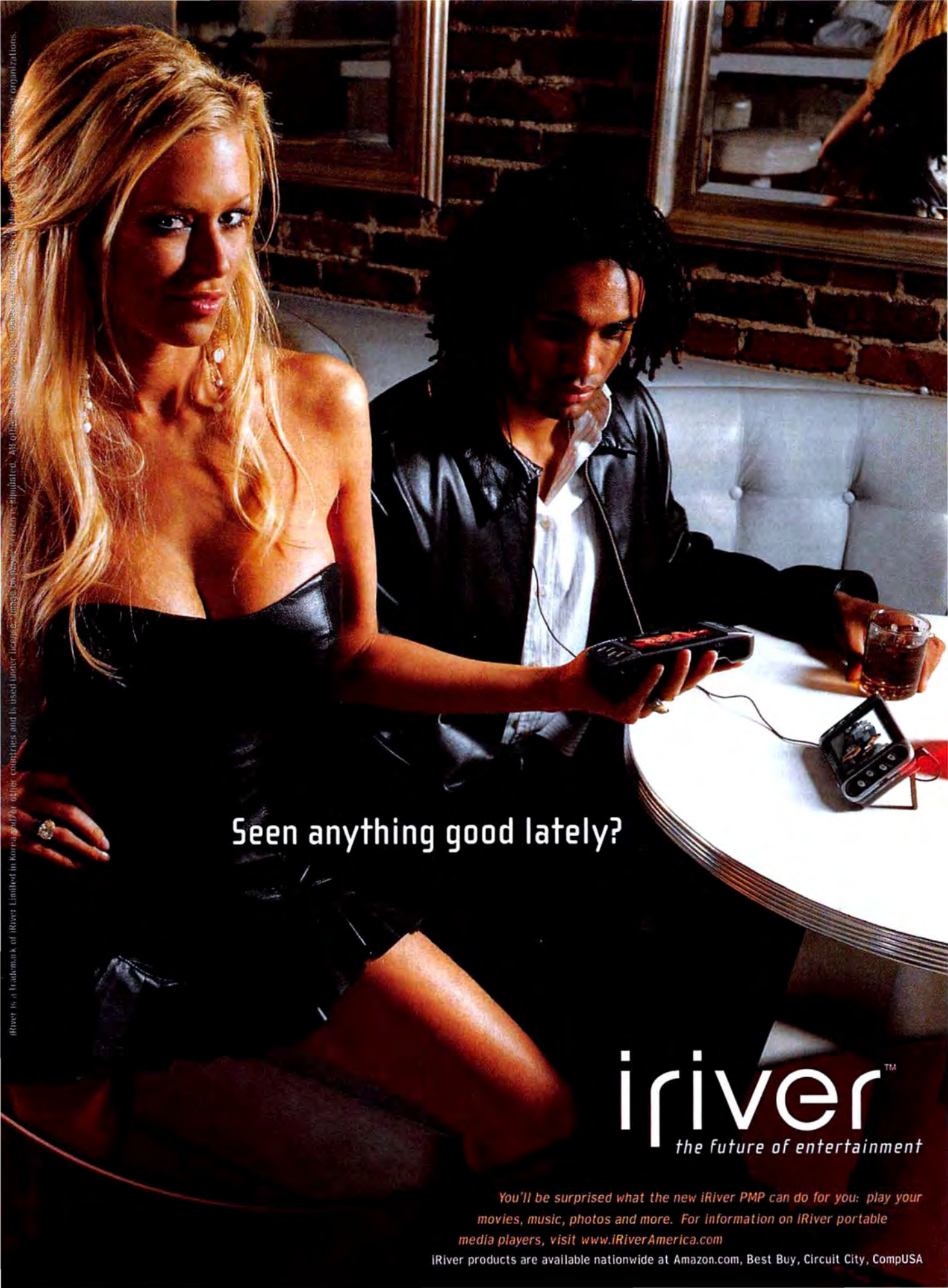
TEST REPORT

Impressive Speed Boosts From ATI, Nvidia

LATEST GENERATION OF graphics processors best their high-end predecessors by up to 148 percent.

NEW BOARDS	FRAMES RENDERED PER SECOND IN: <small>faster</small>			
	Halo ¹	Splinter Cell ¹	Wolfenstein Enemy Territory ²	Unreal Tournament 2004 demo ²
BFG Technologies GeForce 6800 Ultra OC	65	77	94	64
ATI Radeon X800 XT Platinum Edition	67	80	88	63
OLDER BOARDS (FOR COMPARISON)				
BFG Technologies Asylum GeForce FX 5950 Ultra	28	40	75	57
Asus Radeon 9800 XT	27	41	49	59

FOOTNOTES: ¹ At 1600 by 1200 resolution and no antialiasing. ² At 1024 by 768 resolution, antialiasing turned on. **HOW WE TEST:** Go to find.pcworld.com/42954 for details about our testing methodology.



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WordPerfect, Microsoft Office Style

OFFICE SUITES

IF YOU CAN'T beat Microsoft Office, mimic it—at a lower price. That's the philosophy behind **WordPerfect Office 12**. This minor upgrade to Corel's venerable, capable suite adds tweaks aimed at keeping cost-conscious small businesses and home users, as well as longtime WordPerfect aficionados, productive in a Microsoft-centric world. I tested a shipping version and found that, though the new features help, the best way to ensure that you'll always have full Microsoft Office compatibility when you need it is still to use Microsoft Office.

With two clicks, you can now switch the WordPerfect word processor, the Quattro Pro spreadsheet, and the Presentations tool into rough approximations of their Microsoft counterparts. Choose this option in WordPerfect, for instance, and the program not only adopts a Word-like menu structure, it also defaults to Word's file format.

The Corel suite lacks an alternative to Microsoft's Outlook e-mail and calendar app; instead, it has features such as the ability to do mail merges using Outlook contacts.

The Microsoft-like menus do make it easier for Microsoft Office users to convert to Corel's Office. And in my tests, most files traveled back and forth between Offices without a hitch. Unfortunately, file importing worked, well, WordImperfectly: For example, Presentations jumbled elements on some complex PowerPoint slides, and Quattro Pro couldn't handle an Excel spreadsheet with elaborate formulas and macros.

MORE EXTRAS

AS FOR VERSION 12's other additions, the slick Office-Ready utility lets you preview the suite's templates, including 40 new ones for work and home tasks. But the WordPerfect Wireless Office Suite—

a set of tools for exchanging messages with SMS-enabled cell phones—is misnamed, poorly documented, and haphazardly integrated with the rest of the product.

Like previous versions of WordPerfect, Quattro Pro, and Presentations, the apps in the new suite already match most of the significant features of their Microsoft equivalents, and they offer some bonuses of their own. To create PDF documents in Microsoft Office, for example, you need a separate program such as Adobe's \$299 Acrobat 6.0 Standard package; Corel's suite does it natively. And Microsoft Word still does not duplicate WordPerfect's Reveal Codes mode, which lets serious document tweekers massage page layouts by editing the underlying formatting instructions.

WordPerfect Office undercuts Microsoft Office Standard Edition's list price by \$99, and its upgrade price by \$89; volume licensing agreements net even deeper discounts.

Ultimately, Corel's suite is a better value than Microsoft's for some users, but not all. In its favor are its more-liberal licensing policies, which allow you to install a single copy on both a business PC and a laptop or home system, as long as it is used on only one machine at a time.

Those on tight budgets should investigate OpenOffice.org, a free open-source download that feels even more

QUICK TAKES

Look Before You Click

VIEWPOINT'S new toolbar combines the company's graphics technology with Yahoo's search engine to create an Internet Explorer



add-on that serves up convenient thumbnail images of your search result pages before you open them. The thumbnails come in one of three sizes; choose either of the smaller two, and you can enlarge images by mousing over them. Geared toward broadband users, this free toolbar requires about 20MB of hard-drive space. find.pcworld.com/42600

—Dennis O'Reilly

like Microsoft Office in some respects. But if you need a powerful e-mail/personal information manager such as Outlook or if you can't risk file-compatibility glitches, then Microsoft's pricier suite remains the best bet.

—Harry McCracken

WordPerfect Office 12

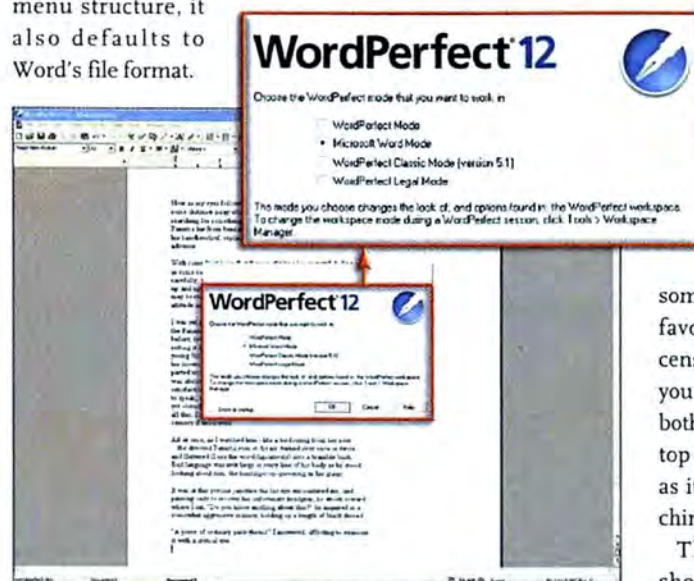
Corel

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Modest upgrade to a solid suite offers better (but not flawless) Microsoft Office compatibility.

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IBM ThinkPad X40

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How many parents cringe when those words pop up from the “peanut gallery” in the back seat — with hundreds of road miles still to come? But now those days can be a thing of the past, thanks to Best Buy™ and the complete line of auto entertainment electronics available there.

Making fun of road work

Best Buy™ can help turn your vehicle into a mobile entertainment center with the Kenwood KVT-715 DVD 7-inch Fully Motorized In-Dash Mobile Monitor with DVD/CD Receiver. This powerful and versatile unit sports a Z-action 16:9 LCD monitor with touch-screen capabilities. And users can expand the system with Sirius satellite radio and a TV tuner, both sold separately.



The Kenwood KVT-715 DVD

The KVT-715 DVD also features Dual-Zone control that allows for the front and rear of the vehicle to receive signals from independent sources with compatible components. Other exciting features of this superb entertainment center for your vehicle include:

- The ability to play DVD, DVD-R, DVD-RW, CD, CD-R, CD-RW, Video CD, and MP3/WMA discs
- An intuitive graphical user interface
- Detachable control panel
- Monitor angle adjustments
- One set each of audio/video inputs and outputs
- Three sets of 5-volt preamp outputs
- An AM/FM tuner

Happy trails

Now Best Buy™ helps vehicle owners shorten their drives in style with the Epik Headrest DVD System, providing endless hours of on-demand DVD listening and viewing pleasure.

The 7-inch TFT screens are built directly into a pair of replacement headrests and are custom-made, with two sets of wireless headphones included. The TFT screens consistently deliver exceptional brightness and contrast with a minimum of glare and geometric distortion. As a result, passengers see nothing but clear, lively images, even in sunny conditions.

The DVD player of the Epik Headrest DVD System mounts under the seat or in the trunk for added security. Best Buy offers this mobile entertainment unit with a one-year labor warranty.

Boom-Boom-Boom

If it's real window-rattling bass you're looking for to enhance your vehicle's audio system, Best Buy™ offers the Rockford Fosgate® Punch HE 2 8-inch woofer in a rotationally molded enclosure that comes with



The Rockford Fosgate® Punch

an integrated 150-watt/250-watt Punch amplifier. This powerful device features dual voice coils that can be wired from 2 to 8 ohms, which allows you to squeeze every possible bit of power from your amplifier.

The Rockford Fosgate® Punch HE 2 also includes the Punch EQ level adjustment, crossover adjustment, high- and low-level inputs, signal sensing turn-on, and remote Punch bass. And all Rockford Fosgate® loaded enclosures are tuned by Q-Logic to maximize the way a Rockford Fosgate® woofer should sound.

Installed properly, guaranteed

Most people would prefer to leave the installation of fine electronics and auto entertainment components to the experts. The good news is that Best Buy™ has some 550 installation bays nationwide, and these centers are staffed with Mobile Electronics Certification Program (MECP)-certified technicians.

Best Buy™ installation centers are open 7 days a week and stocked with over 400 brand-name parts and accessories. Plus, the Best Buy™ warranty covers the installation for as long as you own your vehicle, delivering no-cost removal, repairs, and reinstallation during the warranty period.

■ For more information on these exciting auto entertainment products and how to get them installed quickly, by experts, point your browser to www.bestbuy.com@.



Thousands of Possibilities

GET YOURS



{ DVD WORLD }

Store with Confidence

With Advanced Media, you trust your data to the very best in optical storage.



Companies as well as computer users come in all different shapes and sizes. But they share a common set of needs and requirements when it comes to optical storage media.

First, the media has to be durable and reliable with long life, which means it has to be precision engineered and manufactured. Another key requirement is high capacity, to hold the kinds of massive files increasingly common today. And the media must have speedy data transfer rates so users can quickly get the files they need, as well as being highly compatible with media players around the globe.

In other words, users need the optical media offered by the world leader in DVD+/-R discs, Advanced Media, Inc. (RITEK USA).

Earlier this year, Advanced Media added its 8X DVD+/-R discs to its successful RIDATA brand of recordable optical media. The high speed, exceptionally high quality, and versatility of the 8X DVD+/-R discs are a direct reflection of the concerted research and development effort and strict adherence to precision manufacturing that characterize the entire RIDATA line of optical media. These disc products complement Advanced Media's new 16X DVD-R and dual-layer products, now shipping for the first time.

The ultimate in optical media

Advanced Media's DVD-R comes with a huge 4.7 GB capacity and multimedia capabilities. This write-once formatted disc provides ultra-reliable recording and data retention



Advanced Media's wide array of media and data storage products.

for all types of data, delivering crisp video resolution and high-fidelity audio performance too. The Advanced Media DVD-R is ideal for archival storage of massive files, duplication, backing up the network, multimedia presentations, and digital photography and videography.

Advanced Media's RIDATA DVD+R is a write-once formatted disc capable of storing a full-length movie on a single disc. It is durable enough to withstand more than a million readings, virtually ensuring protection of vital data for an extended period of time. The Advanced Media DVD+R also features single formatting for both video and data storage; constant linear density; ultra-low recording error rates; and low jitter.

Advanced Media's 8X DVD +/-R discs offer high-speed data transfer rates of 1.35 MB/sec and recording rates that are 72 times faster than 1X CD speeds.

World-class manufacturer

When you are entrusting valuable data of any kind—from sensitive business files to medical data to great music or videos—to storage media, it's important to know that the company that manufactured the media and the products themselves are both rock-solid. Based in Diamond Bar, California, Advanced Media is a subsidiary of RITEK Corp., the world's largest maker of optical media. In fact, RITEK produces almost half of all DVD+R discs sold worldwide.

Included in the Advanced Media product lineup is a wide array of media and data storage products such as CD-R/RW, DVD-R/RW, DVD+R/RW, DVD-RAM, compact flash cards, secure digital cards, multimedia cards, smart media cards, flash memory card adapters, a USB 2.0 8-in-1 card reader, and a USB thumb-size EZ drive.

Globally, RITEK is synonymous with innovation, research, peerless quality, consistency, and optimal value in optical media. RITEK's relentless pursuit of engineering and manufacturing excellence is evidenced by its international certifications, including QS 9000, ISO 14001, ISO 9001, ISO 9002, and Six Sigma. In addition, RITEK has formed strategic technology alliances with many global technology leaders.

■ For more information on Advanced Media or its parent company, RITEK, and the outstanding array of quality technology products they carry, as well as many special one-time offers, click now on www.ritekusa.com.



Digital Lifestyle Reloaded

The updated **Nero 6 Ultra Edition**, the ultimate all-in-one digital media solution, with over 14 individual applications for all your audio, video, photo, data and backup needs, now includes **Nero PhotoShow Express**. Capture, edit, author and burn your photos and home videos, and backup your DVD movies without any loss of quality using Nero Digital™ technology*. Furthermore, Nero 6 is the world's first all-in-one DVD+R Double Layer enabled software suite. Known for its ease of use and reliability, Nero 6 Ultra Edition simplifies your digital media needs in an **all-in-one solution**.

Nero 6 Ultra Edition – Simplify Your Life

WWW.NERO.COM

Available now at:



* Does not copy DVDs with copy protection



The Best Free Software

94 tools and sites that help you work smarter, communicate better, and have more fun—all great, and all gratis.

BY LAURIANNE MCLAUGHLIN

IN THE WORLD OF Windows software, *free* has almost become a bad word. Most programs offered as a free download bring along unwelcome companions for the ride: intrusive spyware, embedded advertising, and frustrating restrictions. With most (or virtually all) functionality disabled, some of these programs are so hamstrung, they can hardly do anything. Such programs aren't really free; they're glorified advertisements for commercial applications. It's enough to drive an otherwise confirmed cheapskate to shell out hard-earned cash.

Don't despair: Though it may seem like their

numbers are dwindling, Windows software developers who know the true meaning of free still exist. They produce a wide range of full-featured products—system utilities, office applications, image editors, security and privacy tools, and many other programs—that cost you no money, save you time, and in many cases perform their tasks more simply and efficiently than some bloated, commercial counterparts. These 70 tools represent some of the finest truly free, truly useful applications on the planet. And if that isn't enough, we've listed 24 Web sites where you can find more free stuff. ►

82
WINDOWS

83
BROWSE

85
FIND AND FIX

88
WORK

90
PLAY



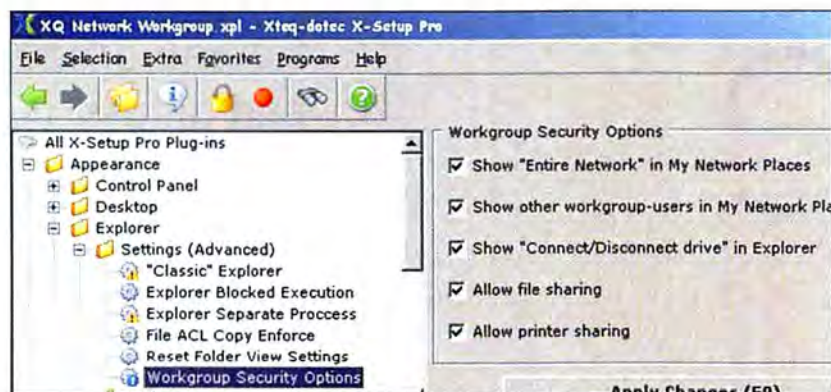
Tame Windows

Windows Care Essentials

IF YOU DON'T HAVE THE TIME or inclination to dig through Windows menus yourself, **Winuscon** puts several important Windows tools (such as a file manager, an SMS message sender, and access to all of

Start menu. find.pcworld.com/42732

You want drivers? **DriverFiles.net** (find.pcworld.com/42818) has more drivers than NASCAR. This easily searched, no-frills site can bring you up to speed with a wide range of device drivers (including unofficial and beta versions) for most peripherals and components. If you're looking for Windows-certified drivers, check the **Windows Update Driver Catalog** (find.pcworld.com/42816) to search for the most stable device drivers for your hardware components.



X-SETUP PRO gives you control over dozens of settings that affect Windows' look and feel.

Windows' control panels and management settings applets) at the ready, all in one place. find.pcworld.com/42726

Gearheads can use **X-Setup Pro** to adjust and restore the minutiae of Windows display, theme, sound, and other settings on their PCs—nearly 1700 different elements of the user interface. You can even create special files that let you transfer your customizations to other computers (or you can use it just to back them up). find.pcworld.com/42728

Windows guru and *PC World* columnist Lincoln Spector likes the utilitarian **KILL-Win** program, which lets you shut down, restart, or log off Windows at specified times and dates. He uses it to close all his apps before running a backup. find.pcworld.com/42730

For a quicker and more organized way to launch your favorite programs, turn to the **JetToolBar** utility, which displays a floating or docked toolbar. Think of it as a clever alternative to the Windows

Tweak Windows to Your Heart's Content

IF YOU CAN'T get enough of Windows XP tweaks, check out the **Windows XP Power Toys**—a set of Windows utilities for power users. Following are five of the best; go to find.pcworld.com/42714 to get

of engineering students and other geeky types. find.pcworld.com/42718

- **Image Resizer** Resize an image file, or run the same operation on several such files at once, with just one click of your mouse. find.pcworld.com/42720

- **Virtual Desktop Manager** Jockey among as many as four Windows desktops, à la Linux desktop manager. find.pcworld.com/42722

- **Webcam Timershot** Command your Webcam to take pictures on a schedule, upload them, and save the image files. find.pcworld.com/42724

Triage Time

IF YOUR WINDOWS XP-BASED computer didn't come with repair tools on a bootable CD, or if your PC can't boot from a CD, you'll want to download the **Windows XP Home Edition Setup Disks for Floppy Boot Install** and create a set of bootable floppies—in case you hit trouble down the road. find.pcworld.com/42734

Get back to where you once belonged: The **PC Inspector File Recovery** utility finds work you deleted by accident, or lost when your PC flaked out on you. find.pcworld.com/42736

A companion product, **PC Inspector Smart Recovery**, helps retrieve accidentally deleted image files from virtually any kind of removable media for digital cameras. find.pcworld.com/42738

Anyone who has used CD-R/RW media knows it's not foolproof. **CDCheck** identi-



JETTOOLBAR's tabbed interface lets you quickly find and launch programs, and open files.

your hands on the rest of the tools.

- **Alt-Tab Replacement** Toggle between apps in style, with a tool that shows a thumbnail of each application's open windows. find.pcworld.com/42716

- **Power Calculator** A graphing calculator that performs math tricks. A favorite

fies any files that are damaged or corrupted, and retrieves them for safekeeping. This helpful utility will also let you check the continued health of other PC files viewable through Windows Explorer. find.pcworld.com/42782

The Recycle Bin is not all-powerful. If

you want a good undelete program, give **Restoration** a try. The utility will even run from a floppy so that you don't accidentally overwrite a "deleted" file that's still lying dormant somewhere on your hard drive. find.pcworld.com/42740



Communicate and Browse Smarter

IM Improvements

A MULTITALENTED IM client, **Gaim** runs under both Linux and Windows. The app supports several IM services, including AIM, ICQ, MSN Messenger, Yahoo, and IRC. Gaim lets you log on to several services at one time, and it mimics many of the features of each while adding unique customization options, such as alerts for when specific people come online. It can live in your system tray, so you don't need a contact list window open constantly. find.pcworld.com/42682

Make MSN Messenger more flexible with the **Messenger Plus** add-on. For instance, you can personalize your status message, organize your contacts better, and spiff up the look of your text. find.pcworld.com/42680

A favorite of many *PC World* editors, **Trillian** lets you use one program to send instant messages to people using IRC, AIM, ICQ, MSN, and Yahoo. You can customize the look of this clever little app with some nifty skins, too. find.pcworld.com/42678

Better Browsing

TRIM AND SLIM **Mozilla Firefox**, the latest browser from Mozilla, packs in more than enough elegance and functionality to help you kick an Internet Explorer addiction. You get a download manager and

bookmark-organization tools, and you can grab any of several small add-in tools from the Mozilla Web site that will do jobs like spelling checking, Web searching, and ad blocking. Firefox is one cool ticket out of Microsoftville. find.pcworld.com/42684

If you like the experience of tabbed browsing, you could become a big fan of **MyIE2 Lite**. This Internet Explorer add-on shell lets you more easily navigate multiple browser windows, auto-completes URLs, and scrubs your cache, cookies, viewing history, and related info clean when you close the app. It's worth a peek, particularly if you're born to tweak. find.pcworld.com/42686

Somewhat like My IE2 Lite but with a different look, IE shell **AvantBrowser** lets you use a tab-style interface to keep track of several open browser windows. It also allows you to block Flash animation downloads, customize your toolbars, do shortcuts with your mouse, and clean out your history with a single, convenient mouse click. find.pcworld.com/42688

Can't help fiddling with that IE Toolbar? You'll like **Toolbar Chest**; this utility preserves your IE toolbar settings as you



THE GOOGLEBAR for Mozilla puts Google at your beck and call.

wish, and permits you to restore them easily if you inadvertently mess them up. If only fixing a ruined dinner were this easy. find.pcworld.com/42690

If you shop online regularly, you might end up filling out virtually identical order forms on Web sites all the time. **AI Roboform** will save you from having to fill out the same fields over and over again; it stores and

supplies vital data like your name, e-mail address, and home address. You can right-click to fill in a form completely, or instruct it to enter data only in certain fields. find.pcworld.com/42692

Search Add-Ons

HOW DO WE LOVE THEE, **Google Deskbar**? Quietly sitting astride the system tray, you search without changing the current browser page. One needs only to select text in any application, then type <Ctrl>-<Alt>-G, to search for those highlighted words. find.pcworld.com/42694

Mozilla browser users can share the love with the **Googlebar** plug-in for Mozilla. This plug-in emulates the Internet Explorer Google Toolbar, so you can search any of Google's archives from any browser window without having to load Google first. find.pcworld.com/42696

Google certainly isn't the only search engine to deliver a free toolbar that travels with you wherever you roam online. The **AltaVista Toolbar**, which sports several Google Toolbar-like features (such as a weather search and a dictionary lookup), also includes AltaVista's Babelfish translator button, which can translate words or pages from any of ten non-English languages. find.pcworld.com/42698

Free Communication

MOZILLA'S LATEST version of its Outlook Express killer **Thunderbird 0.6**, an e-mail and newsgroup client, has an improved installer for Windows users and better junk mail filtering. You'll find all the ►



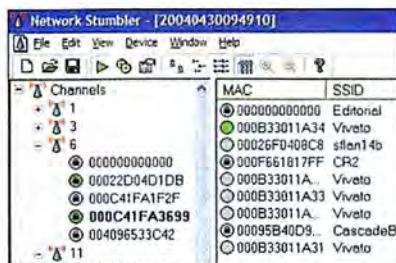
TRILLIAN, like a United Nations of IM clients, can talk to many services at once.

functionality you need and a customizable interface. find.pcworld.com/42706

For those curious to try Internet phones for long distance phone calls, **Free World Dialup's** program runs on your PC and uses a broadband Internet connection to make calls. Caveat freeloader: Quality is far from guaranteed—some calls can sound like bad cell phone connections. find.pcworld.com/42704

A good wireless hotspot is hard to find, unless you're using the **JiWire** service, a Web application that can locate Wi-Fi hotspots around the country (JiWire is a PCWorld.com partner). For example, you can use it to find fee-based or free hotspots within 10 miles of a certain address or airport. pcworld.jiwire.com

Want to use JiWire to find hotspots with your PDA? To find and save lists of Wi-Fi hotspot locations, use the **AvantGo Hotspot Locator** tool (in concert with AvantGo, a free utility for Palm OS and Pocket PC



NETSTUMBLER delivers a list of every wireless network within antenna range.

devices and some smart phones that lets you upload up-to-the-minute data when you hot sync). find.pcworld.com/42700

The extremely useful **Netstumbler** is well worth the download for any Wi-Fi user. The app can troubleshoot wireless woes (and shore up Wi-Fi security). By scanning for nearby gateways and revealing the strength of the signal you get in various locations, it can help you find a free, open-access wireless network. The Netstumbler site provides support forums and links. find.pcworld.com/42702

WHERE TO FIND...

Movies for Nothin' and Your Tunes for Free

LAWSUITS OVER FILE SHARING didn't kill free music downloads. Several perfectly legal repositories let you grab digital tunes and movies that are completely free. These are a few of the best.

Music Sites

BetterPropaganda (betterpropaganda.com): This music news and reviews site also hosts free preview MP3s from up-and-coming bands like Modest Mouse, Interpol, and Guided by Voices. You'll find a bunch of sites, such as Pitchfork Media (pitchforkmedia.com), that offer preview tracks, but BetterPropaganda organizes them more effectively than most. Each band gets its own page on the site, with links to reviews, articles, and hosted MP3s.

Etree (etree.org): The Net revolutionized the old tape-trading market, in which super-dedicated fans swapped bootleg recordings of live concerts. Many groups support taping—jam bands like the Grateful Dead are famous for it—as long as fans agree not to sell the recordings. Etree is the place to find them. The site focuses on lossless-compression recordings of live shows (not MP3s), and it's hooked into BitTorrent, which helps you download faster.

Garageband (garageband.com): Independent and unsigned artists frequently make their work freely available on sites like Garageband, which houses many of the files from these almost-big-time acts that used to live on MP3.com.



BUYING INTO PROPAGANDA never sounded so good.

Video Sites

AtomFilms (atomfilms.shockwave.com): Free registration gets you access to one of the largest, most vital collections of short films on the Net. AtomFilms has original comedy, drama, action, and music videos from artists like Polyphonic Spree and Pete Dinklage.

WMV HD (wmvhd.com): Want a stunning demonstration of the future of video clarity? If you have a beefy system (you need a PC with a minimum processor speed of 2.4 GHz and 384MB of memory to watch the low-resolution videos), head over to Microsoft's Windows Media High-Definition Video site for high-def video samples that will blow your mind.

—Eric Dahl



DOWNLOAD DOWNSIDES

Find and Fix PC Problems

Death to Viruses

ANTI-VIRUS SOFTWARE is like car insurance: Gotta have it, hate to pay for it. But there's little you can find for free with no strings. **AVG Anti-Virus System Free Edition** is as close as it gets—AVG requires Web site registration in exchange for its antivirus app. find.pcworld.com/42742

Free for one year, the **EZArmor** suite puts Computer Associates' antivirus program and a version of the ZoneAlarm firewall into an 18MB package. Automatic virus updates are included, but be aware of one catch: You will see some dialog boxes nagging you about renewing the service. find.pcworld.com/42744

Tech Support Utilities

KNOWLEDGE IS POWER—particularly when it comes to knowing what hardware is installed in your PC. **Lavalys Everest Home Edition**, a system diagnostic and benchmark tool, delivers details about your hardware, down to the component level. find.pcworld.com/42768

Belarc Advisor delivers a thorough inventory of all the bits and pieces of software and Windows components installed on your PC, as well as some key hardware details. It's a handy tool to have if you ever need to call technical support about a malfunctioning software or hardware product. find.pcworld.com/42770

Protect Yourself

IF YOU'RE WILLING TO take pains to keep e-mail confidential, consider **PGP Freeware's** ability to encrypt messages and more. PGP is a little geeky, but it's the gold standard for free personal encryption software. find.pcworld.com/42754

Want more information about a Web domain, an e-mail address, or an IP address? **Sam Spade** can sleuth it out. ►

When 'Free' Software Isn't Really Free

GIVING OUT INFO in exchange for a freebie isn't always a bad idea. But some sites go too far, asking you to register just to spam you, or loading spyware on your PC. Bottom line: With free software downloads, you can't always be sure of what you're getting.

"You could be paying hidden taxes on freeware," says Jason Catlett, president of consumer advocacy organization **Junkbusters** (www.junkbusters.com), which fights against the rising tide of unwanted junk on PCs. "There's been a boom in spyware over the past year or two. Any computer may have [more than one] spyware product on it."

Even the federal government is eyeing the trend: The FTC held a spyware workshop in April, and some anti-spyware legislation has been introduced. (For more details on pending state and national legislation, see find.pcworld.com/42528.)

Downloading any free software means taking a managed risk, Catlett says. He recommends that you follow these guidelines on choosing wisely and dodging trouble.

Research first, download second: Before you download or install a free application, hit your favorite search site and look up the product and vendor names. If there's no mention (other than at the publisher's own site), the program might not be widely used, and that could be a red flag. Trust your gut instinct if the software developer's site makes you leery; skip the download if you think there's a chance it's questionable.

Ask your neighbor (or an expert): On sites like www.download.com and www.nonags.com, you can consult editorial or user ratings and look at the number of downloads to determine whether the product has negative reports and whether it is popular. There are plenty of well-known, good programs, so don't take a risk, Catlett advises.

Watch the generics: Some scam artists choose product names (or register Web domains) similar to those of reputable applications to confuse downloaders. Make sure you're getting the product you want. Lesser-known programs that promise the world may be the handiwork of spammers and/or spyware makers. If you're not sure about a tool, search on Google to read what others have written about it before you download.

Registering sometimes makes sense—but not always: Carefully consider exactly with whom you're registering. Small commercial software sites run by individuals deserve extra scrutiny. Remember, Catlett says, you could get spammed and telemarketed to death in return for a lousy piece of software. When in doubt, if you need to give a Web site an e-mail address before you can download something, put a free Web e-mail address in the form.

Some places to find free software you can depend on are www.pricelessware.org, www.nonags.com, www.onlythebestfreeware.com, www.freebyte.com/freeware, www.majorgeeks.com—and www.pcworld.com/downloads. —Laurianne McLaughlin

Pricelessware

Pricelessware Home	Pricelessware 2004	Information	Links	alt Members Site
Category Index	WINDOWS-HOME	GRAPHICS	ORGANIZERS	SYSTEM UTILITIES
Desktop Index	DESKTOP	ENTERTAINMENT	PROGRAMMING	TEXT
Web Site Index	FILE UTILITIES	MULTIMEDIA	SECURITY	WEB DESIGN

The best of the best in Windows® Freeware
as determined by the readers of alt.comp.freeware

The 2004 Pricelessware CD

What is Pricelessware?

How are Pricelessware programs chosen?

What is Pricelessware?

The Pricelessware List reflects the programs favored by participants in the alt.comp.freeware newsgroup. It is not an exhaustive list of the best available freeware. Most of the listings are well-known programs, but there are some hard-to-find goodies to be discovered. Although most categories will list only 1 or 2

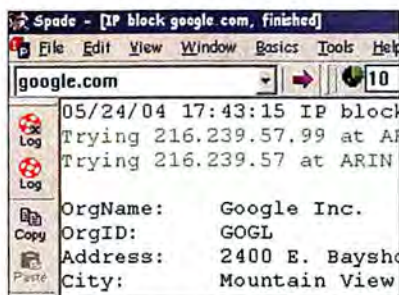
FREEST OF THE FREE: Pricelessware lists programs selected by freeware fanatics.

You can find similar tools elsewhere on the Web, but this program is especially easy to use. find.pcworld.com/42756

Pop-up blockers are almost everywhere, including right in the Google or AltaVista search toolbars. But Panicware's **PopUp Stopper Free Edition** gives you a "privacy report" on the contents of the browser history files, cache, and cookies stored on your hard drive. find.pcworld.com/42758

WebWasher Classic controls Web advertising content; manages cookies; and, maybe most notably, blocks access to specific Web sites (or makes only certain Web sites accessible)—functionality parents or small businesses will likely find useful. find.pcworld.com/42760

Losing a download oh-so-close to completion is like having dessert snatched away before you've finished dinner. If you



SAM SPADE capably ferrets out information about domain names and networks.

don't use Mozilla, which has a download manager built in, try **Internet Download Manager**, which can pause a download midstream or pick up a partial file where it left off. find.pcworld.com/42762

When you want to go browsing without dragging along extra baggage, **CachePal** offers a way to dump your IE cache files, browser history, and cookies quickly. A single click on the toolbar icon dumps

any trace of where you've been in seconds. find.pcworld.com/42764

ScrubXP cleans out temp files and Internet Explorer cookies and history, and also flushes Windows XP's list of files you opened or searched for either on your hard drive or online. find.pcworld.com/42766

Keep your browsing history and habits to yourself. **Spybot Search & Destroy 1.3** (find.pcworld.com/42746) and **Ad-aware 6.181** (find.pcworld.com/42748) can get rid of spyware that tracks your surfing behavior and adware that pops up ads (sometimes even when you are offline).

Still the top choice among free firewall utilities, **ZoneAlarm** blocks unwanted Internet intruders while at the same time keeping close tabs on applications—a good way to prevent spyware from phoning home. find.pcworld.com/42750 ▶

WHERE TO FIND...

Great Free Game Downloads

MOST GAMING DOWNLOAD SITES break this story's prime directive: they don't offer full-featured games, without restrictions, completely free. You're more likely to find game demos (limited versions of commercial games), and often you have to be a registered user to download anything. Five of the sites listed below have this condition, but despite that, you can still get some good free stuff.

Download Free Games (www.download-free-games.com): With more than 140 ad-free, spyware-free games to download (and no registration requirement), this is a great first stop to make on a downloading frenzy. Most of the items you'll find here tend to fall at the low-action end of the gaming spectrum (card, board, and puzzle games), but a few are fast-paced arcade-style games. Make sure you read the restrictions for each download carefully, as some of the "free version" downloads are just time-limited demos.

FileShack (www.fileshack.com): The fastest-loading game site we've found on the Net, FileShack runs a streamlined download library that hosts some of the largest downloads—meaning 500MB and larger files—of demos and patches. You won't find reviews or previews here, just the downloads your gamer's heart craves.

Happy Puppy (www.happypuppy.com): With a slick interface that puts the game downloads right up front, Happy Puppy provides the latest demos and patches, along with a tabbed interface that lets you easily switch between the downloads for PC games and the tips, news, and enhancement codes for console titles.

IGN/GameSpy FilePlanet (www.fileplanet.com): The makers of GameSpy software, which helps PC gamers find servers for online



TAKE ON CHICKENS and other invaders at Download Free Games.

play, also operate FilePlanet, one of the largest download archives of patches and demos. In addition, gamers can sort through downloadable videos of games in action, and read reviews and previews of current and upcoming games.

WorthPlaying Files (files.worthplaying.com): Providing an interface that's almost Google-like in its simplicity, WorthPlaying enables you to search for games by keyword; alternatively, you can drill down through categories such as Action, Adventure, Racing, Simulation, and RPG (role-playing games).

FileFront Latest Files (latest.files.filefront.com): Simple and intuitive, FileFront's collection of the 50 newest downloads, listed in reverse-chronological order, are a quick way to find something new. Each download is tagged with an icon that identifies the type of file (for example, a demo, a map or mod of an existing game, a screen saver, or a utility). Click the name for any of the icons in the key that explains them, and the chronological list switches into a list of just that type of file.

—Andrew Brandt

SUMMER SPECIAL!

HURRY! OFFER ENDS SOON ON
AMERICA'S DOMAIN NAME

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DOMAIN FOR

\$2⁹⁹
PER YEAR

LIMITED TIME
OFFER!

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.COM	\$5.99 per year
.NET	\$5.99 per year
.INFO	\$5.99 per year
.NAME	\$5.99 per year
.ORG	\$5.99 per year

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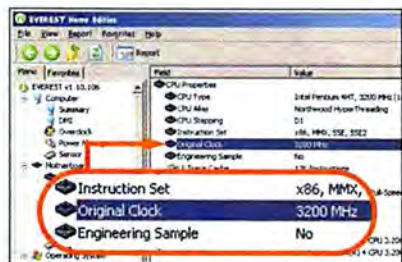


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Devious Web sites will be unable to pull a switcheroo on your home page once you've installed **Browser Hijack Blaster**, a utility that prevents other applications (mainly spyware) from making changes to your Internet Explorer settings. find.pcworld.com/42752

With its mascot Scotty the Windows Watchdog on guard, **WinPatrol 7** can alert you when a spyware program tries to set itself to start up alongside Windows (or when other apps, like QuickTime or RealPlayer, try to do the same), giving you another weapon in the war against annoyances. find.pcworld.com/42756



EVEREST provides technical data about almost every aspect of your PC's hardware.

WHERE TO FIND...

Freeware to Fill Up Your PDA

PDA SOFTWARE sites offer a mix of freeware, shareware, and commercial software in their lineups. To unearth the free stuff, typically you can browse categories of software and sort the list by price; on some sites, you'll find a navigation link that whisks you straight to the freeware.

PalmGear.com (www.palmgear.com): This is by far the most comprehensive software download site for handhelds that run the PalmOS. Its StreamLync2 freeware tool lets you click a special link that automatically downloads the file and then installs it onto your Palm (when the PDA is connected, of course).

FreewarePalm and FreewarePPC (www.freewarepalm.com and www.freewareppc.com): These related sites offer 24 categories of PalmOS and Pocket PC/Windows Mobile PDA freeware. You won't find a tremendous variety of software here, but the stripped-down interface will appeal to the utilitarian downloader.

Tucows (pda.tucows.com): This PC-ware download site has a library for handhelds, including PDAs based on the PalmOS, Pocket PC/Windows Mobile (sometimes referred to on the site by its original name, Windows CE), EPOC 32, and the RIM BlackBerry OS. Sort on the License column to find the freeware.



Work Smarter

Light-on-the-Wallet Office Apps

MICROSOFT OFFICE SURE ain't cheap these days. But an open-source alternative, **OpenOffice**, may surprise you with its remarkably full lineup of features (though you must register to download). Take a look at OpenOffice, especially if you don't use every last feature in Excel and you aren't intimidated by a new interface. find.pcworld.com/42772

If you like Notepad as an alternative to Microsoft Word but find yourself wishing for a bit more, consider **Notetab Light**, a free text editor that handles basic documents and HTML editing tasks with aplomb. find.pcworld.com/42774

Do you constantly copy text from Web pages? **PureText 2** handily gets rid of formatting, HTML code, and any other stuff

you don't need as you copy text to the Clipboard and paste it into other documents. find.pcworld.com/42776

Design mavens like **1st Page 2000** because it's an HTML editor that anyone from beginners to experts can pick up and use almost immediately. If you liked the no-longer-available Allaire Homesite software, give this cool site-building tool a shot. find.pcworld.com/42806

AceMoney Lite 3.4.4 can manage your finances without lowering your net worth. It tracks spending, investments, and bills, and it provides various reporting options. find.pcworld.com/42790

Manage Personal Information

DON'T WANT TO USE a full-blown personal information management program? **KeyNote** is designed to organize freeflowing information, such as to-do items, diary entries, recipes, or project notes. find.pcworld.com/42778

Visual types will like **ATnotes**, a utility that lets you drag and drop reminders that resemble sticky notes around your

Download **freeware** to your Palm™ handheld.

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Database	
Education	
Financial	

Size: 19 KB
Date: August 6, 2002
Type: Freeware
Min. Requirement:
• Any hardware
• Palm v3.0
Download:
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WINDOW SHOPPING for freeware is a breeze at FreewarePalm.

PDA Archives (www.pdaarchives.com): Have an older PalmPilot, a Windows CE handheld, a Psion, or even an Apple Newton PDA? If you do, you probably have trouble locating software that will run on these bygone platforms. PDA Archives still has software that runs on older PDAs—cool stuff you can no longer dig up anywhere else.

Handango (www.handango.com): There's no easy way to find all the freeware on this site (and some categories don't list any freeware), but an advanced search will bring up a category of downloads for a particular operating system: Besides Palm and Pocket PC/Windows Mobile, Handango offers downloads for handhelds running the BlackBerry, Symbian, Java, and Windows Mobile Smartphone operating systems. You can then sort the downloads by price to find the free stuff.

—Andrew Brandt

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- SSI (Server side includes)
- SSL Secure Server
- Optional Dedicated SSL Certificate
- Hosted on 1&1 Linux platform

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- In2site Live Dialogue
- 1&1 Newsletter Tool
- 1&1 WebElements

SITE-BUILDING TOOLS

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- 1&1 WebDatabase
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- Cron Jobs

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- Handling of unlimited domain names
- DNS Management
- Point 100 external domains to 1&1
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- SSH Secure Shell Access
- SSI (Server side includes)
- SSL Secure Server
- Includes Dedicated SSL Certificate
- Server priority
- Hosted on 1&1 Linux platform

MARKETING TOOLS

- 1&1 Chat - 10 channels
- 1&1 WebStatistics
- In2site Live Dialogue
- 1&1 Newsletter Tool
- 1&1 WebElements

SITE-BUILDING TOOLS

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- Full version software worth \$550
- FrontPage 2002 extensions
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- 1&1 WebMail
- Virus scanner for 6 POP3 accounts

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screen. The program also allows you to set reminder alarms and search the text of your notes. find.pcworld.com/42780

Perfect Your Photos, Then Pack 'em In

LET'S SAY YOU'RE NOT terribly artsy, you don't want to drop a bundle on Adobe Photoshop—and you don't need all its options, anyway. You're not alone. **Irfan-View**, a compact but powerful image editor, lets you examine and modify pictures and other graphics, and play around with creative effects. The program supports all of the major image file formats. find.pcworld.com/42786

Otherwise known as "The GIMP," the **GNU Image Manipulation Program** is a veteran open-source software application. Use it to do simple paintbrush jobs, create and work with complex images, or fix photos. The latest version has an elegant interface and an array of available plug-ins for creating animation and performing other tricks. find.pcworld.com/42788

ZipCentral, a smart compression program, could be your one-stop shop for dealing with .zip files. It interacts well with files from other zipping utilities and provides plenty of management options; the interface and options are easy to understand, too. find.pcworld.com/42784

WHERE TO FIND...

The Best Linux Software

WINDOWS USERS KNOW you can find plenty of free software—often scattered around the Web. But if you're just getting started using Linux (or considering it), you might not realize how easy it is to find software applications that you can freely copy, share, and even modify. In fact, for Linux users the concept of freeware is (usually) irrelevant—virtually everything you might want is free.

Linux users don't often need to hunt for downloads on the Web. Many distributions sold in stores include multiple CDs or DVDs packed with thousands of free applications: image editors, word processors, Web site builders, sound editors, silly desktop games—you name it. Each distribution has its own package management tools, which act as a sort of supercharged version of Windows' Add/Remove Programs control panel applet: The tools can copy the files from the right installation CD (or from the Web), and install



Play Hard

Handy Audio/Video Tools

ROCK ON! **AnalogX's** 30 different Audio Plug-ins and utilities can enhance and organize your audio files. The offerings include one that adds DJ-style scratch effects (find.pcworld.com/42794) and another that helps you fix ID3 tags on your MP3 files (find.pcworld.com/42796). You'll uncover many more such tools at find.pcworld.com/42792

The **Quintessential Player**, which requires registration to download, plays virtually any kind of audio or video media file. To expand its abilities, you will need to download one or more free plug-ins (for example, to create a media library); fortunately, the site makes these plug-ins easy to locate. find.pcworld.com/42800

Other companies should take a music lesson from Apple. The **iTunes** media player's terrific interface makes it a joy to use even if you never buy a 99-cent song. The newest software can convert WMA files and includes MP3 ripping capability. find.pcworld.com/42802

When it comes to MP3 file size, less is indeed more. **Mp3Trim 1.90a** can eliminate long gaps in MP3 files, reducing file size, and can handle some editing tricks like adding fade-ins and fade-outs to the beginnings and ends of songs. find.pcworld.com/42804

DVD Shrink isn't the same kind of shrink Tony Soprano visits. This DVD utility (registration required) lets you make a backup of a disc onto your PC's hard drive. find.pcworld.com/42798

Final Fun

PERSONALIZED PHOTO GIFTS (T-shirts, calendars, and the like) don't have to be pricey. With **HP photo tools and templates**, you can print such items (even if your printer is not a Hewlett-Packard model). find.pcworld.com/42808

As those of us from Boston will tell you, there is no such thing as too much baseball. Keep up with the latest in any sport through **ESPN BottomLine**, a toolbar that displays live scores and breaking news on the Windows desktop. Drag it anywhere you want on your screen, and customize your preferences to get only the sports you want. find.pcworld.com/42810 ■

Laurianne McLaughlin is a freelance writer who lives in Boston.

MythTV 0.15 (Default)

by [Eugene Richards](#) Top (44) 3.9 7119/2002/03/08/00000000

About:

MythTV is a project aiming to create a homebrew set-top box. The end goal is to have a nice interface for watching TV, recording shows, listening to music, etc., all displayed on a TV and controlled by a remote.

Release focus: Major feature enhancements

GOT MEAT? You can find virtually any Linux application you might need or want at the freshmeat.net download site.

the application so that it's customized to work with your flavor of Linux. And of course the package management tools are free.

Where on the Web can you find the very latest version of your favorite Linux app? It's pretty much one-stop shopping: **Freshmeat.net** contains a page for just about every free and open-source project that exists. And if you're into eye candy, the Themes section of the site gives you plenty of options for giving your desktop a makeover. You might run across other Linux download sites, but none as up-to-date as freshmeat.net. —Matthew Newton

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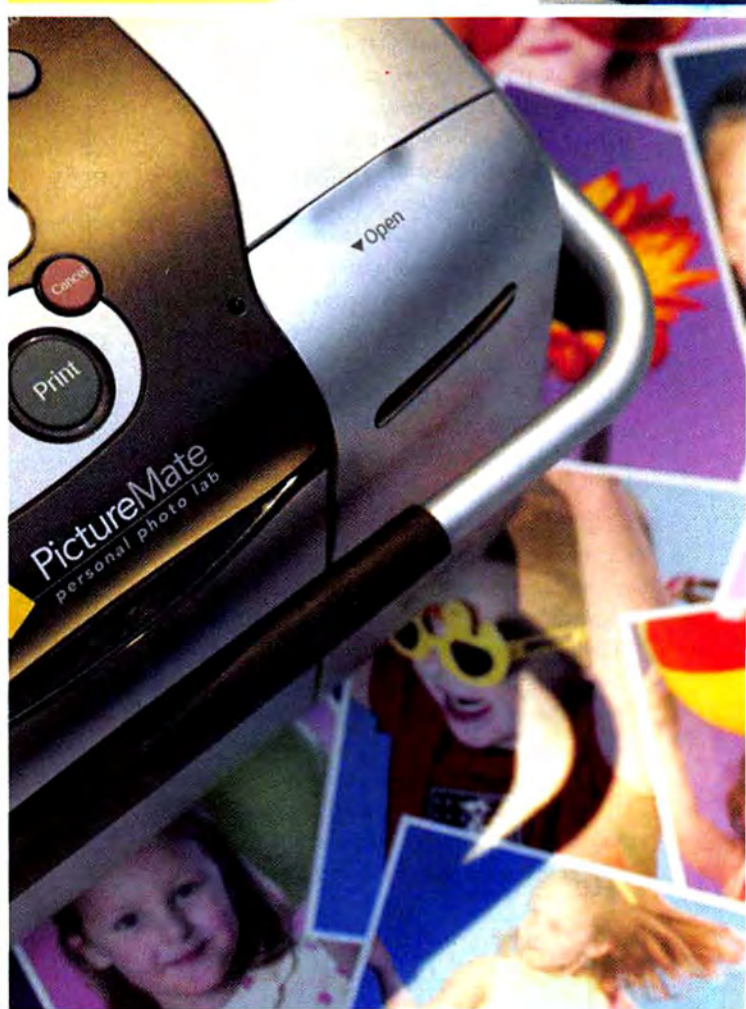
Printers for Every Purpose

Different inkjets for different folks: We evaluate 15 models for quality, speed, and ink costs, from snapshot specialists to office workhorses.

BY DAN LITTMAN

INKJET PRINTERS HAVE EVOLVED: Though all-purpose models are still going strong, newer types now fill specialized niches and do particular tasks well. For this story, in addition to examining general-purpose and photo-optimized inkjets—which we review regularly in the *Top 100*—we looked at a handful of very small mobile printers that are designed to be taken on the road, as well as at snapshot printers built to churn out photo prints no larger than 4 by 6 inches. In each category we evaluated the printers' speed, print quality, features, and ink costs to help you find your perfect match. ►

PHOTOGRAPHS BY TREVOR PEARSON



General-Purpose Printers

IF YOU PRINT DOCUMENTS, drawings, and Web pages as often as you print photos, a garden-variety inkjet printer is for you. But don't feel like you're compromising on print quality by going general-purpose: Some of the models in this category produced great-looking photographs in addition to fine text. They tend to be fast at generating text pages and less speedy at printing glossy photos. On the whole, their ink costs for color graphics are lower than those of photo printers, too.

EDITOR'S PICK: Snappy print speeds, separate black inks for text and graphics, and fine print quality make the Canon i860 the best all-around choice.

Canon i455 Desktop Photo Printer

THOUGH "PHOTO PRINTER" is part of its name, we group Canon's \$80 i455 with general-purpose printers, for two reasons: First, it uses four inks, rather than the six or seven that most photo printers employ. Second, it does a fine job with text and plain-paper graphics, as well as with photos. In PC World's photo printing tests, the i455 printed top-quality glossies in both gray scale and color. The gray-scale photos showed good detail and smooth shading, and the superbly detailed color photos possessed natural-looking textures and colors.

The i455 printed text at 5.3 pages per minute and produced crisp letterforms. It printed narrow parallel lines distinctly, a rarity among inkjet models. The i455's paper trays are unusually sturdy. On the downside, the i455 has no memory card slots, and no LCD. But it does have a port for connecting to a PictBridge-enabled camera.

UPSHOT: For very good all-purpose printing plus great photo output, the i455 is a bargain—as long as you don't need memory card slots.

Canon i860 Desktop Photo Printer

CANON'S i860 USES FIVE INKS: cyan, magenta, yellow, and two kinds of black—a photo black for graphics and a pigment-based black mostly for text. The dual blacks pay off: Letters look dark but very clean at big and small type sizes. The i860 holds all five ink tanks at once, and prints fine-looking glossy photos. Gray-scale prints showed sharp detail and realistic shading, and color glossies accurately reproduced colors and textures. The \$150 i860 is quick, too: It printed text at 6.8 ppm and color graphics on plain paper at 2.3 ppm.



GENERAL PURPOSE

Canon i455 Desktop Photo Printer: Bargain price, attractive photos.

Canon includes a cartridge for snapshot-size paper, and offers an \$80 duplexer option. The i860 forgoes media card slots in favor of a PictBridge port on the front; and the back has USB and parallel ports. On top of everything else, ink costs were low: 8.3 cents per page of color plus black.

UPSHOT: The i860 generates high-quality prints, but it lacks media card slots.

FEATURES COMPARISON

TEST Center THE INKJET SMORGASBORD:

YOU CAN'T SIMPLY CHOOSE A PRINTER by its type. Some garden-variety printers

GENERAL-PURPOSE PRINTER	Street price (6/10/04)	Print speed for text/color graphics (ppm)	Time to print photo ¹ (min:sec)
Canon i455 Desktop Photo Printer ★★★★★ find.pcworld.com/41812	\$80	5.3/0.9	4:00
Editor's PICK Canon i860 Desktop Photo Printer ★★★★★ find.pcworld.com/42502	\$150	6.8/2.3	3:41
HP Business Inkjet 2300 ★★★★★ find.pcworld.com/41822	\$499	5.4/2.2	4:48
HP Deskjet 9650 ★★★★★ find.pcworld.com/42506	\$399	4.1/0.9	3:35
Lexmark Z816 Color Jetprinter ★★★★★ find.pcworld.com/42504	\$100	6.9/0.9	6:40
MOBILE PRINTER			
Canon i80 Color Bubble Jet Printer ★★★★★ find.pcworld.com/42500	\$249	5.7/1.0	3:31
Editor's PICK HP Deskjet 450wbt ★★★★★ find.pcworld.com/41820	\$349	3.8/0.8	4:26
PHOTO PRINTER			
Canon i960 Photo Printer ★★★★★ find.pcworld.com/40490	\$195	2.5/1.4	1:11
Editor's PICK Canon i9900 Photo Printer ★★★★★ find.pcworld.com/42494	\$480	3.1/1.4	1:01
Epson Stylus Photo R200 ★★★★★ find.pcworld.com/42498	\$99	2.0/1.6	2:20
Epson Stylus Photo R800 ★★★★★ find.pcworld.com/42496	\$399	2.1/1.8	2:31
HP Photosmart 7760 ★★★★★ find.pcworld.com/40487	\$200	4.6/1.4	2:36
SNAPSHOT PRINTER			
Canon Compact Photo Printer CP-330 ★★★★★ find.pcworld.com/42488	\$269	n/a	1:45 ²
Editor's PICK Epson PictureMate ★★★★★ find.pcworld.com/42490	\$199	n/a	2:22 ²
Sony Digital Photo Printer DPP-EX50 ★★★★★ find.pcworld.com/42492	\$180	n/a	1:29 ²

n/a = Not applicable. **HOW WE TEST:** Data based on tests designed and conducted by the PC World Test Center. **FOOTNOTES:** ¹ Photo printed at 5 by 7 inches, at best-quality settings, on photo paper. ² Optional photo inks used when offered. ³ Page yield tests designed and conducted by the Rochester Institute of Technology.

HP Business Inkjet 2300

THE HP BUSINESS INKJET 2300 is tailored for office use, with a paper capacity of 400 sheets and workgroup-oriented options, but it can't keep up with the low-cost color laser printers that it competes with in price.

Its graphics speeds were fairly impressive, but its print quality was less so. The printer tore through



Editor's PICK GENERAL PURPOSE

Canon iB60: Fast speeds, high quality, low price.

graphics at 2.2 ppm—significantly faster than the 1.4-ppm average for this group. Text speed was close to the average, at 5.4 ppm, but about 1.5 ppm slower than the speed of two other general-purpose printers in this roundup.

The 2300 printed blacker, cleaner letterforms than most other inkjets we tested, but comparably priced color lasers we've evaluated produce ►

A VARIETY OF PRINTERS COMPARED

match the photo quality of photo printers, and some specialty models do everyday tasks surprisingly well.

Print quality for text/color graphics	Print quality for photos	Page yield with one set of ink cartridges ¹	Cost per set of ink cartridges ²	Features
Very good/ Very good	Outstanding	216	\$25.50	4800-by-1200-dpi maximum resolution; four-ink printing; legal maximum paper size; USB 2.0 and direct-print (for compatible cameras) ports; 100 sheets input, 50 output.
Very good/ Fair	Outstanding	639	\$62	4800-by-1200-dpi maximum resolution; five-ink printing; banner maximum paper size; USB 1.1 and direct-print (for compatible cameras) ports; 150 sheets input, 100 output.
Very good/ Good	Good	1780	\$136	4800-by-1200-dpi maximum resolution; four-ink printing; legal maximum paper size; USB 2.0, parallel, and ethernet ports; 400 sheets input, 100 output.
Good/ Very good	Outstanding	395	\$55	4800-by-1200-dpi maximum resolution; six-ink printing; 13-by-50-inch maximum paper size; USB 2.0 port; 150 sheets input, 75 output.
Fair/ Good	Very good	268	\$42	4800-by-1200-dpi maximum resolution; six-ink printing; banner maximum paper size; USB 2.0 port; 100 sheets input, 25 output.
Good/ Good	Very good	124	\$17	4800-by-1200-dpi maximum resolution; four-ink printing; banner maximum paper size; USB 2.0, infrared, and direct-print (for compatible cameras) ports; 30 sheets input, no output tray.
Good/ Very good	Outstanding	403	\$55	4800-by-1200-dpi maximum resolution; six-ink printing; legal maximum paper size; USB 2.0, infrared, and Bluetooth ports; 45 sheets input, no output tray.
Good/ Good	Outstanding	388	\$72	4800-by-1200-dpi maximum resolution; six-ink printing; letter maximum paper size; USB 1.1, USB 2.0, and direct-print (for compatible cameras) ports; 150 sheets input, 100 output.
Good/ Good	Outstanding	369	\$96	4800-by-2400-dpi maximum resolution; eight-ink printing; 13-by-19-inch maximum paper size; USB 1.1, USB 2.0, and direct-print (for compatible cameras) ports; 100 sheets input and output.
Fair/ Fair	Outstanding	524	\$79	5760-by-1440-dpi maximum resolution; six-ink printing; banner maximum paper size; two USB 1.1 ports; 120 sheets input, 30 output.
Very good/ Poor	Very good	517	\$107	5760-by-1440-dpi maximum resolution; seven-ink printing plus gloss cartridge; banner maximum paper size; USB 2.0 and FireWire ports; 100 sheets input, output tray not rated.
Good/ Fair	Outstanding	447	\$60	4800-by-1200-dpi maximum resolution; six-ink printing; legal maximum paper size; memory card slots; two USB 2.0 ports; 1.8-inch LCD; 120 sheets input, 50 output.
n/a	Very good	36*	\$20 ⁷	300-by-300-dpi maximum resolution; dye-sublimation ribbon; 4-by-8-inch maximum paper size; USB 1.1 and direct-print (for compatible cameras) ports; 18 sheets input, 18 output.
n/a	Outstanding	100*	\$29 ⁷	5760-by-1440-dpi maximum resolution; six-ink printing; 4-by-6-inch maximum paper size; memory card slots; USB 1.1 and direct-print (for compatible cameras) ports; 20 sheets input, output tray not rated.
n/a	Outstanding	25*	\$17 ⁷	403-by-403-dpi maximum resolution; dye-sublimation ribbon; 4-by-6-inch maximum paper size; memory card slots; USB 1.1 and direct-print (for compatible cameras) ports; 20 sheets input, no output tray.

For more details see "Ink Costs Compared: The Frugal and the Spendthrifts," page 96. ¹ Cost for complete set of cartridges; optional photo inks not included. ² Time to print is for 4-by-6-inch snapshot. ³ Number of sheets in package. ⁴ Price for set of ink and photo paper. Per-print cost can be calculated by dividing the price by the number of sheets in a pack.

similar output and print much faster. The 2300 printed our test document of narrow parallel lines better than most inkjets. The 2300's graphics and photos, however, were disappointing.

In our page yield tests, the 2300 turned in the lowest cost per page for black alone (2.1 cents) and for color plus black (7.7 cents).

UPSHOT: Though HP's Business Inkjet 2300 generates output quickly and is built for high-volume use, its print quality didn't impress us.

HP Deskjet 9650

PRICED AT \$399, the HP Deskjet 9650 has a wide carriage that can handle paper 13 inches across and up to 4 feet long—and its paper-feeding smarts don't stop there. The input tray holds 150 sheets of



GENERAL PURPOSE
HP Business Inkjet 2300:
Low ink costs, but so-so
graphics print quality.

paper, so you won't have to refill it constantly. A slot in the back draws in heavy stock and feeds it through the printer without bending it.

One inconvenience: You have to swap the 9650's black and photo cartridges, depending on what you're printing. The 9650 has neither a PictBridge port nor memory card slots.

In our page yield tests, printing plain black on the Deskjet 9650 cost a steep 5.1 cents per page (the average cost for general-purpose models in this review was 4.3 cents). For color plus black, this printer was among the most expensive models tested, at 13.8 cents per page.

The 9650 doesn't break any speed records: It printed text at an unimpressive 4.1 ppm, and generated graphics (not photos) at 0.9 ppm, a bit ▶

TEST RESULTS

Ink Costs Compared: The Frugal and the Spendthrifts

THE TEST: On behalf of *PC World*, the Imaging Products Laboratory at the Rochester Institute of Technology evaluated the ink-consumption rates for 12 of the printers reviewed here. The lab did not test the three snapshot printers because two of them aren't inkjets and because they use paper-and-ink kits designed to be consumed together. Each printer output a test document repeatedly until its cartridges failed due to low ink, or until the prints weren't acceptable. We calculated cost per page by dividing the cost of each four-ink cartridge by the number of pages it printed, and then adding the results together. In the test document, a printed page was equivalent to covering 5 percent of the page with each ink—cyan, magenta, yellow, and black.

Our assumptions about ink coverage are similar to those that many printer manufacturers use when calculating the page yield of their ink cartridges. Though most of the printers in this comparison have six or more inks, four inks was the highest number all 12 printers had in common, so we excluded the additional inks.

WHAT WE FOUND: In this group of 12 printers, general-purpose models that had individual ink cartridges posted the lowest ink costs. Canon's i860 is

one of the models that use individual cartridges; it had a total cost per page of 8.3 cents for black and color. Among models equipped with a tricolor cartridge, the lowest total cost per page was 11.2 cents, managed by the Canon i455. —Eric Butterfield

PAGE-YIELD TEST

THE PRICE OF PRINTING

INDIVIDUAL INK TANKS tend to have lower costs per page than tricolor cartridges.

PRINTER	Cost per black page	Cost per three-color (CMY) page	Total cost per four-color (CMYK) page	Total number of inks	Ink cartridge configuration
GENERAL-PURPOSE PRINTER					
Canon i455 Desktop Photo Printer	3.9 cents	7.3 cents	11.2 cents	Four	Tricolor plus black
Canon i860 Desktop Photo Printer	2.7 cents	5.6 cents	8.3 cents	Five	Individual tanks for each
HP Business Inkjet 2300	2.1 cents	5.6 cents	7.7 cents	Four	Individual tanks for each
HP Deskjet 9650	5.1 cents	8.7 cents	13.8 cents	Six	Tricolor plus black or photo
Lexmark Z816 Color Jetprinter ¹	7.7 cents	8.1 cents	15.8 cents	Six	Tricolor plus black or photo
MOBILE PRINTER					
Canon i80 Color Bubble Jet Printer	5.3 cents	8.1 cents	13.4 cents	Four	Tricolor plus black
HP Deskjet 450wbt	5.1 cents	8.5 cents	13.6 cents	Six	Tricolor plus black or photo
PHOTO PRINTER					
Canon i960 Photo Printer	3.1 cents	9.3 cents	12.4 cents	Six	Individual tanks for each
Canon i9900 Photo Printer	3.3 cents	9.6 cents	12.9 cents	Eight	Individual tanks for each
Epson Stylus Photo R200	3.3 cents	7.1 cents	10.4 cents	Six	Individual tanks for each
Epson Stylus Photo R800	2.8 cents	8.3 cents	11.1 cents	Seven	Individual tanks for each
HP Photosmart 7760	4.2 cents	8.3 cents	12.5 cents	Six	Tricolor plus black or photo

FOOTNOTE: ¹ Lexmark page costs calculated using Lexmark's standard-capacity ink cartridges. Its high-capacity cartridges have lower per-page costs. **CHART NOTES:** Page-yield tests designed and conducted by the Rochester Institute of Technology. Both black and color figures are derived from a test document containing four solid blocks, each covering 5 percent of a letter-size page. Lowest cost per page for each printer type is noted in bold.

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below average for this group. On plain paper, text looked black and clean in headlines but a little choppy in smaller type sizes—a state of affairs that better-quality inkjet paper didn't significantly improve. Color prints on plain paper showed sharp detail and relatively good color. With photo inks on glossy paper, the 9650's prints of gray-scale photos exhibited uncanny depth despite having a somewhat scratchy texture, and color photos came out in sharp focus with realistic colors, though some detail disappeared in shadow areas.

UPSHOT: The wide-format Deskjet 9650 delivers consistently good print quality on many kinds of documents. This printer is no speed demon, however, and its cost-per-page numbers are quite high.



GENERAL PURPOSE
HP Deskjet 9650: High ink costs, but big prints and great photos.



GENERAL PURPOSE
Lexmark Z816: Fast at text, but ink is costly and print quality is mediocre.

Z816's text showed a slight sawtooth pattern along the edges of letters at all type sizes. Color graphics had a somewhat muted, foggy look, but with reasonably attractive detail and lighting. (When we used better-quality inkjet paper, color quality improved a lot, but text quality didn't change much.) Color glossies were the Z816's strong suit, with fine detail, smooth shading, and vibrant colors.

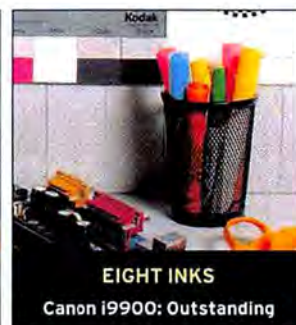
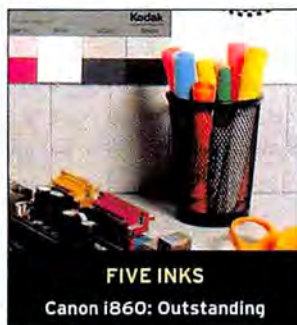
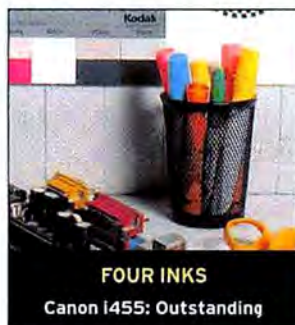
Like its predecessors, the Z816 uses three ink cartridges—containing black, standard three-color, and photo inks—but it holds only two at a time. As a result, you sometimes have to swap cartridges to match your print job. Using Lexmark's standard-capacity cartridges, the Z816 racked up the highest per-page ink costs of any printer we reviewed: 7.7 cents for black alone and a total cost of 15.8 cents for combined black and color.

Lexmark's high-capacity cartridges made prints significantly less expensive in the same tests.

UPSHOT: The Z816 lags behind other printers in output quality and has a steep cost per page, but it prints text fast and the unit itself is inexpensive. ▶

PRINT QUALITY

Printing Pretty Pictures: You May Not Need Many Inks



DO MORE INK CARTRIDGES mean better photographs? You might assume so, based on the trend among higher-end photo printers toward as many as eight individual ink cartridges. But in the photos we printed and examined, that expectation didn't always hold true. The now-common six-ink print engines are designed to prevent dottiness in light areas by adding light cyan and light magenta inks to the standard four: cyan, magenta, yellow, and black. We tested two printers that use two extra inks to help reproduce hard-to-match colors. Canon's i9900 Photo Printer supplements light cyan and light magenta with red and green, while Epson's Stylus Photo R800 adds red and blue but drops the light cyan and light

magenta in favor of a second black and a gloss optimizer cartridge.

But unless you're very sensitive to color accuracy and saturation, you may not need such a sophisticated ink system to produce prints that you'll be happy with. The Canon i9900 and the Epson R800 offer richer, warmer-looking prints than most inkjets, but popping the optional photo cartridge into one general-purpose printer—the HP Deskjet 9650—produced spectacular results as well: The Deskjet 9650 earned marks of Outstanding for both its color and its gray-scale glossies. Even the mobile HP Deskjet 450wbt, despite its small size, printed color photos that our picture quality evaluators rated as Outstanding.

— Dan Littman

Mobile Printers

IF YOU SPEND LITTLE TIME behind a desk but have to print often, a tiny portable printer might be the tool you need. Both models we tested are lightweight and fold up to about the size of a textbook. They can communicate via Bluetooth wireless, and can run on batteries or plug into your car's power adapter. Both incurred higher ink costs than the average desktop inkjet, by a couple of cents per page. Of the two models we evaluated, the HP Deskjet 450wbt generated more-attractive color graphics, whereas Canon's i80 printed crisper line art. The Canon model printed more quickly across the board.

EDITOR'S PICK: Despite its slower performance, HP's Deskjet 450wbt is our portable pick for its richer features and superior print quality.

Canon i80 Color Bubble Jet Printer

CANON'S DIMINUTIVE i80 is the smallest mobile printer we've seen in quite a while, and the least expensive—until you add a rechargeable battery (\$100) or Bluetooth adapter (\$80). We marveled at the i80's compact design: The upper half of the shell flips open to become a 30-sheet paper tray. The configuration that we tested weighs 4 pounds, plus 10 ounces for the AC adapter. The i80's snap-on battery and charging kit adds 1.5 pounds. The optional car charger costs \$90. Canon estimates that a fully charged battery will last for 450 pages.

Black pages printed on the i80 cost 5.3 cents per page, and pages of color plus black cost 13.4 cents. The i80 printed text at a creditable 5.7 ppm. Its text looked strongly black, though a bit of splatter showed on large type. Color photos looked almost as good as those printed by photo printers, marred only by a slightly reddish cast.

UPSHOT: The i80 makes a good traveling companion, but we think that Canon should have included the battery in the package.

HP Deskjet 450wbt

IF YOU HAVE TO PRINT while you travel, you won't find a better printer than HP's \$349 Deskjet 450wbt. The 450wbt runs on battery or AC power, and it weighs less than 5 pounds with its ink cartridges installed and its lithium ion battery attached. When closed, it is easy to carry. The tray holds 45 sheets. The model we tested came with Bluetooth installed; but the base model carries USB



MOBILE

Canon i80 Bubble Jet: Impressive performance and print quality for a portable printer.



MOBILE

Editor's PICK **HP Deskjet 450wbt:** Graphics quality on a par with that of the best desktop printers.



PHOTO

Canon i960: Basic features, but quick to print great photos.

2.0, parallel, and infrared ports, for \$100 less.

The Deskjet 450wbt operated a bit more slowly than general-purpose inkjets. It printed text at 3.8 ppm, versus the test set average of 5.7 ppm. Text looked slightly grayish in places, but letters were well formed. It printed color graphics at 0.8 ppm. When we installed the optional \$25 photo ink cartridge, the 450wbt turned out great glossy photos in both gray scale and color. Color glossies, though somewhat oversaturated, reproduced detail nicely. On line art, however, the 450wbt fared poorly: Narrow parallel lines bled together.

The 450wbt holds only two ink cartridges at a time. To switch between documents and photos, you'll have to swap cartridges.

UPSHOT: The HP 450wbt makes printing high-quality graphics on the go extremely convenient.

Photo Printers

THE LATEST PHOTO PRINTERS have some interesting innovations. Two printers we tested use inks we hadn't seen before: On top of the usual cyan, magenta, yellow, and black (CMYK) inks, Canon's i9900 Photo Printer adds red and green, while Epson's Stylus Photo R800 adds red, blue, and a matte black. But the less expensive models—even the \$99 Epson Stylus Photo R200—printed equally stunning glossy photos in color and in gray scale.

EDITOR'S PICK: Wide paper capacity, amazing photo printing speed, and tremendous print quality make Canon's i9900 our top choice.

Canon i960 Photo Printer

THOUGH IT LACKS THE EXTRAS found on many other photo printers—such as a control panel, an LCD, and media slots—Canon's i960 provides a PictBridge port on its front panel along with two USB ports on the back, for sharing the printer without a network.

The i960's glossy photos showed superb detail and very realistic textures, though colors in several images were somewhat oversaturated; on plain paper, photos retained their detail but looked a little washed out. Text appeared solid black, with slightly choppy edges.

The \$195 i960 churned out photos in a pleasantly prompt 71 seconds. The printer's text speed, however, fell somewhat below par, at 2.5 pages per minute. The i960 employs six separate ink tanks,

which you can replace individually.

UPSHOT: If you're seeking a reasonably priced photo printer that can perform text duty, too, the i960 may be your best bet—assuming that you don't need media card slots or an LCD.

Canon i9900 Photo Printer

THE i9900 PHOTO PRINTER is the first Canon model to add red and green inks to its palette, enabling it to reproduce a broader range of colors in photos. The \$480 unit is also fast: It output our best-quality photo faster than any other printer we reviewed, in 61 seconds. The i9900 generated text at a respectable (but still unpleasantly slow) 3.1 ppm. At small font sizes, text showed some roughness, but color graphics on plain paper held surprisingly sharp detail. Photos on glossy paper looked fabulous: Gray-scale prints had lifelike shading; color prints looked intensely saturated, especially the reds and greens.

Mechanically, the i9900 is easy to use. The unit's wide carriage can accommodate 13-by-19-inch paper, though the glossy stock costs \$2.50 a sheet. In addition, ink costs for the i9900 were quite high: 12.9 cents per page of black and color.



PHOTO

Canon i9900:

Big prints and fast at photos, but high ink costs.



PHOTO

Epson Stylus Photo

R200: Low cost and

appealing photos, but

mediocre on plain paper.

The printer comes with USB 1.1 and USB 2.0 ports, as well as a Mac-only six-pin FireWire port on the back. Though the front of the i9900 lacks media slots and a control panel, it does have a PictBridge port.

UPSHOT: If you're serious about photo printing, this speedy model could be just what you need.

Epson Stylus Photo R200

EPSON'S STYLUS PHOTO R200 costs just \$99 but offers light photo cyan and light photo magenta inks to lessen graininess in photographs, plus the ability to print on optical discs.

Text looked a bit choppy throughout, and narrow parallel lines didn't print clearly. One test photo led to a problem that affected both the Epson R200 and its sibling, the Epson R800: While RGB-format files printed beautifully, a file in CMYK format sometimes printed out much too dark (CMYK is not typically used with PC printers, but most models we tested handle it without difficulty). We suspect that the source of this problem is the driver; Epson is investigating. Gray-scale photos on glossy paper had appealing depth, sharp focus, and realistic ▶

PLUG IN AND PRINT

The Pros and Cons of Printing Without a PC

WITH THE RIGHT printer and camera, you can bypass your PC. In informal tests with our snapshot printers, prints came out as fast when sent from a camera as when sent from a PC.

Make sure that your printer-camera combination will work well as a team. Most newer photo printers (and many general-purpose printers) can receive photos via a PictBridge port or through a slot that reads the camera's flash memory card. PictBridge ports (eight printers here have them) look like USB ports and use USB cables.



THE HP PHOTOSMART 7760 supports six media formats and can print directly from HP cameras.

PictBridge-supporting cameras are now widely available, and will work with PictBridge-supporting printers, regardless of brand.

MAKE IT EASY

FEWER PRINTERS come with memory card readers (only three models here have them). Be sure to choose a printer that reads your camera's card format. For example, the Sony DPP-EX50 reads only CompactFlash and Memory Stick cards. Using a card reader saves on battery life, since sending images from a camera taxes its battery (many cameras have an AC adapter for this purpose).

Some printers have controls so you can choose which images to print, and most recent cameras do, too, through the widely accepted digital print order form standard. DPOF encodes instructions on the camera's card, which the printer receives via PictBridge or via a card reader. But DPOF is often buried within camera menus, where it can be difficult to find and use. A printer equipped with a control panel and an LCD is more convenient to use. Best of all is an LCD that displays both menus and photos (the HP Photosmart 7760 has one). If the LCD shows only menus (like the one on Epson's PictureMate, for example), you can print an index sheet and enter the numbers assigned to each photo. — Dan Littman

lighting and reflections. Unfortunately, the R200's printing speeds were not terribly fast.

Printing on discs with the R200 is convenient: You don't have to rearrange the main paper tray, because the R200 has a separate tray for feeding a disc into the printer. The R200 comes with two USB 1.1 ports—one on the front and one on the back—but neither supports PictBridge, and you can't use either to share the printer between two computers.

UPSHOT: Photos generated on the R200 look wonderful and the \$99 price is right, but this is not a strong all-purpose printer.

Epson Stylus Photo R800

THE STYLUS PHOTO R800 ADDS red and blue to the standard color inks; but it omits light photo cyan and light photo magenta inks. Other cartridges supply photo black, matte black (for text), and a gloss overcoat. The matte black helped the R800 produce text that looked bold yet clean even at small sizes. While gray-scale photos exhibited punch that other printers' output lacked, they also showed precise detail and realistic shading.

Like other Epson inkjet units, the R800 made a mess of narrow parallel lines. And when we tried to print our CMYK-format test photo, we ran into the same problem with this model that we did with the R200: The photo sometimes printed too dark, and appeared severely underexposed. Even when it did print correctly, the image was a bit duller than when output from other printers in our test group. Images printed on the R800 in the more-common RGB format looked gorgeous.

The printer applies its gloss overcoat to photos in areas with light-colored ink, to prevent dull patches. Epson's driver allows you to turn the gloss cartridge on or off; *PC World's* panel of judges could detect no difference between prints that used the overcoat and those that did not.

The R800's print speeds were slow, similar to the R200's. The R800 can print on rolls of photo paper either 4 inches or 8.3 inches wide, and it has a tray for feeding CDs or DVDs through the paper path. The R800 doesn't have a control panel or a direct-to-camera port, but it does provide USB 2.0 and six-pin FireWire ports.

UPSHOT: If you plan on printing a lot of snapshots, you'll appreciate the R800's roll feeder; and as long as you stick with RGB files, the R800 will reward you with great-looking photo prints.



PHOTO

Epson Stylus Photo R800: Low ink costs and attractive photos; weak on plain paper.



PHOTO

HP Photosmart 7760: Top-notch photos, fast at text for a photo printer.



SNAPSHOT

Canon CP-330: Tiny, and offers many features, but a little pricey.

HP Photosmart 7760

THE 7760'S PHOTOS EARNED a rating of Outstanding, with fine detail, smooth textures, and accurate color. Gray-scale photos printed with HP's photo-gray ink conveyed remarkable contrast and realism. But if you print a wide range of materials, you'll have to swap cartridges fairly often. You'll also

pay a lot to get the complete set of inks: The printer comes with only the three-color and photo inks; the cartridge for ordinary black costs \$20 extra, and the gray cartridge is \$25 extra. The 7760's costs for four-color printing on plain paper, however, are competitive.

Like many photo-oriented inkjets, the 7760 does not deliver top quality on other kinds of print jobs. Black text on ordinary paper looked clean enough but somewhat grayish. On ordinary paper, color prints lost detail and colors seemed washed out. You'll find the 7760 fast enough at text, though, at 4.6 ppm. The unit also supports a duplex option.

UPSHOT: The 7760 prints terrific color and black-and-white photos, making it a good choice for users who don't mind swapping ink cartridges frequently.

Snapshot Printers

SNAPSHOT PRINTERS do only one thing—print gorgeous photos in small sizes—but they do it well. All are designed for travel: Epson's PictureMate sports a handle, and the Canon CP-330 can run on battery power. When you introduce a digital camera, though, individual differences emerge. Each model has its own scheme for printing directly from a camera. Only the Canon prints labels, but it lacks media card slots.

EDITOR'S PICK: For ease of use, low consumables costs, and stellar output, we give the snapshot nod to Epson's PictureMate.

Canon Compact Photo Printer CP-330

CANON'S SNAPSHOT PRINTER is so petite that it could almost fit in your back pocket.

Though its unique features impressed us, they come at a steep price. For starters, the CP-330 costs \$269, which is \$70 to \$89 more than the other two snapshot printers we tested for this roundup.

The CP-330 prints to three paper sizes—4-by-6-inch, 4-by-8-inch, and smaller prints the size of a credit card—as well as onto photo labels in two sizes: credit card and postage stamp. And speaking

of stamps, the back of Canon's 4-by-6 paper has an outline box for one, along with a line running down the middle, just like the markings on the backs of store-bought postcards.

A 36-sheet pack of 4-by-6-inch paper plus ink ribbon costs \$20, or about 56 cents a print; 4-by-8-inch prints cost about 83 cents each.

The CP-330 is compact; folded up, it's 6.5 inches wide, 5 inches deep, and 2 inches high. And it can operate on a battery, which Canon includes with the printer. (Canon says one battery charge is good for about 36 prints.) Together, the printer and battery weigh about 2.5 pounds. The CP-330 can communicate with a camera that supports PictBridge or Direct Print, but it has no memory card slots, and lacks a control panel. Canon's Windows driver includes a number of basic image editing controls—such as sliders for adjusting color levels—that other snapshot printers do not have. The CP-330 requires a separate paper cassette for each paper size.

The CP-330's prints had a somewhat earthy look but were still lovely. The unit printed a 4-by-6-inch photo in 1 minute and 45 seconds, 16 seconds slower than the Sony DPP-EX50 took.

UPSHOT: The CP-330 is a good choice if you want to print while on the road—as long as you're comfortable with your camera's menus.

Epson PictureMate

THE \$199 PICTUREMATE'S DESIGN suggests portability and recreation: It has a handle and looks like a small silver-and-black boom box. The PictureMate doesn't run on batteries, though you can buy an optional car adapter for \$50. It prints only on 4-by-6-inch paper, but you can have it make two wallet-size prints on one sheet.

Nonetheless, we found the PictureMate a pleasure to use. It has a USB 1.1 port—supporting a camera, an external CD writer, or a Bluetooth module (\$69)—and slots for most common memory cards. Navigating on-board menus with a four-way toggle button was easy, but the LCD isn't backlit.



Editor's PICK **SNAPSHOT**
Epson PictureMate: Fun and easy to use, with numerous features, though slow.



SNAPSHOT
Sony DPP-EX50: Fastest of the snapshot printers, and plugs into your TV.

Most snapshot printers use dye-sublimation technology, but the PictureMate is an inkjet, with a six-ink cartridge that includes Epson's new red and blue inks. Epson's 100-sheet packs of paper include ink and cost \$29, or 29 cents per print.

The PictureMate took fully 2 minutes and 22 seconds to print a photo from a PC—but in the resulting image, the colors looked bright and detail popped out in sharp focus.

UPSHOT: The PictureMate is a good fit if you want affordable, top-quality snapshots without fiddling with your camera.

Sony Digital Photo Printer DPP-EX50

LIKE OTHER SNAPSHOT PRINTERS, the \$180 Sony DPP-EX50 dye-sublimation printer can work without a PC. You can drive it from a PictBridge camera, and it has slots for Memory Stick and CompactFlash cards.

Despite the printer's control panel and backlit LCD, most people will want to connect the unit to a television before they attempt to print from a memory card. You don't have to use the TV if you set up a DPOF job on your camera. (See "The Pros and Cons of Printing Without a PC" on page 103 for more about DPOF.)

You connect the supplied cable to the TV, which will then display menus for selecting images to print. You can also convert images to gray scale, clean up red-eye, and more.

When the printer is hooked up to a PC, you'll probably want to use Sony's PictureGear software to edit images, because Sony's Windows driver lacks many common image adjustment options.

The DPP-EX50 can print to three sizes of paper: 4-by-6-inch, 3.5-by-5-inch, and 3.5-by-4-inch. Sony provides no consumables in the box; a 25-sheet pack of 4-by-6-inch paper with an ink ribbon costs \$17, which translates into about 68 cents per print.

The DPP-EX50 printed a 4-by-6-inch photo from a PC in a quick 89 seconds. The print showed very sharp detail and the luminous quality we expect from dye-sublimation prints, though it had an almost oversaturated look.

UPSHOT: The best match for the Sony DPP-EX50 would be people who want to view their pictures on a TV, or who plan to transmit DPOF print jobs directly from their digital camera. ■

Dan Littman is a contributing editor and Eric Butterfield is an associate editor for PC World.

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BY GREGG KEIZER

Busting the Biggest PC Myths

We expose the bad advice that wastes your time and money.



TRUE OR BOGUS?

Magnets can destroy your data...



Magnets zap your data.



FOR VENERABLE FLOPPIES, this statement holds true. We placed a 99-cent magnet on a 3.5-inch floppy for a few seconds. The magnet stuck to the disk and ruined its data.

Fortunately, most modern storage devices, such as SD and CompactFlash memory cards, are immune to magnetic fields. "There's nothing magnetic in flash memory, so [a magnet] won't do anything," says Bill Frank, executive director of the CompactFlash Association. "A magnet powerful enough to disturb the electrons in flash would be powerful enough to suck the iron out of your blood cells," says Frank.

The same goes for hard drives. The only magnets powerful

enough to scrub data from a drive platter are laboratory degaussers or those used by government agencies to wipe bits off media. "In the real world, people are not losing data from magnets," says Bill Rudock, a tech-support engineer with hard-drive maker Seagate. "In every disk," notes Rudock, "there's one heck of a magnet that swings the head."

Want to erase data from a hard drive you plan to toss? Don't bother with a magnet. Overwrite the data that is stored on the media instead. For flash, fill up the drive with anything, like pictures of your beloved dachshund. Unlike with magnetic media, from which experts can usually recover at least some overwritten data, once new data is written to flash media, the old data is gone forever. To overwrite the contents of a hard drive, try Eraser (find.pcworld.com/42842) from Heidi Computers.

EXPERT TESTIMONY

Using a cell phone on a plane interferes with the navigation and communications systems of the aircraft.



"I'VE NEVER EXPERIENCED a navigational problem that could be traced to a cell phone," says one veteran pilot who didn't want his identity revealed. "From everything I've read, cell phones and most avionics shouldn't conflict."

So why do flight attendants make you put away your gear before takeoffs and landings? "That's more for making sure [we] have people's attention and for [individual] safety," he says. "If I have to hit the brakes and abort a takeoff, I don't want a laptop flying across the cabin."

"If I have to hit the brakes and abort a takeoff, I don't want a laptop flying across the cabin."

—Veteran airline pilot

The Federal Aviation Administration, which regulates cell phone use in a plane, has a different view: "The concern is that cell phones would conflict with onboard avionics," says Paul Takemoto, the FAA's electronics guru.

Is there scientific proof that cell phones can make planes go haywire? Some. In 2003 the Civil Aviation Authority—the FAA of the United Kingdom—ran tests using simulated cell phone signals in a chamber (not in an actual aircraft) and found problems. In some cases, the compass froze, some instruments displayed errors, and audio communications were difficult to hear due to interference.

Until additional tests prove otherwise, Takemoto says, the FAA prefers to err on the side of caution.

If you don't 'stop' a USB device before unplugging it from a PC, you'll screw things up.



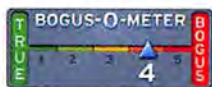
WHEN YOU UNPLUG a USB device without first "stopping" it in Windows (accomplished by clicking the *Remove Hardware* icon in the taskbar), your PC makes a *bing-bong* sound and usually pops up a message scolding you for the move or warning that what you just did can delete data saved on USB storage devices or damage hardware.

We're cautious about unplugging a device while it's still writing data (an action USB flash-drive makers always warn against) because doing so can cause major damage. Case in point: One *PC World* editor unplugged an external USB hard drive that was doing some activity in the background; he lost all his data and damaged the drive itself.

If you wait until the device stops writing data and then pull the drive out, you're unlikely to experience serious problems. Although Windows takes you to task for such rashness, even Microsoft downplays the peril. The company told us that any damage will "depend on the USB device, but in general [unplugging a USB peripheral] shouldn't affect the system."

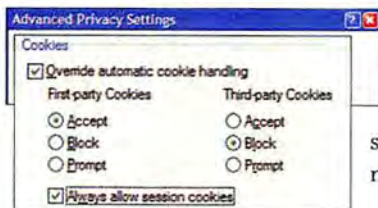
To see if the task has negative effects, we unplugged and plugged a bunch of USB devices, including a camera, a printer, a USB flash drive, and a scanner, without first "stopping" them in Windows. The only problem was Windows' failure to recognize our USB flash drive after we had unplugged it and then immediately plugged it in again. If that happens to you, wait a few seconds between unplugging and plugging. If that doesn't work, reboot Windows. And if that doesn't work, run the Add Hardware wizard from the Control Panel to make Windows "see" the USB device. For more on USB devices, visit USBMan (find.pcworld.com/42846).

Cookies track everything you do on the Internet.



WHEN COOKIES first appeared, some Web users got bent out of shape because they thought cookies would track their every move online. Wrong.

Sure, cookies can perform limited tracking when you're browsing Web pages. And some persistent cookies can trace your movements from site to site. For instance, cookies from DoubleClick, a company that feeds targeted Web ads to users,



track your surfing to any DoubleClick-enabled site to make sure that you don't see the same advertisement over and over.

But most cookies are far less intrusive. A cookie used by Amazon.com,

DISABLE cookies in your browser.

for example, to personalize the Web site for you doesn't pay any attention to what you do when you head to another shopping site such as Barnes and Noble.

If you're worried about cookies, turn them off in your browser (although doing so will render many sites virtually unsearchable). In IE, choose *Tools>Internet Options*, click the *Privacy* tab, and click *Advanced* to override automatic cookie handling (see the figure above). Also, consider opting out of DoubleClick's site-to-site cookie tracking at www.doubleclick.net.

Windows' Japanese edition uses haiku error messages.

WE HAVE A YEN for this legend, which claims that



rather than offering the cryptic error messages Windows displays for English readers, Japanese editions use calming haiku poems, such as this one (our favorite):

*Yesterday it worked.
Today it is not working.
Windows is like that.*

Sadly, such messages are fictional. The list of haiku messages circulating on the Internet is culled from a 1998

contest organized by Salon, an online magazine, which challenged readers to come up with error messages in haiku form. Salon received more than 200 entries from which it picked two winners:

*Three things are certain:
Death, taxes, and lost data.
Guess which has occurred.
and
Everything is gone;
Your life's work has been
destroyed.
Squeeze trigger (yes/no)?* ▶



Terrible things happen if you turn off your PC without shutting down Windows.



DON'T TOUCH THAT switch! According to Microsoft, if you turn off your PC without first shutting down Windows, your hard drive could become more fragmented, files could become corrupted, and you could lose data.

Maybe Microsoft's warning holds some water, but we wouldn't worry about straining the system or harming Windows. We ran 30 iterations of an informal test, turning off a pair of systems running Windows XP without first shutting down Windows. Each time we left documents open in Word, Outlook, and Quicken. And we left our Internet connection up and running.

After we turned each PC back on, we ran Symantec's Norton Disk Doctor and the Windows disk checker to see if the hard drive had suffered any ill effects. We reopened the applications that we had left running and reconnected to the Internet.

Problems? Disk Doctor found no disk errors, and our files were intact—at least up to the last time they were saved, but not always to the point of the last edit made. Outlook recovered without a glitch, and so did Quicken. (We didn't check disk fragmentation because some hard-drive experts told us that defragging today's faster, bigger drives has little to no effect on performance.)

If you're uneasy about just switching off the PC, change the Power Options settings. From the Control Panel, open *Power Options*, click the *Advanced* tab, and under 'Power buttons' select *Hibernate*. Now whenever you push the power button, Windows will save itself in its current state. Turn the computer on later, and Windows will pop up, just as you left it, in a lot less time than the system would take to boot.



Opting out of spam gets you even more spam.



YOU'VE HEARD THE advice. Don't reply to spam. If you do, you'll get even more because you've just told the spammer that your e-mail address is legit.

"No one has done a complete test of this because it's difficult, if not impossible, to prove beyond a doubt," says Ari Schwartz, associate director for the Center for Democracy & Technology. With spam accounting for as much as 83 percent of all Internet-delivered messages in the United States, he says, "if you do opt out and get more spam, how will you know you wouldn't have received it anyway?"

Sometimes opting out does work. Last year CDT researched spam sources by creating e-mail accounts, seeding them through various venues, noting the amount of spam that each account received, and opting out. Many companies complied with the opt-out requests within two weeks.

"Knowing who to opt out from is key," says Schwartz. "Opting out of legitimate companies drops you off their lists, but when you do that with 'real' spammers, the results are unclear."

Regardless of whether you opt out, spammers have various tools to grab addresses. You can't completely protect your inbox, but you can take defensive measures, such as keeping your e-mail address off public sites, says Schwartz.

If you're still looking for a good spam filter, try Cloudmark's SpamNet (find.pcworld.com/42010), or another program recommended in "Spam-Proof Your In-Box" (find.pcworld.com/42844).

EXPERT TESTIMONY

Hackers can destroy data on your computer's hard drive.



"THE MYDOOM.F WORM took a step back into an era where viruses actually attacked data," says Bryson Gordon, a senior manager with McAfee Security. Although viruses and worms that attack files are relatively uncommon, they are nightmare number one for anyone connected to the Internet.

Among other nefarious activities, MyDoom.f sniffed around on infected PCs looking for Word, Excel, and graphics files and then randomly deleted some of what it found. Of the people whose PCs got the worm, 40 percent lost Word files and 60 percent lost Excel files.

“Just like a biological virus, if a computer virus kills the host before it propagates, it can't propagate.”

—Allen Householder, an Internet security analyst with the U.S. Department of Homeland Security

Today's hackers want to hijack systems, not destroy them. Rather than wipe out data, worms and viruses want intact PCs to send spam or to attack Web sites. "Just like a biological virus, if a computer virus kills the host before it propagates, it can't propagate," says Allen Householder, an Internet security analyst with the U.S. Computer Emergency Response Team, which is now part of the Department of Homeland Security.

Turning off your PC daily to save power shortens its life.



HERE'S A topic that provokes debate. One side argues that turning the PC on and off stresses components. The other side says it's a good thing; even the best programs and the OS can get cranky without occasional shutdowns.

There's no definitive answer. Most authorities, however, lean toward the idea that shutting off does more good than harm—plus it saves power. Kevin Krewell, editor in chief of the *Microprocessor Report*, supports that side of the debate. "Processors typically have a ten-year life span," he says, so a PC will be dead weight before switching it on and off could affect the CPU.

Tip: If you're using Windows XP, right-click the desktop, choose *New>Shortcut*, type **shutdown -s -t 00**, click *Next*, give the shortcut a name (for example, **Shutdown**), and click *Finish*. Next time you need to shut down, click the shortcut icon. ▶

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(PowerPack and PDA software available separately.)



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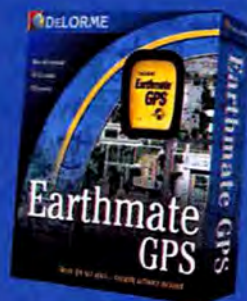


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The government reads everyone's e-mail.



OKAY, SO WE THOUGHT this myth was spawned by the same conspiracy theorists who gave us the Gunman on the

Grassy Knoll, the Illuminati, and Area 51. After all, how much time does the government really have on its hands?

"It's obviously a myth," says Marc Rotenberg, Georgetown University law professor and executive director of the Electronic Privacy Information Center. If a privacy watchdog doesn't buy the myth, no one should, right? Wrong.

"The government may not be reading everyone's e-mail now," he adds, "but that doesn't mean it's not interested in doing that in the future. In a few years, the government might be reading everyone's e-mail." Fortunately, we Americans have the Fourth Amendment. Government agencies—the FBI, the CIA, and the NSA—can't read your e-mail without probable cause, except under special circumstances related to espionage.

The Patriot Act allows the government to read all e-mail of a suspect and of all people who communicate with that suspect. But even privacy watchdogs like Rotenberg don't claim that everyone's e-mail gets the once-over yet.

In the end, conspiracy junkies may feel vindicated. "There are programs that can sort through mass amounts of e-mail, looking for suspicious keywords," says Ari Schwartz of the CDT. He says because intelligence agencies haven't been open about whether they are using such software, you can't rule out the possibility that the government is checking up on you.

If you're feeling uneasy, download an encryption utility such as PGP Freeware from find.pcworld.com/42848, and read "Products for the Paranoid" on page 123.

Saddam Hussein bought PlayStation 2 consoles to use in Iraq's weapons program.



BACK IN 2000, United Nations sanctions prohibited Hussein from obtaining computer hardware. According to reports from WorldNetDaily.com, he bought upwards of 4000 Sony PlayStation 2 consoles, intending to cobble together a crude supercomputer for calculating ballistic missile data, designing nuclear weapons, and controlling aerial drones.

This tale has all the hallmarks of an urban legend, including supposed leaked U.S. government documents, unnamed military sources, and a real kicker: Theoretically, Hussein snapped up so many gaming boxes that his spree created a PlayStation 2 shortage.

The only reason we give this fable any credence is the care with which the representative from the Defense Intelligence Agency chose his words when we called. "Yes, various agencies looked into it," he admitted, but he refused to divulge any findings. "If there were potential military applications for any technology, they would be of interest to us." Notice the "if."

DOS is dead.



MICROSOFT'S MS-DOS, introduced in 1981, has earned the computer equivalent of a senior citizen's discount.

But it ain't dead yet. According to research firm IDC, just over a million copies of DOS will be used at the end of this year, but that's down from 2.2 million in 2003.

IDC's best guess is that about 1000 new copies of all DOS flavors—MS-DOS, PC-DOS, and the rest—were installed last year. This year? Effectively zip. "There's still some life in it for real specific purposes," says IDC analyst Dan Kusnetzky, "but there's zero growth in usage."

If you look hard, though, you can spot DOS in the real world. We've peeked at screens that look decidedly DOS-like in hotels (running ancient reservations systems), restaurants, car repair shops, and dental offices. DOS's most frequent use these days is in embedded applications where the computer does a fixed set of functions. But even there, DOS is getting the boot in favor of Linux.

Microsoft doesn't sell DOS at stores, and there's no way to acquire a new license in the United States or in many other countries; DOS is sold only in India and Singapore, and only through computer builders. The closest equivalent to it is the MS-DOS-compatible FreeDOS, which is downloadable at find.pcworld.com/42850. Or bid for DOS on eBay. ▶

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ActivMedia Robotics, LLC

EXPERT TESTIMONY

Only a pricey surge protector can keep your devices safe.



"I DON'T SEE A direct relationship between the cost of a surge protector and the protection it provides," says

Joe Wilson, a senior electrical engineer with Eugene Water and Electric Board, the utility company that serves Eugene, Oregon. "Most surge protectors are based on the same sort of technology, and the response time

(how fast they switch on) is similar across the board.

"Often, the more expensive protectors add some simple bells and whistles, such as status lights to indicate that the device is working," says Wilson. "But that doesn't mean they're going to protect your computer any better."

Often, the more expensive protectors add some simple bells and whistles...but that doesn't mean they're going to protect your computer any better."

—Joe Wilson, a senior electrical engineer with Eugene Water and Electric Board

And don't get caught up in the *energy dissipation* (most often expressed in joules) and *response time* features that some surge

protectors tout, Wilson advises; they're not a reliable indication of quality. Instead, just make sure that the surge protector is UL 1449 rated, which means that it meets the Underwriter Laboratory's tested standard.

There's no question that surge protectors are necessary to protect sensitive computer gear from surges or spikes in the power supply. Although most of us think of outside surges and spikes as the prime suspects, homegrown problems, like those created by appliance motors cycling on and off (think fridge, washer and dryer, and air conditioner), are more common.

Surge-protected power strips won't protect your data during blackouts or brownouts, but an uninterruptible power supply will. UPSs include a battery for maintaining power and enabling you to save data before your PC shuts down. Newer UPSs have a software component that lets you automate backup and set up shutdown procedures. (For a review of UPSs, turn to page 140.) A brownout (flickering lights or a snap-off/snap-on of the power) won't trip a protector, but a lightning strike will.

Warning: The newer the microprocessor, the more susceptible it is to power spikes. The greater the number of transistors packed into a chip, the less tolerant it is of excess voltage, says Wilson. If you use an aging computer without a surge protector, it may survive a spike. A newer PC, on the other hand, will fry.

If you don't periodically run your laptop batteries down to zero, you'll lose battery life.



THIS BELIEF STEMS from a syndrome that plagued old-fashioned laptop batteries—the bulky nickel cadmium variety. With those batteries, performance degraded if the battery wasn't periodically discharged fully. (If you use a NiCd-powered laptop, discharge the battery every three months.)

Newer laptops use lithium ion batteries that have no memory, says Isidor Buchmann, the founder of Cadex, a Canadian manufacturer of battery chargers and analyzers. They don't need to be discharged to maintain their life, he says. Lithium ion batteries prefer a partial rather than a full discharge. Nonetheless, every 30 charges or so, you should run them down to zero. This measure isn't to preserve the battery but to recalibrate the fuel gauge—the indicator on the laptop screen that shows how much battery juice and time remain.

If you don't use an antistatic wrist strap while tinkering with a PC, you'll ruin hardware.



WE'VE ADVISED using antistatic wrist straps, but some technicians say they're unnecessary. "I've never worn

a strap, our shop's floor is carpeted, and I've never shocked out a machine," says Jake Strouckel, a computer repair tech. "I've even grabbed hard drives and gotten a shock, but nothing happened to the drive." Hold cards by their edges, instead of touching the gold-plated circuits, he says, and you'll be fine.

Not that there isn't some danger of frying electronics with static (the proper term is *net electric charge*). Though people don't detect a static charge of less than 3000 volts (by the way, it's amps that kill, not volts), sensitive components, such as a CPU, can be laid low with as little as a few hundred volts.

Advice for discharging built-up static ranges from the humorous-but-effective (put a metal sewing thimble over a finger, then touch the thimble to the metal object) to the ludicrous: Wrap aluminum foil over the soles of your shoes. We tried the foil method, and ended up falling on our you-know-what while trying to walk across carpet.

To be safe, wear a strap, or before you tinker inside a PC, ground yourself by touching the PC's frame with the cord plugged into a grounded outlet or by touching something metal that's grounded, such as a plumbing fixture.

Writer and PC mythbuster Gregg Keizer lives in Eugene, Oregon.

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\$2,299

ALL FEATURES LISTED.
(LX.A2506.001)

Acer® Aspire™ 2010

Cost-Effective Multimedia Portable

The sleek Acer Aspire 2010 comes packed with must-have features for work, study and play, including wireless connectivity. The 15.4" wide-screen LCD enhances productivity by revealing 30 percent more information on the display and makes movie-watching more enjoyable.



- Intel® Centrino™ Mobile Technology
- Intel® Pentium® M Processor 1.50GHz
- Intel® 855GME Chipset
- Intel® PRO/Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 512MB DDR333 SDRAM
- 15.4" WXGA (1280 x 800) TFT display
- 802.11b/g WLAN, 10/100 LAN, V.92 modem

Acer Aspire 2012WLMi

\$1,499

ALL FEATURES LISTED WITH INTEL® PENTIUM® M PROCESSOR 1.50GHz,
MICROSOFT® WINDOWS® XP PROFESSIONAL,
60GB* HARD DRIVE, DVD-DUAL DRIVE (DVD+/-RW),
4-IN-1 CARD READER AND ATI® MOBILITY™ RADEON™ 9700 GRAPHICS WITH 64MB DDR.
(LX.A2406.001)

Acer Aspire 2012WLCi

\$1,399

ALL FEATURES LISTED WITH INTEL® PENTIUM® M PROCESSOR 1.50GHz,
MICROSOFT® WINDOWS® XP PROFESSIONAL,
40GB* HARD DRIVE, CD-RW/DVD-ROM COMBO DRIVE AND
INTEL® EXTREME GRAPHICS 2 2
(LX.A2406.002)

Whether creating spreadsheets, word processing or searching the Web, users will see sharp detail and vivid images on a 17.0" LCD. Ideal for businesses of all sizes.

- 140° vertical viewing angle
- 2 x 1.0W integrated speakers
- Black or beige color

Acer AL1912

\$529



Acer AL1731

- 17.0" TFT LCD
- 1280 x 1024 native resolution
- 430:1 contrast ratio
- 160° horizontal viewing angle
- 130° vertical viewing angle
- 2 x 1.0W integrated speakers
- Silver/black color

Acer AL1731

\$439

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Acer® Aspire™ 1710

Desktop Performance in Mobile Form Factor

The Acer Aspire 1710 is a portable workstation that gives you desktop performance in a mobile form factor. It also boasts the latest features, including a powerful Intel® Pentium® 4 Processor, DVD-Dual drive and 802.11b/g wireless LAN.

Acer Aspire 1712SMi

\$1,999

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.00GHz, MICROSOFT® WINDOWS® XP PROFESSIONAL, (LX.A1506.003)

Acer Aspire 1712SMi-XPHome

\$1,899

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.00GHz, MICROSOFT® WINDOWS® XP HOME EDITION, (LX.A1505.099)

- Intel® Pentium® 4 Processor with Hyper-Threading Technology 3.0GHz
- Microsoft® Windows® XP Professional or Microsoft® Windows® XP Home Edition
- 1GB DDR333 SDRAM
- 120GB hard drive
- DVD-Dual drive (DVD+/-RW)
- 6-in-1 card reader
- 17.0" SXGA (1280 x 1024) TFT display
- Nvidia® GeForce™ FX Go5700 graphics, 128-bit memory interface
- 802.11b/g WLAN, 10/100 LAN, V.92 modem

Acer® Aspire™ 1660

Perfect Marriage of Style and Functionality

The Acer Aspire 1660 offers a 15.4" panoramic display, 802.11 b/g wireless connectivity and a host of other features in the new-look Acer Folio notebook design. The concept behind this design is the folio-portable, lightweight, simple but elegant. The Acer Aspire 1660 sports a unique textured surface, stylish metallic finish and sculptured curves as well as advanced multimedia functionality, all at a budget-pleasing price.

- Intel® Pentium® 4 Processor with Hyper-Threading Technology or Intel® Pentium® 4 Processor
- Microsoft® Windows® XP Professional
- 512MB DDR333 SDRAM

- 15.4" WXGA (1280 x 800) TFT display
- ATI® Mobility™ Radeon™ 9700 graphics, 64MB DDR
- 802.11b/g WLAN, 10/100 LAN, V.92 modem

Acer Aspire 1662WLMi

\$1,799

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.0GHz, MICROSOFT® WINDOWS® XP PROFESSIONAL, 60GB HARD DRIVE AND DVD-DUAL DRIVE (DVD+/-RW), (LX.A3006.002)

Acer Aspire 1661WLCi

\$1,499

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR 2.80GHz, MICROSOFT® WINDOWS® XP PROFESSIONAL, 40GB HARD DRIVE AND CD-RW/DVD-ROM COMBO DRIVE, (LX.A3006.001)



Acer 17.0" Flat Panel Displays

Whether creating spreadsheets, word processing or searching the Web, users will see sharp detail and vivid images on a 17.0" LCD. Ideal for businesses of all sizes.



Acer AL1715

- 17.0" TFT LCD
- 1280 x 1024 native resolution
- 450:1 contrast ratio
- 160° horizontal viewing angle
- 130° vertical viewing angle
- 2 x 1.0W integrated speakers
- Black or beige color

Acer AL1715

\$385



Acer AL1714

- 17.0" TFT LCD
- 1280 x 1024 native resolution
- 350:1 contrast ratio
- 160° horizontal viewing angle

Acer recommends Microsoft® Windows® XP Professional for Business.

Acer® TravelMate® 2500

Performance Plus Practicality

The Acer TravelMate 2500 combines practicality with first-class performance for small/home offices, small-to-medium businesses and government/educational institutions.



- Intel® Pentium® 4 Processor with Hyper-Threading Technology 3.00GHz
- Microsoft® Windows® XP Professional or Microsoft® Windows® XP Home Edition
- 512MB DDR333 SDRAM
- 40GB hard drive
- DVD-Dual drive (DVD+/-RW)
- 6-in-1 card reader
- 15.0" XGA (1024 x 768) TFT display
- ATI® Mobility™ Radeon™ 9000 graphics



Acer TravelMate 2502LM

\$1,299

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.00GHz, MICROSOFT® WINDOWS® XP HOME EDITION, 10/100 LAN AND V.92 MODEM. (LX.T4605.063)

Acer TravelMate 2502LMi

\$1,399

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.00GHz, MICROSOFT® WINDOWS® XP PROFESSIONAL, 802.11b/g WLAN, 10/100 LAN AND V.92 MODEM. (LX.T4606.081)

Acer® TravelMate® 2000

Must-Have Features, Modest Price

The Acer TravelMate 2000 has the productivity and multimedia tools you need, all in a stylish chassis and at a modest price.

- Intel® Celeron® Processor 2.60GHz
- Microsoft® Windows® XP Professional or Microsoft® Windows® XP Home Edition
- 256MB DDR333 SDRAM
- CD-RW/DVD-ROM combo drive
- 15.0" XGA (1024 x 768) TFT display
- ATI® Mobility™ Radeon™ 9000 graphics

Acer TravelMate 2001LC

\$999

ALL FEATURES LISTED WITH INTEL® CELERON® PROCESSOR 2.60GHz, MICROSOFT® WINDOWS® XP HOME EDITION, 30GB HARD DRIVE, 10/100 LAN AND V.92 MODEM. (LX.T4505.067)

Acer TravelMate 2001LCi

\$1,099

ALL FEATURES LISTED WITH INTEL® CELERON® PROCESSOR 2.60GHz, MICROSOFT® WINDOWS® XP PROFESSIONAL, 40GB HARD DRIVE, 802.11b/g WLAN, 10/100 LAN AND V.92 MODEM. (LX.T4506.046)



- 120° vertical viewing angle
- Black or beige color

Acer AL1714

\$375



Acer AL1711

- 17.0" TFT LCD
- 1280 x 1024 native resolution
- 450:1 contrast ratio
- 140° horizontal viewing angle
- 130° vertical viewing angle
- 2 x 1.5W integrated speakers
- Black or beige color

Acer AL1711

\$385

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Acer® Veriton® 7600GT Business Productivity Tool - Minitower



The Acer Veriton 7600GT minitower, with a deep-charcoal chassis, is a superb business productivity tool that includes a powerful processor, integrated graphics, management software and room for expansion. The one-touch recovery feature easily returns the PC to its original configuration.

- Intel® Pentium® 4 Processor with Hyper-Threading Technology or Intel® Pentium® 4 Processor
- Microsoft® Windows® XP Professional
- 512MB DDR400 SDRAM
- 1.44MB floppy drive
- Intel® Extreme Graphics®
- Gigabit LAN

Acer Veriton 7600GT-U-N3201

\$925

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.20GHZ, MICROSOFT® WINDOWS® XP PROFESSIONAL, 80GB¹ HARD DRIVE AND CD-RW DRIVE.

Acer Veriton 7600GT-U-N2800

\$745

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR 2.80GHZ, MICROSOFT® WINDOWS® XP PROFESSIONAL, 40GB¹ HARD DRIVE AND CD-ROM DRIVE.

Acer® Veriton® 5600GT Business Productivity Tool - Standard Desktop

The Acer Veriton 5600GT standard desktop offers the ultimate balance between space-saving design and expandability, all in a handsome deep-charcoal chassis.



- Intel® Pentium® 4 Processor with Hyper-Threading Technology or Intel® Pentium® 4 Processor
- Microsoft® Windows® XP Professional
- 512MB DDR400 SDRAM
- 1.44MB floppy drive
- Intel® Extreme Graphics 2
- Gigabit LAN

Acer Veriton 5600GT-U-N3200

\$925

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.20GHZ, MICROSOFT® WINDOWS® XP PROFESSIONAL, 80GB¹ HARD DRIVE AND CD-RW DRIVE.

Acer Veriton 5600GT-U-N2800

\$745

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR 2.80GHZ, MICROSOFT® WINDOWS® XP PROFESSIONAL, 40GB¹ HARD DRIVE AND CD-ROM DRIVE.

Acer 15.0" Flat Panel Displays

A 15.0" LCD is appropriate when both space and budget are limited. It's suitable for most business applications as well as home activities, such as Web surfing and e-mail.



Acer AL1512

- 15.0" TFT LCD
- 1024 x 768 native resolution
- 450:1 contrast ratio
- 120° horizontal viewing angle
- 110° vertical viewing angle
- 2 x 1.5W integrated speakers
- Black or beige color

Acer AL1512

\$319



Acer AL1511

- 15.0" TFT LCD
- 1024 x 768 native resolution
- 350:1 contrast ratio
- 140° horizontal viewing angle

Acer® Veriton® 3600GT

Business Productivity Tool - Compact Desktop

The compact form factor of the deep-charcoal Acer Veriton 3600GT makes it the perfect desktop solution when space is at a premium.



- Intel® Pentium® 4 Processor with Hyper-Threading Technology or Intel® Pentium® 4 Processor
- Microsoft® Windows® XP Professional
- 512MB DDR400 SDRAM
- 1.44MB floppy drive
- Intel® Extreme Graphics 2
- Gigabit LAN



Acer Veriton 3600GT-U-N3200

\$925

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR WITH HYPER-THREADING TECHNOLOGY 3.20GHz, MICROSOFT® WINDOWS® XP PROFESSIONAL, 80GB¹ HARD DRIVE AND CD-RW DRIVE.

Acer Veriton 3600GT-U-N2800

\$745

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR 2.80GHz, MICROSOFT® WINDOWS® XP PROFESSIONAL, 40GB¹ HARD DRIVE AND CD-ROM DRIVE.

Acer® Power™ F2

All-Around Budget Performer

Proven technology, high-level reliability and expansion options help to make the AcerPower F2 minitower a sound investment for home, school or office.

- Intel® Celeron® Processor 2.60GHz
- Microsoft® Windows® XP Professional
- 256MB DDR SDRAM
- 40GB¹ hard drive
- CD-ROM drive
- 1.44MB¹ floppy drive
- Intel® Extreme Graphics 2
- 10/100 LAN

AcerPower F2-U-C2600

\$439

ALL FEATURES LISTED WITH INTEL® CELERON® PROCESSOR 2.60GHz AND MICROSOFT® WINDOWS® XP PROFESSIONAL.

AcerPower F2-U-N2600

\$529

ALL FEATURES LISTED WITH INTEL® PENTIUM® 4 PROCESSOR 2.60GHz AND MICROSOFT® WINDOWS® XP PROFESSIONAL.



Acer 17.0" CRT Monitor

A dependable CRT monitor is a great value for education, small business and home use, providing crisp text and graphics.

- 125° vertical viewing angle
- 2 x 1.5W integrated speakers
- Black or beige color

Acer AL1511b

\$315

Acer AC713

- 17.0" CRT
- 16.0" diagonal viewing area
- 1024 x 768 @ 85Hz recommended resolution
- 0.27mm dot pitch
- Black or beige color



Acer AC713

\$109

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Acer® TravelMate® 8000

Cutting-Edge Performance



MOBILE
TECHNOLOGY

The Acer TravelMate 8000 incorporates the high-end features today's business pros demand, including Intel® Centrino™ Mobile Technology and the latest wireless technology. See stunning graphics with 128MB on-chip memory on the 15.0" SXGA+ display. Use the integrated 4-in-1 card reader for your pick of optional storage solutions. All this in a notebook that weighs in at under 6.5 pounds.

Acer recommends Microsoft® Windows® XP Professional for Business.



- Intel® Centrino™ Mobile Technology
- Intel® Pentium® M Processor
- Intel® 855GME Chipset
- Intel® PRO/Wireless Network Connection 802.11b/g
- Microsoft® Windows® XP Professional
- 512MB DDR333 SDRAM
- Super MultiWrite Plus (DVD-RW, +RW, -RAM) drive
- 4-in-1 card reader
- 15.0" SXGA+ (1400 x 1050) TFT display
- ATI® Mobility™ Radeon™ 9700 graphics, 128MB DDR
- 802.11b/g WLAN, Bluetooth™, Gigabit LAN, V.92 modem

Acer TravelMate 8006LMi

\$2,699

ALL FEATURES LISTED WITH INTEL® PENTIUM® M PROCESSOR 755
(2.00GHz, 2MB L2 CACHE, 400MHz FSB),
MICROSOFT® WINDOWS® XP PROFESSIONAL
AND 80GB* HARD DRIVE.
(LX.T4206.092)

Acer TravelMate 8003LMi

\$2,299

ALL FEATURES LISTED WITH INTEL® PENTIUM® M PROCESSOR 1.60GHz
(1MB L2 CACHE, 400MHz FSB),
MICROSOFT® WINDOWS® XP PROFESSIONAL
AND 60GB* HARD DRIVE.
(LX.T4206.028)

Acer Notebook/Tablet Service Upgrades Protect Your Valuable Investment

Quality is built into every notebook and Tablet PC Acer makes, and each comes with a one-year standard limited warranty.¹ It includes 24/7 (excluding some holidays) hardware technical support via toll-free phone plus a concurrent International Traveler's Warranty for travel outside the U.S. and Canada. Extra protection is available with one of these upgrades:

2-Year Extension of Limited Warranty (146.AB820.EX2)

\$99

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

2-Year Extension of Limited Warranty + 3-Year Total Protection Upgrade (146.AD077.002)

\$199

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

¹ When referring to storage capacity, GB stands for one billion bytes and MB stands for one million bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.

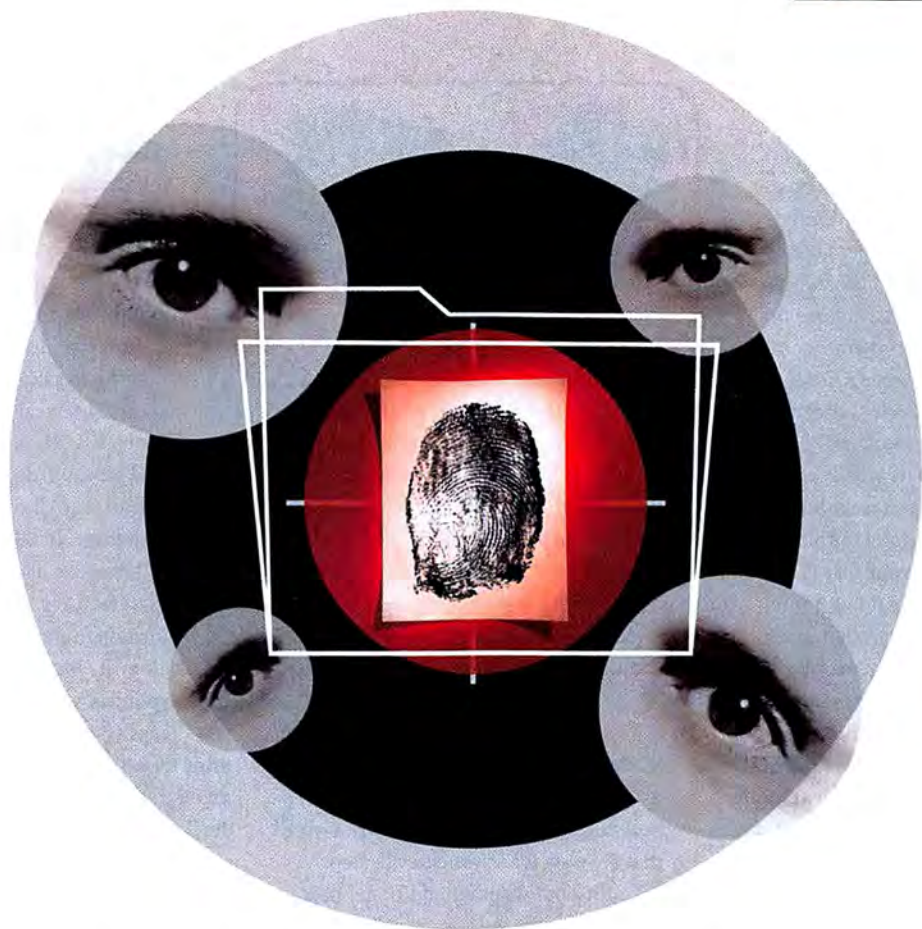
² For a free copy of the standard limited warranty end-users should see a reseller where Acer products are sold or write to Acer America Corporation, Warranty Department, P.O. Box 6137, Temple, TX 76503.

For further information, please call Acer visit our Web site:

800-571-2237

www.acer.com/us

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Products for the **Paranoid**

Fingerprint **scanners**, security **keys**, encryption **software**: Which tools should you use to keep sensitive data from prying eyes? ►

BY JEFF BERTOLUCCI

Last year's tax return. Sensitive personnel information from your boss. Your bank records. Aunt Emily's secret pumpkin pie recipe. There's a good chance that all these things, or things just as private, reside on your hard drive. And if your computer is like most people's, it's vulnerable to more than just hackers.

After all, if you leave your PC unguarded, the office busybody could take a peek while you're at lunch. An unscrupulous hotel employee could rifle through your files while you're on the road. And at home, you may have to worry about nosy houseguests exploring your hard drive—or the kids destroying all your data by mucking around with your machine. The endless possibilities are enough to make anyone paranoid.

Problem is, Windows isn't great at security. No Windows operating system requires you to use a log-on password. Windows 2000 and XP offer such an option, but many people don't use it. (If your XP



**Best
BUY**

APC BIOMETRIC PASSWORD Manager, our favorite fingerprint reader, is inexpensive, easy to configure, and reliable for log-on security. Griffin Technologies' SecuriKey Personal Edition offers you a very simple way to lock down your PC when you remove the USB key. And among encryption software, Steganos Security Suite 6 provides top-notch privacy tools while avoiding all-too-prevalent encryption-lingo gobbledegook.

machine is on a large network, you need to use a password.) Windows Me and 9x provide pitiful security, with passwords that are easy for anyone to sidestep.

To find out whether additional precautions are worth the cost, we tested 14 PC security products. We looked at a specific

class of products aimed at preventing unauthorized users from logging on to your PC and encrypting your files. In addition, some of the products remember log-on IDs and passwords for Web sites.

We tested hardware and software ranging in price from \$30 to \$280 across three categories: biometric devices, USB-based security keys and keyboards, and encryption software. (All of them work with Windows XP, 2000, Me, and 98.)

Biometric devices recognize human features as a password. They include fingerprint readers, as well as units with sensors to capture your iris, voice, or face to let you access your PC. We focus on finger-

print readers here because they are more mainstream and affordable than the other devices, which are typically reserved for specialized uses such as in high-security buildings. All of the fingerprint readers permit you to "enroll" prints from multiple fingers, helping ensure that the device

HANDS ON

GUMMI BEARS TRICK A FINGERPRINT SCANNER

HOW MANY GUMMI BEARS does it take to fool a fingerprint reader? (The answer to that question is "about three," according to my research.) It sounds like a joke, I know. But in the past, these sugary treats have been used successfully to fool some biometric devices into letting something other than a real finger log a user on to a PC. I wanted to find out whether I could use common substances (including gummi bears) to make replicas of my fingertips and trick biometric devices. In one test scenario, my experiment worked.

For this story, I cooked up all kinds of ways to test a couple of fingerprint readers and an iris recognition device. My tests were mostly rudimentary, but they proved that you can't depend on a certain type of biometric device to be 100 percent foolproof. Of course, determined intruders will have even more-sophisticated ways of breaking the security built into these devices.

For my unscientific tests, I used an IBM ThinkPad notebook with three biometric devices: DigitalPersona's fingerprint reader, the U.are.U 4000, which uses optical technology to take a picture of a fingertip when you press down on its sensor pad; Targus's Defcon Authenticator, a fingerprint reader whose capacitive sensor reads electrical currents across its surface; and Panasonic's iris recog-



ANDREW BRANDT, PC WORLD'S Privacy Watch columnist, tried to deceive (left to right) Targus's Defcon Authenticator, Panasonic's BM-ET1000US Authenticam, and DigitalPersona's U.are.U 4000.

nition system, the BM-ET1000US Authenticam (also known as the PrivateID), a specialized Webcam that takes a snapshot of your eye.

For the fingerprint reader tests, I used a forensic fingerprint kit produced by the Lynn Peavey Company to make a record of my fingerprint. I also made molds of six of my fingertips using ceramic clay, and I fired the molds in a kiln to harden them. After that, I shaped various soft household materials to create phony fingertips.

PHOTOGRAPHS: KEVIN CANDLAND

will recognize them when you log on.

We also tested keyboards that incorporate smart card readers, which verify personal data on credit card-size devices. You have to buy the smart cards separately; they cost \$8 and up per card. In addition, we looked at thumb-size security keys that connect to any USB port to unlock your PC. Finally, we checked out software that encrypts files and e-mail.

Which package is best for you? For office and home users, fingerprint readers are convenient and relatively inexpensive, with prices starting at \$50. Security keys, which also start at \$50, are more durable than fingerprint readers—they have no sensor to damage—and are best for traveling laptop users. (Overall, we weren't impressed with the security keyboards.) If you'd rather not invest in hardware, consider opting for encryption software (\$30 and up). Extreme privacy devotees might want to enlist both software and hardware security. A word of caution: Encryption programs can affect PC performance (see find.pcworld.com/42562 for details).

FINGERPRINT READERS

APC Biometric Password Manager

THIS \$50 BIOMETRIC fingerprint reader, half the size of a conventional mouse,



costs much less than the competition and is the easiest to configure and use. Equipped with a 6-foot cable that's long enough to slide around even the bulkiest workstation, it plugs into any USB port. The setup program



APC BIOMETRIC Password Manager.

steps you through enrollment—you'll need to put the same finger on the sensor several times in a row—and you can enroll up to 20 fingerprints, or 20 users. At Windows logon, you simply position the enrolled finger on

the sensor, rather than entering a password. The reader will remember your Web site and application passwords, too.

★★★★☆, \$50, American Power Conversion
www.apc.com

DigitalPersona Pro

DIGITALPERSONA's fingerprint reader (the U.are.U 4000) is a bit smaller than a mouse, and plugs into any USB port. The DigitalPersona Pro package sets up easily, and you can enroll one to ten fingers per user, or up to 20 users per PC. Like APC's product, the reader lets you log in to Windows by touching its sensor with an enrolled finger. It also lets you log in to programs and Web sites. The manual, a PDF file on the setup CD, is hard to find. We liked this easy-to-use device, but couldn't understand why it costs three times as much as the APC product, our Best Buy.

★★★★☆, \$150, DigitalPersona
www.digitalpersona.com

Using the fingerprint kit's tape, I lifted my prints from an old AOL CD. I placed the tape on the kit's cards, scanned these prints, and then printed them on a high-resolution photo printer. I attempted to induce the U.are.U 4000 to accept these prints, but it wouldn't cooperate.

Next I tried a fake finger made out of modeling clay. No dice; the sensors on both the U.are.U and the Defcon Authenticator failed to read the plasticine. Then I tried fingertips made out of other common materials: liquid latex from an art store (didn't take the fingerprint shape), polymer casting material (too hard), and Play-Doh (didn't keep its shape). Dessert gelatin formed a nice fingertip but made a sticky, unreadable mess when it melted on the sensors.

Gummi bears (Brach's Wild N' Fruity variety) were next. I melted them in a double boiler, and once the last vestiges of bear shapes disappeared into a puddle of goo, I carefully spooned liquid gummi (avoiding air bubbles) into my ceramic molds to produce yet another batch of fake fingertips.

The Defcon Authenticator's capacitive sensor, clearly recognizing that the object was a former *Ursus gummius*, failed to log in my fake print. The on-screen image of a fingertip did register a portion of the print, faintly—but that was as far as I got. I moved on to the U.are.U reader. Bingo! After I enrolled my thumb, the optical reader accepted the gummi bear imitation as my Windows log-in. It didn't get every

gummi fingerprint; and the ones it did read, it didn't see clearly every time. But the gummi print worked, over and over again. I also managed to enroll a lime-green gummi as a user, and then used my thumb to log on. Gummi and thumb were interchangeable for logon purposes, though my thumb wasn't nearly as delicious.

I reported my test results to DigitalPersona, and it acknowledged that the fingerprint reader can be fooled with substances like gummi bears. The company feels, though, that the real-world scenarios for tricking its products in this way are far-fetched.

For the iris test, I tried using a photograph of my eye instead of my real eye. Using a high-resolution camcorder and its optical zoom lens, a colleague snapped eight crisp (and close-up) photos of my eye. But Panasonic's Authenticam was too clever. The camera illuminates a subject's face with a few beams of infrared

light as it looks for the iris; a flat sheet of glossy photo paper simply can't reflect that light back at the camera the way a face would. The camera refused to log in my eye photo as a stand-in.

In the end, these devices thwarted nearly all of my attempts to defeat them. But the gummi test shows that you can trick a fingerprint reader with something other than flesh and blood, and a hard-core snooper will pursue more-advanced methods. —Andrew Brandt



BOGUS THUMBS:
Samples of gummi bear fingertips.

FreedomPass Mouse FM-8622

ONCLICK'S \$80 BIOMETRIC mouse reduces desktop clutter by combining an optical mouse and a fingerprint reader in one surprisingly compact package. The FreedomPass is no larger than a conventional mouse and has a svelte, contoured design. The sensor, situated on the surface of the mouse, is conveniently located. But unfortunately, though the product is a great concept, it needs some work. In our tests, the enrollment software crashed frequently, and the optical sensor had trouble scanning our fingerprints, forcing us to press hard—and we mean *hard*—on the sensor to enroll a digit. (You can enroll only one fingerprint, but the device can register two users; for another \$20, you can enroll an unlimited number of users.) Furthermore, the Help file was miserly on details; we had to comb the included



LEFT TO RIGHT: DigitalPersona's fingerprint reader, OnClick's FreedomPass Mouse FM-8622, and Meganet's VME BioDrive.

HTML manual to learn how to store Web site user names and passwords. On the plus side, the optical mouse worked fine.

★★☆☆☆, \$80, OnClick
www.onclickbiometrics.com

VME BioDrive

MEGANET'S \$170 UNIT is a USB storage device with a built-in fingerprint scanner and is about the size of a cigarette lighter. Its 128MB flash memory comes prefor-

matted into two volumes: public and private. When the VME BioDrive is connected to your PC, the public volume is accessible to everyone, but the private portion is reachable via fingerprint authentication only. The device doesn't password-protect your system; its fingerprint reader guards only the VME BioDrive's private volume, not the data on your hard drive. Sample use: An auditor traveling to various locations might carry run-of-the-

mill application software on the public portion, but sensitive audit data on the private volume. The BioDrive is easy to configure and can enroll up to 16 fingerprints, or 16 users. It plugs directly into a USB port, and also fits into the included cradle using a 4-foot cable that connects to a USB slot. If you need more storage, you can get a 2GB version that costs \$862.

★★★☆☆, \$170, Meganet
www.meganet.com

TIPS

PRACTICE GOOD SECURITY HABITS...OR ELSE

YOU DON'T HAVE to go overboard in your security hardware or software purchases to keep your data private. Here are some free and inexpensive things that you can do to keep your PC secure.

▶ **If you use Windows XP** or Windows 2000, log on with a password to prevent someone from accessing your files. Go to *Start•Settings•Control Panel*; then open *User Accounts* (in Windows XP), and select the account you want to password-protect. In Windows 2000, double-click *Users and Passwords* in Control Panel, click the check box entitled *Users must enter a username and password to use this computer*, press <Ctrl>-<Alt>-, and click the *Change Password* button.

▶ **Turn your screen saver** into a security tool. In XP, right-click the Desktop and click *Properties*. Click the *Screen Saver* tab, and check the *On resume, password protect* box. In Wait, select 5 minutes or less for maximum security. In Windows 2000, choose a screen saver, check *Password protected*, and click *OK*.

▶ **Any passwords you use** should include upper- and lowercase letters, numbers, and a special character such as % or \$.

▶ **Use Windows 2000's** and XP Professional's file encryption. To encrypt a folder in Explorer, right-click it, choose *Properties*,

and click *Advanced*. Check the *Encrypt contents to secure data* box, click *OK* twice, and check *Apply changes to this folder, sub folders, and files*. Warning: Encryption can slow PC performance, and if you don't back up your encryption keys before reinstalling Windows, you will lose access to your data.

▶ **Save your secret** files on removable media, such as a flash memory drive, a CD, a DVD, or a floppy. Lock up your media. If you no longer need your CDs, use a disc-shredding machine.

▶ **It's easier than you think** to inadvertently download a malicious Trojan horse that logs your keystrokes and steals data. Logger detector apps, such as Anti-keylogger (www.anti-keyloggers.com) can sense software loggers and stop them cold. (Go to find.pcworld.com/42564 for details on detection programs.)

▶ **A hardware keystroke** logger attached to your machine can cause similar mischief. Look for a small cylinder connected between the end of the keyboard cable and the computer. Turn off your system and then remove the logger.

▶ **Antivirus and firewall** software typically won't detect spyware that installs unwanted programs on your PC. Solution: Use anti-spyware tools such as Lavasoft's Ad-aware (www.lavasoft.de).





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KEYS AND KEYBOARDS

Kanguru Wizard

KANGURU'S \$50 SECURITY key plugs into your USB port and allows you to create



KANGURU Wizard.

a virtual drive—a secret, encrypted volume that resides on your hard drive and is accessible only when the device is connected. Designed for a single user, the key does not protect all of the data on a PC, just the files located in the encrypted portion. You can create

up to eight virtual drives, each as large as 2GB. We found the Wizard exceptionally simple to install and use. An included cable, slightly longer than 3 feet, is helpful for use with PCs whose USB ports are on the back. But if you're looking for a key that protects every file you have, SecuriKey Personal Edition is a better choice.

★★★★☆, \$50, Kanguru Solutions

www.kanguru.com

SecuriKey Personal Edition

IT DOESN'T GET much simpler than SecuriKey. When this \$130 key chain-size security token is connected to the USB port, you (or another person) can



SECURIKEY Personal Edition

use your PC. **Best BUY** When it's unplugged, the PC locks down, switches off, or goes into sleep mode (your choice). You can even configure SecuriKey so that it requires both the security token and your Windows password for log-on access, a smart way to defeat intruders who

steal your token. An excellent setup guide makes SecuriKey a snap to install. You also get a backup key, just in case you lose

the first one or want to enroll a second user. Two drawbacks: SecuriKey is more than twice as expensive as Kanguru Wizard, which provides similar (though less comprehensive) key-based protection. And SecuriKey could use a cradle or an extension cable to connect to large towers with USB ports in the rear. (To deal with this scenario, you could buy a USB hub.)

★★★★☆, \$130, Griffin Technologies

www.securikey.com

CHERRY FingerTip ID Board G83-14000.



FingerTip ID Board G83-14000

CHERRY'S STYLISH BLACK keyboard, which combines smart card and biometric authentication technologies, is a classic example of a great idea marred by sloppy execution. With this \$280 device, you can log on to your PC or network using your fingerprint. In addition, you can insert a smart card in a slot on the keyboard as verification for digital signatures and for password-protected applications such as home banking. The security features are a pain to configure, because the setup files and documentation are hard to find. The slim printed manual doesn't step you through installation; instead it directs you to PDF manuals located on the setup CD. The fingerprint reader enrolls up to ten digits. Aside from the integrated biometric sensor and smart card slot, the keyboard is conventional.

★★★★☆, \$280, Cherry

www.cherrycorp.com

Goldtouch ErgoSecure SC 2.0

FOR \$160, YOU OBTAIN a product that unites an adjustable keyboard with a smart card reader that replaces the user

GOLDTOUCH

ErgoSecure SC 2.0.



password for log-on security. To log on to Windows, you insert the smart card in a slot above the function keys. This log-on security works fine, but the device doesn't store Web site passwords—a major drag. Another quibble: The setup program may confuse you. For instance, at one point the app displays a fingerprint-enrollment screen for the keyboard—which lacks a fingerprint reader. (The company told us that the same software is used for Goldtouch keyboards that do have biometric devices.) The keyboard divides into two halves, allowing you to adjust it vertically and horizontally to minimize wrist strain.

★★★★☆, \$160, Goldtouch Technologies

www.goldtouch.com

Key Tronic S-Card

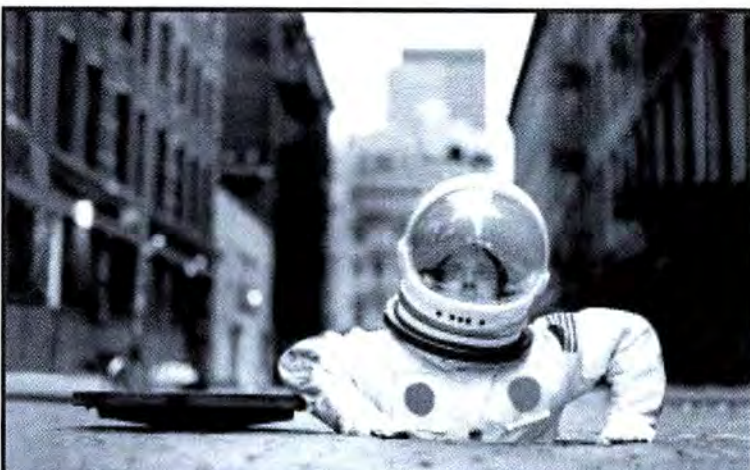
THIS SECURITY KEYBOARD, priced inexpensively at \$76, features a smart card slot in its upper-right corner. Installation may prove tricky. For one thing, Key Tronic supplies only the hardware driver files, and if your computer runs Windows 9x, you'll need to go to Microsoft's Web site to download the Microsoft Smart Card Base Components (that is, software drivers) yourself. The half-page user guide is shamefully devoid of setup information, too. On the plus side, hardware setup is a breeze: You simply plug the standard keyboard connector into the computer's PS/2 port. The S-Card also provides Windows log-on security. Our opinion: You'll find better security products elsewhere.

★★★★☆, \$76, Key Tronic

www.keytronic.com



KEY TRONIC S-Card.

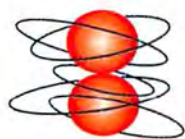


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ENCRYPTION SOFTWARE

Advanced Encryption Package 2004 Pro

AEP 2004 PRO features an Explorer-like file system for encrypting, decrypting, deleting, and compressing e-mail messages and files. The program is geared more toward IT folk and security geeks than toward everyday users; as a result, it lacks the friendly wizards found in Steganos, Elara Trivia, and PGP Desktop, and it does a mediocre job of explaining security jargon. For example, you're expected to be familiar with terms such as SFX (self-executable encrypted files). Expert users may prefer AEP 2004 Pro's click-'em-and-encrypt-'em approach to securing data, but newbies should set their sights on friendlier programs such as Steganos.

★★★☆☆, \$40, Secure Action Research

www.secureaction.com

Cypherix Secure IT 2000

LIKE AEP 2004 PRO, the \$30 Cypherix package uses an Explorer-like interface. Granted, the tried-and-true file tree isn't exactly a thing of beauty, but it's easy enough to use. Want to encrypt a file? Click it in the folder window, and select the Encrypt icon on the toolbar. The program also creates self-decrypting files (which are handy for sending as e-mail attachments), and shreds files and folders. However, extras like those in Steganos's program—such as the ability to create hidden, encrypted volumes—are missing. Novices may find themselves stumbling along, largely due to the lack of wizards.

★★★☆☆, \$30, Cypherix

www.cypherix.com

Trivia Standard 2.01

DESPITE THE PRODUCT name, this \$35 package is not at all trivial. Trivia's stylish graphical interface is a cinch to navigate. This Italian import skillfully steps you through the process of encrypting files and folders. You can create self-decrypting



SECURE IT USES an Explorer-like file tree that makes it easy to encrypt your files, but it lacks some advanced tools.

files and send them as e-mail attachments, too. Trivia's Wipe tool has a certain 007 appeal, allowing you to create a disk-wiping password to eradicate sensitive data; you'll find it useful if you're ever pressured to reveal state secrets. Absent from Trivia, however, are features like Steganos's toolkit, which can shred files, cover Web surfing tracks, and write encrypted volumes to CD or DVD. Trivia's Help file is sometimes hard to comprehend, due to awkwardly translated sentences such as "You no longer need open keys exchanging."

★★★☆☆, \$35 (Standard Edition), Elara

www.elara.it

PGP Personal Desktop 8.0 for Windows

PGP, THE GRANDDADDY of encryption software, harkens back to the pre-Web days of computing. The \$50 product bundles PGP's file and e-mail security tools into a reasonably priced package that will probably please encryption pros but confuse less-experienced users. The program is very secure, requiring you to have your own private code to decrypt an e-mail, along with a separate public code that you share with others ahead of time.

These two steps lock down your group's e-mail process. The app includes wizards for many tasks; but before getting started, you'll need to study the user guide to under-

stand how PGP uses cryptography. Once you decipher the lingo, though, the product becomes a lot easier to use.

★★★★☆, \$50, PGP

www.pgp.com

Steganos Security Suite 6

STEGANOS'S WELL-CRAFTED interface makes encrypting e-mail, files, and folders, as well as up to four hard-drive partitions, extremely easy.

You transmit an encrypted file as a self-decrypting e-mail attachment. **Best BUY**

The recipient uses a password, previously agreed upon with you, to open the encrypted message. In addition, you can shred files, write encrypted data to portable media such as CD or DVD discs, and eradicate every last trace of your Web browsing activities with a single click. The cleverest trick is its Steganography technology, which lets you hide an encrypted file inside an audio or graphics file. (A snoop browsing your PC won't suspect that a JPEG file, for example, holds sensitive data.) One gripe: Steganos clutters the system tray with too many icons.

★★★★☆, \$70 (\$60 to download), Steganos

www.steganos.com

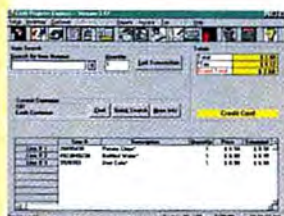
Jeff Bertolucci is a freelance writer based in Southern California. Andrew Brandt is a senior associate editor for PC World.



BEST BUY: Steganos Security Suite 6 combines an easy-to-use interface with a slate of powerful privacy tools.

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

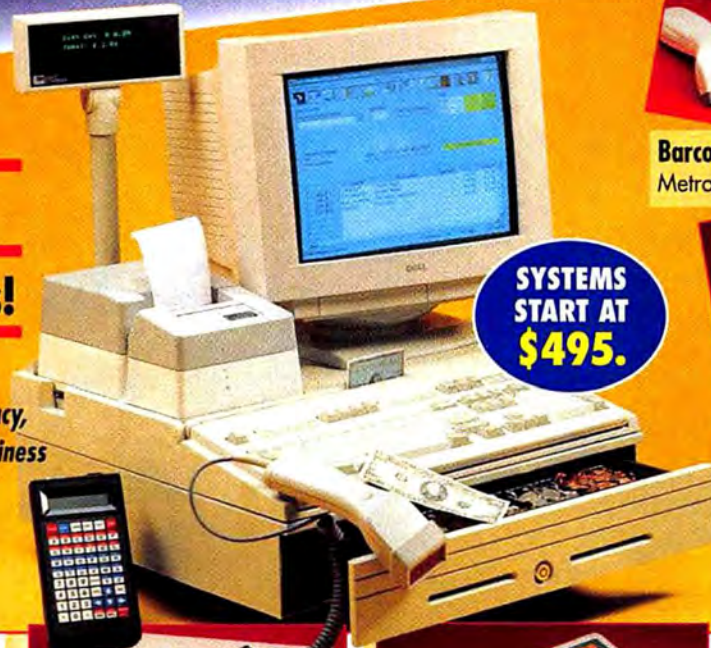
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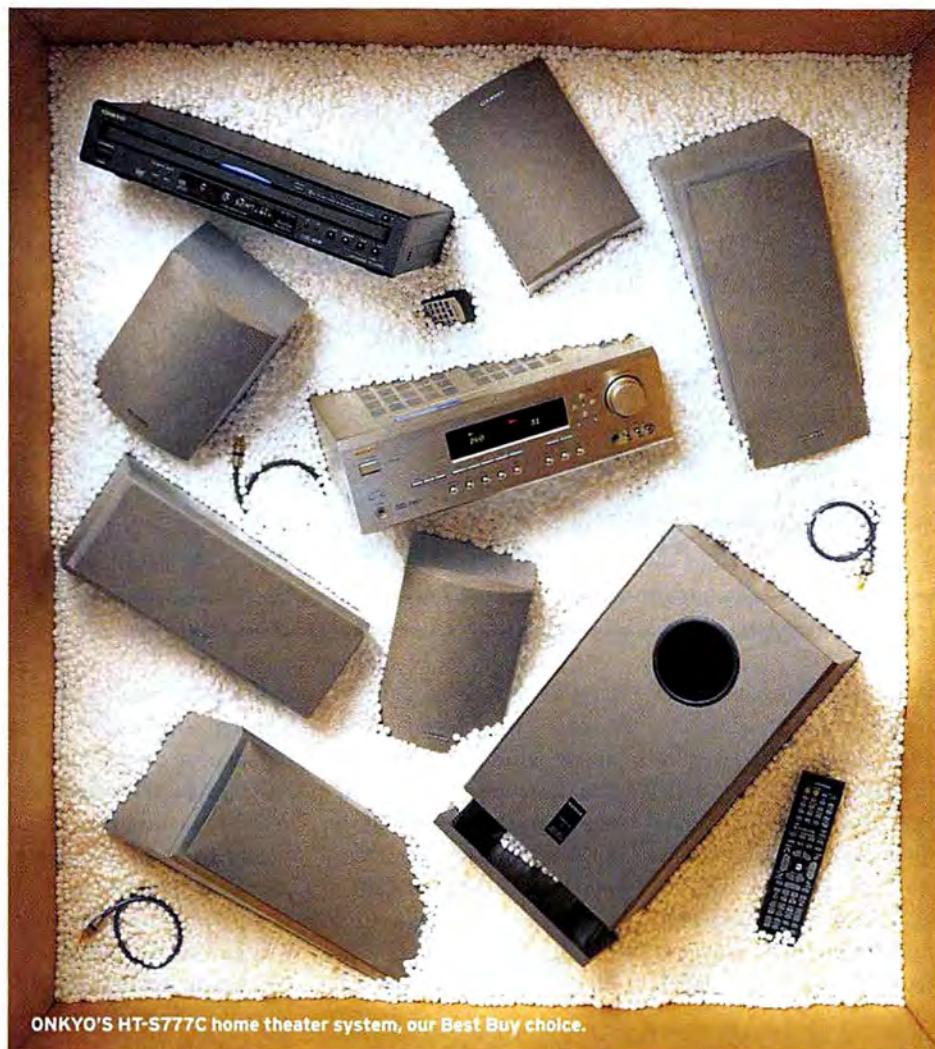
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HOME THEATER IN A BOX

THESE FIVE ALL-IN-ONE SYSTEMS PACK CINEMA-STYLE SOUND, DVD PLAYERS, AND MORE—JUST ADD POPCORN, A BIG-SCREEN TV, AND YOUR FAVORITE MOVIE. **BY MICHAEL GOWAN**

SETTING UP A home theater system—the audio and video components that bring the movie experience into your living room—is a real pain. Should you get 5.1, 6.1, or 7.1 speakers? And what do all of these numbers mean anyway? What's a watt, and how many do you need for a 6.1 speaker

system? What kind of digital connection to the DVD player should you use—optical or coaxial? S-Video or component video? Ugh. A few years ago someone had a great idea: Put all the components for a home theater into a single package. The simplicity of the concept—not to mention af-

fordable prices—made it easy for the masses to jump on the home-theater bandwagon.

I tried five home-theater-in-a-box units—Gateway's KAS-303 & Connected DVD Player Bundle, Onkyo's HT-S777C, Panasonic's SC-HT720, Philips's LX3750, and Toshiba's SD-V55HT—and found that

today's models improve on the original concept. Current HTiBs combine simplicity with prices as low as \$299 (see chart)—and with features that only a year or two ago were available only in high-end systems. I particularly admired the fine audio qualities of our Best Buy model, Onkyo's ►

HT-S777C, which comes with excellent speakers and a six-disc DVD changer—a component that continues to command a significant premium in a stand-alone DVD player.

ALL IN ONE

WHY BUY AN all-in-one home theater? It's simple—literally. HTiBs are generally easy to connect and set up, especially if the DVD player is integrated into the receiver. I set up most of the units in less than 30 minutes each; the sole exception was Gateway's kit, which required over an hour of sweat and frustration, plus a firmware upgrade.

An integrated unit presents fewer wires—no worry about getting an optical digital audio cable to send the soundtrack from the DVD player to the receiver. An HTiB setup makes even more sense if you want to play DVD-Audio, which requires a six-channel direct connection between the DVD player and the receiver. On an integrated system, that's six



PORT REPORT: Toshiba's \$299 SD-V55HT (top) comes with relatively few inputs and outputs, making it a poor choice for future expansion, while Onkyo's HT-S777C offers a generous helping of ports.

fewer wires and hookups that you'll have to contend with.

You also tend to get more for your money with an HTiB. Purchased by itself, a middle-of-the-pack receiver runs approximately \$200 to \$300, DVD players cost about \$100 to \$200, and speakers start at \$100. In contrast, an HTiB

goes for as little as \$299. Of course, you can spend considerably more if you want to: The Gateway KAS-303 & Connected DVD Player Bundle is \$999, and it isn't even Gateway's most expensive HTiB.

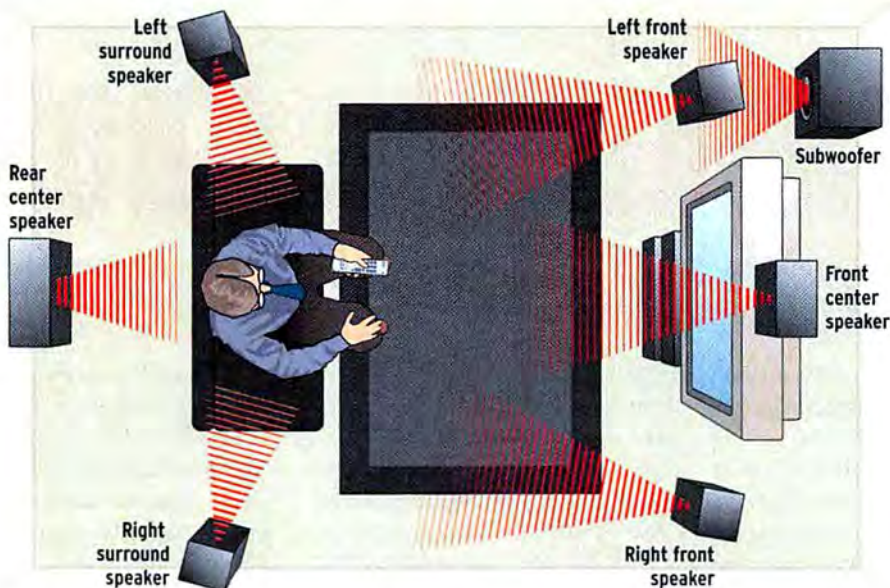
The matched speakers that accompany HTiBs complement each other and are de-

signed to be used together—voice reproduction will sound the same on each speaker. If you buy speakers individually, or even in multiple pairs, you'll have to do your homework to be sure they have the same tonal characteristics. Why go to all that bother?

Home theater-in-a-box components vary, but generally they include these elements:

A receiver: The hub of any home theater, the receiver unites several essential components, including an amplifier to power the speakers and a tuner for radio signal reception. The receiver also decodes various audio formats such as Dolby Digital and Dolby Pro Logic, deciphering which parts of the signal should be sent to which speakers.

Speakers: Home theater audio requires at least a 5.1 setup: one center, one left-front, one right-front, and two surround speakers (the 5 in 5.1), plus a subwoofer (the .1) dedicated to bass reproduction. A home theater package should



A typical layout for a home theater 6.1 speaker system. Subwoofer placement isn't critical, though it should be on the floor. And the closer it is to a room corner, the stronger the bass will be.

also include various wires for connecting the speakers to the receiver. If you want to place your speakers farther than 10 feet from the receiver, though, you may discover that you need to buy longer wires.

A DVD player: Most of us buy a home theater because we want to enjoy the superior audio and video quality of movies recorded on DVD. The DVD player in an HTiB kit may be integrated into the receiver or it may be a separate component.

Some HTiBs have separate receivers and DVD players. You lose some of the simplicity with that type of setup, and some of the cost savings, too: Priced at \$700, Onkyo's HT-



MAKING A CONNECTION: The speaker wires that come with the Philips LX3750 have large plastic terminals that are exceptionally easy to hook up.

S777C is essentially the company's HT-R520 receiver, 6.1 speakers, and DV-CP702 six-disc DVD player packaged together. Purchased separately, they still cost \$700.

Gateway's KAS-303 & Connected DVD Player Bundle

even uses separate remotes for the DVD player and the receiver, increasing clutter and reducing ease of use. But despite those drawbacks, a two-component system solves some potential buying problems: For one thing, you can

feel certain that the speakers will handle the power generated by the receiver.

MORE, MORE, MORE

VENDORS TODAY PACK a lot more into the box than they did a year or two ago. For example, Panasonic's SC-HT720 can play discs formatted in DVD-Audio, the 24-bit high-resolution audio format designed for 5.1 speaker sets.

Wireless speakers can cut down on the clutter associated with home theater systems, and some HTiBs now ship with them. You don't get rid of all the wires, though: Cables usually connect the speakers to a wireless antenna that receives the signal ▶

FEATURES COMPARISON

HOME THEATER SETS: CONVENIENT, FEATURE RICH

OUR BEST BUY, Onkyo's HT-S777C, will blow you away with its crisp sound and video. These home theaters are ready to go, right out of the box, but quality differs significantly and you can't judge by price alone. See find.pcworld.com/42546 for detailed reviews.

HOME THEATER IN A BOX	Price and features	Performance	Comments
Gateway KAS-303 & Connected DVD Player Bundle ★★★☆☆ find.pcworld.com/42364	• \$999 • 6.1 speakers • Separate DVD player and receiver, 802.11g connection • 1000 watts	• Sound quality: Poor • Ease of use: Good • Video quality: Very good	This system has good video color and detail, elegant casing, and a great wireless connection to your digital media, but it doesn't produce good CD audio sound despite the hefty price. The included subwoofer delivers solid bass.
Best BUY Onkyo HT-S777C ★★★★★ find.pcworld.com/42360	• \$700 • 6.1 speakers • Separate six-disc DVD player and receiver • 1000 watts	• Sound quality: Outstanding • Ease of use: Good • Video quality: Outstanding	Crisp, clear video and distinct treble, midrange, and bass audio make this HTiB the best choice for quality, but setup may cause a few headaches, as speaker wires are difficult to connect. You'll need space for the large speakers.
Panasonic SC-HT720 ★★★☆☆ find.pcworld.com/42366	• \$349 • 5.1 speakers • Integrated five-disc DVD player and receiver • 800 watts	• Sound quality: Good • Ease of use: Good • Video quality: Good	Advanced features like DVD-Audio playback and a five-disc changer—which are usually found only on higher-price systems—make this unit appealing, but only if you don't demand superior sound and video.
Philips LX3750 ★★★★★ find.pcworld.com/42368	• \$499 • 5.1 speakers • Integrated DVD player and receiver, wireless surround-sound speakers • 300 watts	• Sound quality: Good • Ease of use: Very good • Video quality: Good	High on style, the LX3750 exudes cool with its slim form and wireless surround-sound speakers. Video playback is crisp but lacks color warmth. This is a good all-around system, but it's pricey for what it delivers.
Toshiba SD-V55HT ★★★☆☆ find.pcworld.com/42370	• \$299 • 5.1 speakers • Integrated DVD player, four-head VCR, and receiver • 400 watts	• Sound quality: Poor • Ease of use: Very good • Video quality: Good	Clearly labeled connections and Toshiba's excellent on-screen display make setup a breeze. Images are reproduced with rich color, and you can play VHS tapes. But sound problems make this a poor choice for music fans.

HOW WE TEST: Video and Dolby Digital surround sound were tested using *The Matrix Reloaded* (chapters 1 and 22) and *The Last Waltz* (chapter 23). CD audio (stereo) was tested with Doyle Brahmall's "Dimples" and Mozart's Concerto for Violin and Orchestra in G Major KV 216. CD audio with Dolby Pro Logic was tested with the White Stripes' *Seven Nation Army*.

from another antenna connected to the receiver. But the end result is still cleaner than having a 10- or 20-foot wire stretching along the floor. I didn't trip over the wireless rear speakers on the Philips LX3750 at all, whereas I stumbled over the wired surround-sound speakers for the other kits several times during testing.

Some of the more-expensive HTiB sets come with 6.1 speakers to take advantage of Dolby Digital EX.

Adding a rear speaker to the mix creates an even more theaterlike sound experience. Although few DVDs are encoded for this format so far, the HTiB's receiver can extrapolate Dolby Digital to fill the space. Some kits do this task better than others: I was impressed with Onkyo's 6.1 set, but not with Gateway's.

A number of HTiBs, including Gateway's, come with an 802.11g wireless network card in the receiver. If you have a wireless network, this bonus allows you to listen to MP3s—or watch video stored on your home-office PC—from the comfort of your media room.

WHAT WORKS FOR YOU

DIFFERENT HTiB UNITS suit different rooms—and different personal preferences. Here are some things to think about before you buy.

Features: The two most important factors in the home theater experience remain unchanged: audio and video. Most units come with Dolby Digital and 5.1 speakers for



CLUTTER CUTTER: Wireless rear speakers on Philips's LX3750 let you eliminate some lengthy cables.

theaterlike sound. Most also offer progressive-scan video output for an even crisper and more color-accurate picture (you will need a TV that supports this output, though).

Less-common features that may appeal to you include an integrated VCR, such as the one in Toshiba's SD-V55HT home theater, and a network connection, such as the one in Gateway's KAS-303.

Power vs. sensitivity: Manufacturers love to boast about the power, or wattage, that a unit can put out. But don't ignore speaker sensitivity. The higher the speaker's sensitivity, the more it can do with the signal sent to it. For example, a speaker with 91-decibel sensitivity can sound just as loud with a 50-watt amplifier as a speaker with 88-dB sensitivity

sounds when paired with a 100-watt amp.

Space: The size of your room should help determine the kind of system you buy. If you plan to set up your HTiB in a small bedroom, you won't need very much power from the amplifier to fill it, and the speakers must be sufficiently small to fit inside it. On the other hand, a large media room will need a powerful amplifier capable of producing sound at high volume with-

out distorting it, and speakers that can handle the output, such as those in Onkyo's HT-S777C or Gateway's KAS-303 kit. Component size matters, too. Philips's slim and sleek

one additional digital audio input for a device such as a digital-cable box, and probably a few analog RCA jacks for handling older equipment like your VCR. Certain vendors support easier hookups than others do: The wires accompanying Philips's LX3750 has large plastic terminals for easy connections to its ports.

On-screen display: All home theater systems require some tweaking to achieve optimum sound quality in your room. Check the on-screen display to ensure that it makes sense to you. For example, you're going to have to adjust the volume of each speaker to create the right balance of sound, based on how far the speaker is from where you sit.

Toshiba's OSD is remarkably easy and flexible to use, and it has an attractive visual display. In contrast, the Panasonic display offers limited flexibility: You have to adjust the center, right-front, and left-front speakers separately, rather than as a group.

Style: A home theater is difficult to hide, so make sure that you like the way it looks. I loved the rounded edges and cylindrical speakers of Philips's LX3750, which would have gone smashingly with my contemporary décor, while the Gateway KAS-303 system's champagne exterior radiated opulence and luxury.

One final tip: Keep the receipt. You won't know how an HTiB works in your room until you try it out there. Make sure you can return it if it doesn't fit or sound right. ■

Freelance writer Michael Gowan covers music, technology, and consumer electronics for various publications.

Keep the receipt. You won't know how an HTiB works in your room until you try it out.

LX3750 takes up a minimal amount of shelf space, compared with the Onkyo HTiB's bulky separate components.

Expandability: Think about the future. You may want to add a recordable DVD drive, an HDTV receiver, or another high-tech home theater device to the system over the course of the next few years. If that kind of flexibility is important to you, look on the back panel for additional inputs. Onkyo's HT-S777C supplies numerous video-out and -in connections, whereas Toshiba's SD-V55HT provides relatively few ports.

At the very least, you'll want

SATELLITE RADIO IN THE LIVING ROOM

LIKE MOST HOME stereo systems, mine has a tuner, but radio reception in my neighborhood is so pathetic I rarely use it. Maybe that's why trying out Kenwood's \$299 **DT-7000S Sirius Home Tuner** was such an enjoyable experience.

Initially, I feared I'd have to climb 30 feet to stick a satellite

antenna on my roof. But I got very good reception by simply placing the unit's antenna (the size of a card deck) on a ground-floor wall.

Hooking up to my receiver was straightforward (the product manual is first-rate), and within seconds of activating a \$13-a-month Sirius radio account, I had access to the satellite service's 120 channels of music, news, weather, and sports. (The subscription rate falls to a modest \$7 a month if you are already getting Sirius service for another device.)



KENWOOD'S DT-7000S Sirius Home Tuner delivers satellite radio in a quality home stereo component.

excellent reception.

Stereo separation was very good too. The unit can play surround sound via an included digital cable connection, but I didn't try out that feature.

Though the DT-7000S is fairly priced for a high-quality stereo component, I'm not enough of a

radio listener to commit to a Sirius subscription. But if you frequently listen to radio at home and want tons of programming choices, the DT-7000S deserves your attention.

—Ramon G. McLeod

DT-7000S Sirius Home Tuner

Kenwood

★★★★☆

Superior sound quality and broad programming choice in a home stereo component for subscription radio.

List: \$299

find.pcworld.com/42536

MONITOR

HDTV ON YOUR DESKTOP

LCD MONITORS WITH conventional analog TV tuners are commonplace these days, but Samsung's **SyncMaster 173mw** breaks new ground by integrating HDTV support as well. But at a street price of \$750, the 173mw costs several hundred dollars more than most 17-inch LCDs—even ones with non-HDTV tuners.

You deliver video to the 173mw via coaxial, composite, S-Video, or component inputs. Using the included remote control or the on-screen display, you can toggle between a full-screen computer desktop, HDTV or standard TV programming, and a DVD player or video game.

On my shipping unit, the high resolution of HDTV

looked pretty darn good, and text was crisp and sharp. The field of vision—150 degrees horizontal and 120 degrees vertical—makes this display fine for a single person but less than optimal for a group. It's easy to rotate the 173mw on its heavy circular base, but you must use both hands to adjust the viewing angle.

You could use this monitor to watch a high-definition ball-

game in the picture-in-picture window while working on a spreadsheet in your home office. A financial trader could use the conventional and high-def TV inputs to keep CNBC and CNNfn running in the background, toggling back and forth between the computer desktop and TV

feeds. And the SyncMaster 173mw would be a great display choice for a PC running Microsoft's Windows XP Media Center Edition.

Note that the unit does not have its own HDTV tuner; you must supply the HD source, which could mean lots



SAMSUNG'S SYNCMASTER 173mw supports HDTV—but costs a pricey \$750.

of wires on your desk. But that is a minor drawback in an otherwise well-engineered unit.

The 173mw is worth its premium price if you would like to view various media and to control them all from the monitor itself.

—Edward B. Driscoll, Jr.

SyncMaster 173mw

Samsung Electronics America

★★★★☆

Handsome but expensive HDTV-capable wide-screen LCD monitor; HDTV tuner not included.

Street: \$750

find.pcworld.com/42548

GADGET FREAK

DAN TYNAN

PHOTO SHARING GONE WILD



SOMETIMES IT SEEMS we are united by one common bond: the desire to humiliate ourselves in public. And if the producers of *The Apprentice* or *American Idol* won't return your calls, well, you can always post your pictures to a moblog (mobile blog) or swap them in a chat room. These new ways of sharing photos make "traditional" sites such as Ofoto look like Granny's picture album.

A THONG IN MY ART

MOBLOGS ARE WEBLOGS that typically feature grainy, low-res photos taken with cell phone cameras. People e-mail the images from their phones to a site like Fotolog, Plogger, or TextAmerica, where their pix can be immediately seen and ridiculed (or praised) by complete strangers. Besides offering instant, if limited, celebrity, moblogs provide a unique form of spontaneous

photojournalism. They can also be downright weird.

Take TextAmerica, the oldest moblog site and my personal favorite. Scanning TA's 100,000 moblogs is like viewing stills from a home movie shot by John Waters; it's mundane yet strangely addictive.

You can find blogs on virtually any topic at TA. In a disco mood, I typed "booty" into the site's search box. Up popped "Baby's Got Back!"—a moblog devoted entirely to shots of people's keisters. The page greets you with: "We want your booty shots...Please keep them relatively clean." (One assumes they're just talking about the photos, but it's good advice, nonetheless.) TA prohibits full nudity, so this blog is mostly a thong thing.

Rummaging through the trove of ephemera that is TextAmerica inspired me to create my own moblog. The process

was both free and easy: From my PC, I picked a name for my blog, settled on a layout and background for it, and provided an e-mail address. When I submitted a JPEG file using a Samsung VM-A680 phone, the image showed up on my blog only a few minutes later. And while I resisted the temptation to capture my tush (the world isn't ready for that), I did snap some candid shots of squirrels, fire hydrants, and terrified pedestrians as I rode my bike to work.

SLICKER FLICKR

MOBLOGS AREN'T the only way to embarrass yourself online. For example, Flickr.com is a chat-centered photo-sharing service. Click the site's Flickr-Live button to open a Flash-based chat window in your browser; upload images from your PC and drag them into a chat room for all to see, or send pix directly to your Flickr pals.

Following a clever interactive demo, the site logged me in to a chat where people were swapping pix of their cats. I have a recurring nightmare about being trapped in a chat room where people talk about their cats, so I logged out and entered another chat. Here, a heated match of rock-paper-scissors was under way: One player would post a picture of a hand in scissors mode, another would follow with a shot

NEXT UP

A Mighty Mouse



IS PRECISION MOUSING important to you? Razer—whose Boomslang mechanical mouse was once a favorite of gamers—now jumps on the optical bandwagon with the \$50 Viper, which scans at 1140 dots per inch versus the 400 to 800 dpi of conventional optical mice. The Viper can home in on a target with great accuracy—making it a boon for first-person shooter fans, and an all-around ergonomic improvement. You can buy the Viper at Razer's Web site (www.razerzone.com).

—Yardena Arar

of a fist ("rock"), and so on.

I surmised that Flickr users must be young, artistic, and chronically idle. But the emphasis is more on community than celebrity; sharing photos is just another way of saying "I'm strange. Are you strange? Let's be strange together."

Both TextAmerica and Flickr make picture sharing fun and très hip. But this is one digital revolution I may have to miss. I'm too old for chat, and I'd rather watch than be watched (or have my body parts rated by strangers). I guess I'm just not cut out for celebrity, even the Web kind—no ifs, ands, or...you get the picture. ■

Contributing Editor Dan Tynan only shakes his booty in private.



Remove Pests... Not Profits!

Here's the plain truth about anti-virus solutions: They differ—sometimes dramatically—in their ability to catch viruses and in terms of the resources they consume while doing their job. An efficiently written solution that maximizes detection and performs at blazing

speed will keep you safe while boosting productivity and ROI.



With its unique Advanced Heuristics, NOD32 (www.nod32.com) from ESET Software has detected and eliminated more than 85% of all new viruses and worms without requiring a signature database update. This means NOD32 catches the overwhelming majority of all new worms and viruses before most other anti-virus companies are even aware of them.

Knowing Where The Wild Things Are

In fact, for more than six years now NOD32 remains the only anti-virus system in the world that has not missed any "in the wild" viruses in the independent tests performed by the prestigious *Virus Bulletin*. NOD32 has won the *Virus Bulletin's* 100% Award 27 times, more than any other anti-virus solution. Winning the 100% Award means catching all the bugs and doing so with no false alarms.

The relevance of "in the wild" detection tests is that the viruses used in this testing methodology are executable and can cause

"real-world" virus incidents—the ones that can wreak such great havoc to your company when unleashed.

There are a number of reasons why NOD32 stands alone among anti-virus solutions in delivering superior ROI and unmatched detection.

Unparalleled Detection

By using its Advanced Heuristics, NOD32 immediately detects more viruses than any of its competitors, before the bugs can do any damage.

Speed Of Operations

NOD32 is much faster than other systems at scanning for viruses. In recent *Virus Bulletin* tests, NOD32 and only two other solutions received the coveted 100% award. However, NOD32 performed scans nearly four times faster than one of the products and 21 times faster than the other! Computers protected and scanned by NOD32 spend far less time executing anti-virus software. This means knowledge workers no longer have to wait for the anti-virus software to do its work, so they can do theirs!

Automatic Updates

NOD32 features highly flexible updates for those problems for which a signature update is needed. Updates are done "on the fly" and can be transparent to the user. You no longer have to be frustrated while waiting for your system to update.

Your anti-virus solution needs to do more than protect against bugs; it also needs to boost productivity and ROI.

Less Resource Usage

NOD32's code is written far more efficiently than that of other anti-virus solutions. Therefore it consumes far less system resources, which is important when users are trying to extend the useful life of hardware. In particular, businesses with older hardware will realize even greater productivity gains as a result of the small footprint of NOD32.

Reduced Security Risk

The Enterprise Version of NOD32 with Remote Administrator allows the highly efficient management of all the desktops from a single console. This tool is also designed to help you enforce your security policy. Individual users cannot change password protection or other settings without the Systems Administrator knowing immediately. NOD32's Remote Administrator gives a clear and on-line picture of the status of the anti-virus protection of every computer in the corporate network.

■ To learn more about the unparalleled virus protection capabilities and tremendous ROI potential of NOD32, point your browser to www.nod32.com.

NOD 32
antivirus system

A Hard Disk Solution That Blows Tape Away

Iomega's REV drives take the pain out of business-critical backups

ROI IN THE SMB

Small businesses know all too well the pain points of tape backup. It takes too long. The data isn't reliable. Restoring data is inconvenient. Tape drives are costly, and they're hard to install and use.

However, backup is essential to any business. So it's no surprise that the new REV 35GB/90GB drives from Iomega (www.iomega.com) are generating so much excitement and attention—being named “Best of CeBIT America,” for instance, at this past May's technology show. The REV drives are a truly revolutionary removable hard disk solution that efficiently and reliably backs up your system while performing fast disaster recovery and doing so at a much lower cost than for tape.



Iomega's REV drives are faster, more efficient, and cheaper than tape.

REV drives back up and recover files up to 8 times faster than tape drives and are more efficient as well, with simple drag-and-drop functionality that reduces retrieval times to seconds from the usual minutes

SPONSORED BY:
Iomega
www.iomega.com

with tape.

For small businesses, the REV drives address virtually all the pain points of tape backup. In addition, users

with mid- to large-sized optical media libraries or collections can replace their cumbersome optical media, with each disk (35GB native/90GB compressed) replacing 50 to 150 CD-R disks.

Included with the REV drives is professional-level backup software, including Iomega Automatic Backup Pro and Norton Ghost, which creates a full system backup in case of disaster. Once configured, the “no-touch” software automatically backs up specified files, keeps multiple backup sets on different destination drives, and performs scheduled backups, among other functions.

■ *To learn more about this exciting, highly touted portable storage breakthrough, click now on www.iomega.com.*

Playing It Safe With R-Guard

Gives businesses the data protection they want and need

In today's world, you can't be too safe. This maxim certainly applies to business-critical computing resources, where access rights to sensitive data and files must be judiciously managed.

To extend access rights control as well as encryption and audit beyond the limited scope of standard Microsoft Windows security services, R-Guard from R-Tools (www.r-tt.com) allows users to set access rights not only for users but for applications and system processes as well.

As a result, R-Guard gives businesses the protection they want and need from unauthorized disclosure, theft, illicit modification, corruption,



R-Guard from R-Tools allows users to set access rights for applications and system processes as well as other users.

and inadvertent or deliberate deletion by unauthorized users. R-Guard also protects your files against viruses, spyware, Trojan horses, and other unwanted and potentially disastrous intruders.

R-Guard users can quickly and 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. And for robust and rapid encryption, R-Guard uses the industry standard AES encryption algorithm with the 256-bit key.

As the leading vendor of data recovery and undelete solutions for the Windows world, R-Tools also offers the R-Studio family of data recovery utilities, which can rescue data on local logical and physical

disks as well as on remote disks over networks. R-Tools' R-Mail rescues accidentally deleted email messages and damaged

.dbx files. R-Wipe&Clean keeps disks free and clear of unwanted data.

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R-Tools
www.r-tt.com

■ *For more information on R-Guard and the other outstanding products from R-Tools, point your browser to www.r-tt.com now.*

SAVE EVERYTHING.™



NEW



THE IOMEGA® REV DRIVE

It saves your system, your data and maybe even your job. The Iomega REV drive backs up 35GB of data, or up to 90GB compressed, on durable, removable disks. It's 8x faster than tape, more cost efficient, and accesses data in seconds. So it's easier than ever to backup, protect and save everything.



saveeverything.com

*Based on DDS-4 tape comparison. Compressed capacity assuming 2.6:1 data compression with "high" compression on Iomega Automatic Backup Pro software. This capacity may vary since compression is data and software dependent. Iomega, REV, SAVE EVERYTHING, and the stylized "i" are trademarks or registered trademarks of Iomega in the U.S. and/or other countries. Copyright © 2004 Iomega Corporation. All rights reserved.

Lab-tested rankings of the best in PCs,
peripherals, and upgrade components

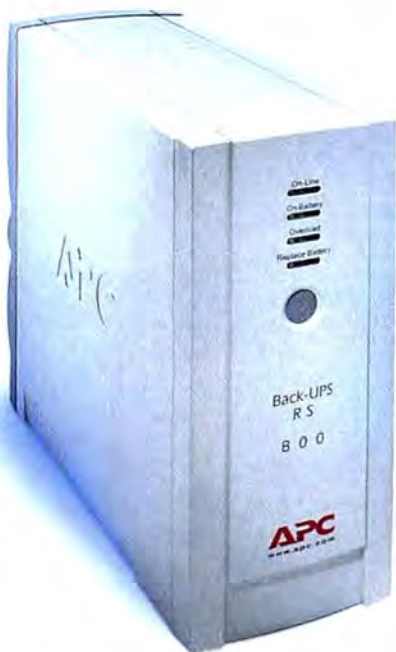
TOP 100

EDITED BY THE REVIEWS STAFF

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SPOTLIGHT: UNINTERRUPTIBLE POWER SUPPLIES



Spot LIGHT

Uninterruptible power supplies come in a variety of shapes and sizes, from the tower-style design of the APC Back-UPS 800 (left) to the overweight-power-strip shape of the Tripp Lite Internet 750U (below).



Power Protection

We've all been through power failures—and they're never any fun. It's bad enough when the juice goes out before you've ground your morning coffee; it's far worse to have a blackout roll over a data-laden spreadsheet or a term paper you forgot to save.

These days there's little reason to risk such a loss. Protection, embodied in an uninterruptible power supply, has never been more affordable. One of the

eight units reviewed here costs only \$45, and one of our Best Buys goes for \$75. And aside from being able to step in seamlessly and sustain your PC while you save your files, even the cheapest UPS models provide some surge protection, guarding your network, phone, and coaxial TV connections. All of the UPSs we tested come with software that can shut your PC down automatically if you're not there. ►

PHOTOGRAPHS: MARC SIMON



Top 10 Digital Cameras

Top 10 CHART

Big and beautiful: The 2.5-inch LCD on the Sony Cyber-shot DSC-W1 sets this camera apart from other point-and-shoot models and helps it earn a Best Buy.



Top 15 CHART

Top 15 Notebook PCs
Talk about bang for your buck: For just \$1650, the EMachines M6809 delivers speedy performance and a 15-inch screen.

150

146



Top 15 Desktop PCs

Top 15 CHART

Reflect on this: The Shuttle Computer XPC G4 8520 has a mirrored front. But flash isn't everything—with an Athlon processor, this small system has lots of power, too.

144

INSIDE THE TOP 100

See find.pcworld.com/15720 for details on how we compile our charts for the Top 100. Freelance writer Carla Thornton and PC World editors Richard Baguley, Laura Blackwell, Tracey Capen, Kalpana Etten-

son, Rebecca Freed, Melissa J. Perenson, and Alan Stafford contributed to the Top 100 section this month. Ulrike Diehlmann, Julio Giannobile, Elliott Kirschling, Jeff Kuta, Tony K. Leung, Thomas Luong,

Ibrahim Reyhanoglu, and William Wang of the PC World Test Center performed testing on the products that are reviewed in this section, with logistical support provided by Julian Weatherby.

For our Spotlight on UPSs, we picked eight units designed for home or small-office use and tested how well each one handles a power loss: How long will it run a power-hungry, high-end PC and monitor? And how effective is the provided software that watches over the UPS and automatically shuts down the computer?

Four of the products we review here are low-profile units that have outlets on top and look like overweight power strips: APC's Back-UPS ES 725 Broadband, Powercom's King Office KOF-575S, PowerWare's PW3110, and Tripp Lite's Internet 750U. The other four devices—APC's Back-UPS RS 800VA, Belkin's F6C750-AVR, PowerWare's PW5115, and Tripp Lite's OmniVS1000—are more traditional-



THE Internet 750U
by Tripp Lite offers
widely spaced power sockets.

looking units that resemble small tower PCs. (The bigger, tower-style units usually have a larger battery and are more suited for business systems that run 24 hours a day.) All eight offer UPS basics: surge protection; battery backup; and a USB or serial port that, with software you run on your PC, allows a communications link

between the UPS and your PC for controlled shutdowns during a power outage.

Each vendor offers equipment-damage insurance—if a power spike damages hardware that you have properly attached to the UPS, the company will, in theory, cover the cost of repair or replacement. Read the vendor's policy carefully, however—the terms of the policies vary.

After features, the battery capacity has the biggest influence on cost. Some of the models, such as our Best Buy APC Back-UPS RS 800VA, have siblings that offer greater or less capacity and run-time potential. For guidance on choosing the right size UPS, see "How Much Power Do You Need?" on page 143, and consult the features chart below.

TOP 100

TEST
Center

Pick the Perfect Power Backup

ALL THE UPSs kept our test PC running for over 5 minutes; one of our Best Buys managed almost half an hour.

UPS	Street price (5/21/04)	Run time ¹ (min:sec)	Battery capacity (voltage amps/watts)	Surge-protected outlets with/without battery backup ²	Surge protection (ethernet/phone/coaxial cable)	Warranty for unit/battery (years)	Comments
Best Buy APC Back-UPS ES 725 Broadband find.pcworld.com/42592	\$75	15:58	725/450	4/4	Yes/Yes/Yes	2/2	Nicely priced and offers a good battery run time for its relatively small size; with coaxial surge protection, it's ideal for home offices. (★★★★☆)
Best Buy APC Back-UPS RS 800VA find.pcworld.com/42580	\$160	29:03	800/540	3/4	Yes/Yes/No	2/2	The longest run time of the models reviewed, plus easy-to-use monitoring software and fast recharge. (★★★★☆)
Belkin F6C750-AVR find.pcworld.com/42594	\$110	11:07	750/400	4/2	No/Yes/No	3/2	The Bulldog Plus monitoring software supports Windows XP hibernation, but top-mounted outlets can make cable management awkward. (★★★★☆)
Powercom King Office KOF-575S find.pcworld.com/42596	\$45	5:15	575/320	3/3	Yes/Yes/No	2/1	Least-expensive UPS on the chart, but it also has the fewest battery-backed sockets and very short battery run time. (★★★☆☆)
PowerWare PW3110 find.pcworld.com/42950	\$60	15:11	300/180	4/2	Yes/Yes/No	2/2	Compact unit combines impressive battery-backup time and low cost. The power sockets are widely spaced. (★★★★☆)
PowerWare PW5115 find.pcworld.com/42582	\$280	26:18	750/500	4/0	Yes/Yes/No	2/2	The most-expensive UPS here has only four power outlets but boasts long battery life and useful features, such as hot-swappable batteries. (★★★★☆)
Tripp Lite Internet 750U find.pcworld.com/42588	\$75	16:19	750/450	4/4	No/Yes/No	2/2	Attractively priced compact model has widely spaced outlets and good run time, but no ethernet or coaxial surge protection. (★★★★☆)
Tripp Lite OmniVS1000 find.pcworld.com/42586	\$180	23:12	1000/500	6/2	No/Yes/No	2/2	Tower-shaped small-office UPS offers plenty of standard outlets, plus two short extension-cable battery-backed outlets for AC adapters. (★★★★☆)

FOOTNOTES: ¹ As tested. Real-world UPS run time may vary depending on system configuration and monitor. ² All battery-backed sockets are also surge protected; add the two numbers together for the total number of sockets. **HOW WE TEST:** We timed how long the UPSs could keep an Alienware PC with a 2.2-GHz Athlon 64 FX-51 CPU and a ViewSonic PF790 19-inch CRT monitor running once AC power was cut off. The monitoring software was not used in this test. Run time was measured from the time the power was disconnected to the time the PC stopped running.

POWER PICKS

BOTH MODELS FROM APC earned a Best Buy award for their combination of great software, excellent features, and reasonable price. The Back-UPS RS 800VA was our favorite. This slender, good-looking tower is relatively tall but should tuck away under most desks—and its size translates into outstanding run time: The RS 800VA sustained our power-hungry test PC (an Alienware system with a 19-inch monitor) for just over 29 minutes. Our gripes were relatively minor: The unit lacks surge protection for a coaxial connection, and installing the monitoring cables is a little fiddly.

APC's Back-UPS ES 725 Broadband is our other Best Buy pick. At \$75, it's much cheaper than its bigger, more powerful cousin but still powered our test system for almost 16 minutes. The unit offers plenty of places to plug things in—eight power sockets in total.

We saw some other worthy contenders, though. Tripp Lite's \$75 Internet 750U powered our test PC for over 16 minutes, a long time for a relatively small and low-cost device. Powercom's King Office KOF-575S powered our test system for only 5 minutes, 15 seconds. However, that's still long enough to save and shut down, and the KOF-575S is the cheapest model we tested—just \$45. (If you have a less-powerful system than our test setup and a smaller CRT display or an LCD monitor, you'll get a longer run time.)

HIBERNATION TIME

BOTH OF THE APC models use APC's PowerChute Personal Edition software, which is exceptionally easy to install and operate. It can use Windows XP's hibernation feature (Belkin's Bulldog Plus software also supports this), where all running programs are saved to disk and then restored when you reboot. We encountered some problems with the UPS programs that don't support hibernation; while they were able to force Microsoft Word and Excel to save the open document and close (so no data was lost), they didn't always close other applications properly, which could lead to lost data.

PICKING A UPS

How Much Power Do You Need?

WHEN YOU GO SHOPPING for an uninterruptible power supply, you'll quickly notice that all the vendors list two ratings: volt-amp and wattage. Watts represent the actual power your provider is delivering. VA is typically called *apparent power* and is derived from the voltage applied multiplied by the current drawn. The main thing to remember is not to hook up more equipment to the UPS than the device can support; your load can't demand more watts than your UPS can deliver.

So how many watts do you need? You can work the answer out by multiplying the amperage rating of every component you want to power (usually listed on the component itself or on the AC adapter) by the voltage (usually 120 volts), and totaling that for all the components. The UPS you choose should have a higher VA rating than your calculated figure.

Tripp Lite bundles its PowerAlert software with its UPSs, and while that program provides ample information on the state of the battery, it's not quite as intuitive as APC's PowerChute. PowerWare's LanSafe 5 is powerful and intuitive to use, but provides little guidance through the confusing installation process.

PowerWare's stylish but pricey PW5115 tower is designed more for the business set than for home users: It provides ethernet and phone-line surge protection, plus some nice high-end features, such as

An easier way to get an idea of probable run time is to use the online UPS selector offered by vendors such as APC (sizing.apc.com), PowerWare (www.powerware.com/UPS/selector), and Tripp Lite (www.tripplite.com/selector). These tools provide a simple way to identify UPS products that might be suitable: You enter the components that you want to protect and how long you want them to keep running, and the selector comes back with several suggested products. Also consider which devices you plug into your UPS's battery-backed sockets. To extend run time, plug in only the core components that will allow you to save your data and shut down the PC, such as the computer itself and the monitor, but not the speakers and printers.

Note that laser printers should never be powered through a UPS—they draw a lot of power when printing and can overload it.

built-in battery-health testing. We liked the PowerWare PW3110's widely spaced outlets, which easily accommodate AC adapters, but it suffers the same software installation hassles as the PW5115.

Tripp Lite's \$180 OmniVS1000 offers two integrated 6-inch, battery-backed extension cords that keep even the biggest AC adapters from interfering with other outlets. However, you can't turn it off while it's plugged into the AC—a deal-killer if you want to use the UPS as an easy way to turn off your PC and connected peripherals via one switch.

The Belkin F6C750-AVR has a tower case, but its AC outlets are positioned on top, and the adapters we used didn't sit comfortably in that location.

One point to keep in mind: All the vendors offer other versions of the products we review here, with different features and battery capacities. If none of the units we tested seems quite suited to your needs, do some research to find out what other models are available and what they offer. —Jon L. Jacobi



APC'S BACK-UPS ES 725 offers coaxial, ethernet, and phone surge protection (insert).

TOP 15 DESKTOP PCs

	POWER SYSTEM	Overall rating	Street price (5/14/04)	PC WorldBench 4 performance score ¹	Faster	Comments
1	Best BUY ABS Ultimate M6 find.pcworld.com/42214	89	Very expensive \$4972	Windows XP Professional	Outstanding 147	This system combines superior performance, graphics quality, and design—as you'd expect for just under \$5000. (★★★★★ July 04)
2	Alienware Aurora Extreme find.pcworld.com/42162	86	Very expensive \$4619	Windows XP Professional	Outstanding 150	The first unit we've tested to reach 150 on PC WorldBench 4. The large, sci-fi-themed case has plenty of expansion room. (★★★★★ July 04)
3	HP Compaq Presario 8000Z find.pcworld.com/41740	86	Inexpensive \$2178	Windows XP Professional	Very good 141	This newly configured 8000Z sped through our tests; but the model we reviewed lacked open drive bays to boost storage. (★★★★☆ June 04)
4	Micro Express MicroFlex 34A find.pcworld.com/42574	NEW	Average \$2799	Windows XP Home	Outstanding 146	A generally well-equipped system, with USB ports on the top of its black chassis; however, it earned low scores for sound quality. (★★★★☆)
5	ZT Group Ultimate PC A5230 find.pcworld.com/42670	NEW	Average \$2799	Windows XP Professional	Very good 144	Though dull looking for a gaming system, this PC earned top-notch scores in our graphics tests and delivered booming sound. (★★★★☆)
6	Xi Computer MTower 64X find.pcworld.com/42584	NEW	Expensive \$3399	Windows XP Home	Very good 143	System includes a pair of 10,000-rpm hard drives (as does the Shuttle XPC), and has plenty of open bays for future expansion. (★★★★☆)
7	Shuttle Computer XPC G4 8520 find.pcworld.com/42668	NEW	Average \$3000	Windows XP Professional	Outstanding 145	Shoobox-size PC is less expandable than competing towers but gives away nothing in speed; its mirrored front panel looks chic. (★★★★☆)

	VALUE SYSTEM	Overall rating	Street price (5/14/04)	PC WorldBench 4 performance score ¹	Faster	Comments
1	Best BUY Dell Dimension 4600 find.pcworld.com/40406	86	Inexpensive \$1129 ²	Windows XP Home	Good 123	This well-appointed Dell offers fine performance for its configuration; an LCD and good speakers sweeten the deal. (★★★☆☆ Apr 04)
2	Gateway 510XL find.pcworld.com/41738	85	Average \$1400	Windows XP Home	Very good 125	Nicely configured machine can handle basic text and spreadsheet documents, as well as multimedia presentations. (★★★★☆ June 04)
3	Dell Dimension 2400 find.pcworld.com/41174	85	Very inexpensive \$699 ²	Windows XP Home	Good 115	A large CRT monitor and a generous, home-oriented software bundle highlight this bargain system. (★★★☆☆ May 04)
4	IBuyPower Back To School find.pcworld.com/42576	NEW	Expensive \$1694	Windows XP Home	Outstanding 145	This system's high-flying performance makes it an appealing choice; outlandish front panel might give even gamers pause, though. (★★★★☆)
5	Sony VAIO PCV-RS520 find.pcworld.com/42158	82	Expensive \$1599	Windows XP Home	Very good 126	Stylish design and competitive performance are undermined by an inferior keyboard and tinny-sounding speakers. (★★★☆☆ July 04)
6	Velocity Micro Vision 64 find.pcworld.com/42152	82	Expensive \$1739	Windows XP Home	Outstanding 139	This PC has an appealing case and a tidy interior. It's also one of the fastest budget systems we've seen. (★★★★★ July 04)
7	Sys Technology Sys Performance 3200+/64 find.pcworld.com/42672	NEW	Expensive \$1795	Windows XP Home	Outstanding 137	Nondescript black tower has a terrific software bundle and an attractive balance of features, speed, and price. (★★★★☆)
8	ABS Harmony 1000 find.pcworld.com/42578	NEW	Average \$1499	Windows XP Home	Very good 124	Minutower sports a sleek look and front-mounted CD audio controls, but it lacks open drive bays and memory slots. (★★★★☆)

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

Go to find.pcworld.com/39209 for a breakdown of the weightings we give to the various factors that contribute to a desktop PC's overall rating in each of the two categories.

¹ 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.

² Total capacity in gigabytes (may represent multiple drives).

AS TWO OF THIS MONTH'S NEWCOMERS SHOW, not all PCs are clunky black boxes that tower over the other peripherals on your desk. Shuttle's XPC G4 8520, which debuts in seventh place on our power list, is supremely compact; with its mirrored front and polished black side panels, this elegant model will look good in any environment. Somewhat larger is ABS's Harmony 1000: Eighth on our value list, this is a sleek, silver minitower that fits in nicely with both home and business decors.

The Shuttle packs a high-end Athlon processor and RAID hard drives—and has the horsepower for most demanding applications. It hit a performance high note of 145 on our PC WorldBench 4 tests, a score that puts this system within 3 percentage points of our top performer, the pricey Alienware Aurora Extreme.

At one-third the cost of the Alienware box, ABS's Harmony is a better value for

Visit find.pcworld.com/42675 for reviews of all products tested this month and ranked in this chart.

CPU	RAM (MB/type)	Hard drive ¹	Monitor	Graphics	Case type ²	Optical drives	Other features ³	Graphics quality	Setup and ease of use	Vendor's reliability/service
2.4-GHz Athlon 64 FX-53	2048/DDR400 SDRAM	398 (RAID)	19-inch LCD	256MB ATI Radeon 9800 XT	Midsized tower	8X DVD±RW and 16X DVD-ROM drives	Flash media reader, ³ Microsoft Wireless Optical keyboard and mouse, Klipsch ProMedia Ultra 5.1 speakers, no modem, Microsoft Office 2003 SBE	Outstanding	Outstanding	Good/ ⁴
2.4-GHz Athlon 64 FX-53	1024/DDR400 SDRAM	398 (RAID)	22-inch CRT	256MB ATI Radeon 9800 XT	Tower	8X DVD±RW and 48X CD-RW drives	Flash media reader, ³ Logitech Z-680 speakers, Microsoft Works Suite 2004	Very good	Very good	'/'
2.2-GHz Athlon 64 3400+	1024/DDR400 SDRAM	160 (RAID)	17-inch LCD	256MB ATI Radeon 9600 Pro	Midsized tower	8X DVD±RW and 48X CD-RW drives	Microsoft Works 7, Money 2004, MSN Encarta Plus	Very good	Good	Fair/Poor
2.2-GHz Athlon 64 3400+	1024/DDR400 SDRAM	250	19-inch LCD	256MB ATI Radeon 9800 XT	Midsized tower	8X DVD±RW drive	Flash media reader, ³ gigabit network adapter, Klipsch Ultra 5.1 speakers, no modem	Outstanding	Good	'/'
2.4-GHz Athlon 64 FX-53	512/DDR400 SDRAM	160 (RAID)	19-inch CRT	256MB ATI Radeon 9800 XT	Midsized tower	8X DVD±RW drive	Flash media reader, ³ Logitech Z-5300 speakers, Microsoft Works 7, no modem, Logitech Cordless MX Duo Keyboard and Optical Mouse	Very good	Good	'/'
2.2-GHz Athlon 64 3400+	1024/DDR400 PC3200	148 (RAID)	18-inch LCD	256MB NVIDIA GeForce FX 5950 Ultra	Midsized tower	8X DVD±RW and 16X DVD-ROM drives	Gigabit network adapter, Creative Inspire T7700 speakers, no modem, PC Works Suite	Very good	Fair	'/'
2.2-GHz Athlon 64 3400+	1024/DDR400 SDRAM	148 (RAID)	17-inch LCD	256MB ATI Radeon 9800 XT	Compact	8X DVD±RW drive	Logitech X-220 speakers, no modem, Microsoft Works Suite 2004	Very good	Good	'/'
CPU	RAM (MB/type)	Hard drive ¹	Monitor	Graphics	Case type ²	Optical drives	Other features ³	Graphics quality	Setup and ease of use	Vendor's reliability/service
2.8-GHz Pentium 4	512/DDR400 SDRAM	120	17-inch LCD	128MB NVIDIA GeForce FX 5200	Minitower	16X DVD-ROM and 48X CD-RW drives	Corel WordPerfect Productivity Pack, Microsoft Money 2003, Quicken 2003 New User Edition	Good	Good	Good/Fair
3-GHz Pentium 4	512/DDR400 SDRAM	160	15-inch LCD	128MB NVIDIA GeForce FX 5200G	Minitower	8X DVD±RW and 16X DVD-ROM drives	Flash media reader, ³ Microsoft Works Suite 2004, Pinnacle Expressions 2	Fair	Good	Good/Fair
2.67-GHz Pentium 4	256/DDR333 SDRAM	80	19-inch CRT	Integrated Intel 845GL graphics using main memory	Minitower	16X DVD-ROM and 48X CD-RW drives	Dell A425 speakers, Microsoft Works Suite 2003, Sonic MyDVD, Britannica 2003, Quicken 2002, Jasc Paint Shop Pro 8	Poor	Very good	Good/Fair
2.2-GHz Athlon 64 3400+	512/DDR400 SDRAM	80	19-inch CRT	256MB ATI Radeon 9800 XT	Midsized tower	8X DVD±RW drive	Flash media reader, ³ Logitech Z-640 speakers, no modem	Very good	Very good	'/'
3-GHz Pentium 4	512/DDR333 SDRAM	160	17-inch LCD	128MB ATI Radeon 9200	Midsized tower	8X DVD±RW and 16X DVD-ROM drives	Flash media reader, ³ Microsoft Works 7, Sony PictureGear Studio, Quicken 2004 New User Edition	Good	Fair	Good/Fair
2.2-GHz Athlon 64 3400+	512/DDR400 SDRAM	200	19-inch CRT	128MB EVGA GeForce FX 5900XT	Midsized tower	8X DVD±RW and 16X DVD-ROM drives	Logitech Z-640 speakers, Corel WordPerfect Productivity Pack, Ulead Digital Creation Suite	Outstanding	Very good	'/'
2-GHz Athlon 64 3200+	512/DDR400 SDRAM	120	17-inch LCD	128MB PNY FX5900SE	Midsized tower	8X DVD±RW drive	Flash media reader, ³ gigabit network adapter, Altec Lansing 251 speakers, Corel WordPerfect Productivity Pack, Ulead PhotoImpact, no modem	Outstanding	Good	'/'
2.8-GHz Pentium 4	512/DDR400 SDRAM	80	17-inch LCD	128MB ATI Radeon 9600 XT	Minitower	16X DVD-ROM and 52X CD-RW drives	Flash media reader, ³ Creative I-Trigue 3300 speakers	Very good	Good	Good/ ⁴

¹ Vertical cases are towers (over 20 inches), midsized towers (15.5 to 20 inches), or minitowers (under 15.5 inches). Compacts are small-footprint or thin horizontal cases.

² Unless otherwise stated, systems come with a modem and a 10/100 network adapter.

³ Includes support for some combination of CompactFlash I/II, Memory Stick, Memory Stick Pro, MultiMediaCard, Secure Digital, SmartMedia, and XD-Picture Card.

⁴ Insufficient data to give a rating.

⁵ Use Dell E-Value code 6V41I-460RPW to get this price.

⁶ Use Dell E-Value code 6V41I-D24REV to get this price.

PC buyers with modest budgets. It has the muscle for all but the most graphics-intensive tasks, and its most interesting feature is a set of nicely integrated, front-mounted audio playback controls.

The other new systems on this month's power list—from Micro Express, Xi Computer, and ZT Group—are your basic chunky black towers. Reasonably priced for their class, each of these systems is



equipped with a top-end AMD Athlon processor and plenty of storage capacity.

We were impressed by the speed and features, if not the styling, of IBuyPower's \$1694 Back To School system. The fastest PC in the value lineup, it might have qualified as a power system if not for its 19-inch CRT and relatively small 80GB hard drive. However, the sci-fi look of the system we received is over-the-top.



THE SUPERFAST IBUYPOWER has a freaky front facade that we found distracting.

TOP 15 NOTEBOOK PCs

DESKTOP REPLACEMENT		Overall rating	Street price (\$/14/04)	PC WorldBench 4 performance score ¹ 	Comments
1	Best BUY HP Compaq Nc6000 find.pcworld.com/41093	82	Average \$2032	Windows XP Professional Very good 125	Lightweight corporate notebook comes with dual wireless capabilities and great battery life. (★★★★★ May 04)
2	Gateway M405CS find.pcworld.com/42184	80	Inexpensive \$1522	Windows XP Home Very good 124	Offers fast performance for a low price. Order it with the lithium ion battery (as we did) to get the battery life we saw in our tests. (★★★★★ July 04)
3	Toshiba Satellite P15-S420 find.pcworld.com/42286	77	Inexpensive \$1699	Windows XP Home Good 118	Wide-screen notebook is a suitable desktop replacement if you don't need good stereo sound or upgradable storage. (★★★★★ July 04)
4	EMachines M6809 find.pcworld.com/42554 NEW	76	Inexpensive \$1650	Windows XP Home Very good 130	Speedy, affordable wide-screen notebook would be ideal for home users. It has loads of features. (★★★★★)
5	Toshiba Satellite P25-S670 find.pcworld.com/42552 NEW	74	Very expensive \$2699	Windows XP Media Center Edition Very good 121	Handsome multimedia notebook has a 17-inch screen, big storage possibilities, and a fast DVD burner capable of writing to all DVD formats. (★★★★★)
ALL-PURPOSE NOTEBOOK		Overall rating	Street price (\$/14/04)	PC WorldBench 4 performance score ¹ 	Comments
1	Best BUY IBM ThinkPad R50 find.pcworld.com/40025	82	Inexpensive \$1553	Windows XP Home Good 117	Well-rounded, affordable laptop turns in strong performance, and has long battery life and a great keyboard. (★★★★★ Mar 04)
2	Toshiba Tecra M2V-S310 find.pcworld.com/42558 NEW	81	Inexpensive \$1449	Windows XP Professional Good 119	Lightweight business notebook offers good battery life and generous storage expansion. (★★★★★)
3	Micro Express NP1620A find.pcworld.com/42186	80	Inexpensive \$1399	Windows XP Home Outstanding 137	Outperformed similarly equipped models, thanks to 1GB of RAM—our unit's maximum and twice that of most notebooks. (★★★★★ July 04)
4	Toshiba Satellite M35-S320 find.pcworld.com/40439	80	Inexpensive \$1649	Windows XP Home Good 118	Reasonably priced, wedge-shaped portable allows comfortable typing and displays graphics beautifully on its 15.4-inch screen. (★★★★★ Apr 04)
5	IBM ThinkPad T41 find.pcworld.com/39476	80	Average \$2023	Windows XP Professional Very good 123	The eraserhead and mouse buttons feel a bit flimsy and the battery is awkward to remove, but the overall design is still pleasing. (★★★★★ Feb 04)
ULTRAPORTABLE		Overall rating	Street price (\$/14/04)	PC WorldBench 4 performance score ¹ 	Comments
1	Best BUY IBM ThinkPad X31 find.pcworld.com/39512	80	Inexpensive \$1678 ²	Windows XP Professional Good 116	This near-perfect small notebook's only flaw: The optical drive is in a separate \$199 docking station. (★★★★★ Feb 04)
2	Toshiba Portégé M100 find.pcworld.com/38870	78	Expensive \$2199	Windows XP Professional Good 115	Sporty notebook combines a good keyboard, solid performance, strong audio, and long battery life. (★★★★★ Jan 04)
3	Dell Latitude X300 find.pcworld.com/38531	75	Expensive \$2345 ²	Windows XP Professional Good 116	On its own, this portable is just 3 pounds; its 1.9-pound media slice adds a full set of connections and great sound. (★★★★★ Dec 03)
4	Panasonic Toughbook W2 find.pcworld.com/39515	75	Average \$1995	Windows XP Professional Fair 105	Light, hardy little notebook has a unique top-mounted optical drive but a cramped keyboard, and it skimps on other features. (★★★★★ Jan 04)
5	Sony VAI0 PCG-TR3AP3 find.pcworld.com/42188	72	Very expensive \$3000	Windows XP Professional Fair 107	The VGA camera mounted on the screen is nice. The tinny speakers and shallow keystroke are drawbacks. (★★★★★ July 04)

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.

¹ See "Your Guide to the Top 100" at find.pcworld.com/15720 for more details.

² 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.)

³ Features listings are not exhaustive.

⁴ Unless otherwise noted, all notebooks come with a lithium ion battery.

⁵ Includes computer, AC adapter, power cord, optical drive, and floppy drive (if offered).

NEED A WIDE-SCREEN FOR LESS GREEN? For \$1650, our new number four desktop replacement, the EMachines M6809, offers a 15.4-inch display. It also delivers a multiformat DVD burner, a six-in-one card reader, an 80GB hard drive, and the second-best performance on the chart (trailing the third-place all-purpose notebook, the Micro Express NP1620A).

New in fifth place among desktop replacements is the Toshiba Satellite P25-S670. At \$2699, this Media Center model is the most expensive notebook in its set, but it has the only 17-inch screen on the chart, and it includes a bundled TV tuner and a good multimedia package overall. It

Visit find.pcworld.com/42568 for reviews of all products tested this month and ranked in this chart.

CPU ¹	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Bays and optical drives	Other features ²	Overall design	Battery life (hours:min) ³	Average weight (pounds) ³	Vendor's reliability/service
1.6-GHz Pentium M	14.1	512	60	Touchpad, eraserhead	One multipurpose bay with DVD-ROM and CD-RW combo drive	802.11a/g, gigabit ethernet, SD slot, embedded security chip	Very good	Outstanding/ 6:23	Light/ 6.6	Fair/Fair
1.5-GHz Pentium M	15.0	512	40	Touchpad	Fixed DVD-ROM and CD-RW combo drive	802.11g, Microsoft Works 7	Good	Very good/ 5:15	Average/ 7.1	Good/Good
3-GHz Pentium 4	15.4	512	80	Touchpad	Fixed DVD-ROM and CD-RW combo drive	802.11g, S-Video-out port	Good	Limited/ 1:28	Heavy/ 9.7	Good/Fair
2-GHz Mobile Athlon 64 3200+	15.4	512	80	Touchpad	Fixed DVD±RW drive	802.11g, six-in-one media card reader	Good	Fair/ 2:59	Heavy/ 9.0	*/*
3.2-GHz Pentium 4	17.0	512	80	Touchpad	Two multipurpose bays with DVD±RW/-RAM drive	802.11a/g, SD slot, TV tuner, remote control	Very good	Limited/ 1:17	Very heavy/ 11.3	Good/Fair
CPU ¹	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Bays and optical drives	Other features ²	Overall design	Battery life (hours:min) ³	Average weight (pounds) ³	Vendor's reliability/service
1.4-GHz Pentium M	14.1	512	40	Touchpad	One multipurpose bay with DVD-ROM and CD-RW combo drive	802.11b, S-Video-out port	Outstanding	Good/ 4:04	Light/ 6.5	Good/Good
1.5-GHz Pentium M	14.0	256	40	Touchpad	One multipurpose bay with DVD-ROM and CD-RW combo drive	802.11g	Good	Good/ 4:02	Light/ 5.7	Good/Fair
1.6-GHz Pentium M	14.1	1024	60	Touchpad	Fixed DVD-ROM and CD-RW combo drive	Three-in-one media card reader, 802.11g	Good	Fair/ 2:50	Light/ 6.4	*/*
1.4-GHz Pentium M	15.4	512	60	Touchpad	Fixed DVD-ROM and CD-RW combo drive	802.11b, SD slot	Good	Good/ 3:47	Average/ 7.1	Good/Fair
1.6-GHz Pentium M	14.1	512	40	Touchpad, eraserhead	One multipurpose bay with DVD-ROM and CD-RW combo drive	802.11b, Bluetooth, gigabit ethernet	Good	Good/ 4:19	Light/ 5.9	Good/Good
CPU ²	Screen (inches)	RAM (MB)	Hard drive (GB)	Pointing device	Bays and optical drives	Other features ³	Overall design	Battery life (hours:min) ⁴	Average weight (pounds) ⁵	Vendor's reliability/service
1.3-GHz Pentium M	12.1	512	20	Eraserhead	One multipurpose bay with DVD-ROM and CD-RW combo drive ⁶	802.11b, CompactFlash slot	Very good	Very good/ 4:49	Light/ 6.4	Good/Good
1.2-GHz Pentium M	12.1	256	40	Eraserhead	One multipurpose bay with DVD-ROM and CD-RW combo drive	802.11b, FireWire port	Very good	Good/ 4:11	Light/ 5.3	Good/Fair
1.2-GHz Pentium M	12.1	640	40	Touchpad	One multipurpose bay with DVD-ROM and CD-RW combo drive ⁶	802.11g, SD slot	Very good	Fair/ 2:07	Light/ 6.0	Good/Fair
900-MHz ULV Pentium M	12.1	256	40	Touchpad	Fixed DVD-ROM and CD-RW combo drive	802.11b, SD slot	Fair	Outstanding/ 7:00	Very light/ 3.7	*/*
1-GHz Pentium M	10.6	1024	40	Touchpad	Fixed DVD-RW drive	Memory Stick slot, integrated VGA camera (supports motion and JPEG), 802.11g	Good	Good/ 3:20	Very light/ 4.0	Good/Poor

¹ Insufficient data to give a rating.

² Price includes the extra-cost docking station.

³ Multipurpose bay is in docking station.

has mediocre stereo speakers, however.

In the all-purpose notebooks section, the 5.7-pound Toshiba Tecra M2V-S310 comes in second. This business portable's swappable bay can accept a modular hard drive for up to 80GB of additional storage.

We tested two other notebooks that did

not make the chart. The Micro Express NP3716A has a unique built-in Webcam, but this \$1799 portable stumbled in its incorporation of other features. We liked the Premio Kaypro L1000's lean weight and \$1225 price, but too many half-size keys made typing on it a chore. ■

TOSHIBA'S Tecra M2V-S310 is business-minded.



TOP 10 MONITORS

Visit find.pcworld.com/42874 for reviews of all products tested this month and ranked in this chart.

SAMSUNG'S MODERATELY PRICED SyncMaster 193P nabs Best Buy honors on the strength of its high image-quality scores. The ViewSonic VP191b, retested this month under our new protocol, is the only monitor on the chart to score an Outstanding rating in overall image quality, but it has fewer

features than Samsung's model. The high-performance MultiSync LCD1980SX from NEC scored second only to the ViewSonic VP191b. With the help of its included photo- and video-sharpening software, the Philips Brilliance 190P5EB presents a pretty picture, but it also costs a pretty penny.

	19-INCH LCD MONITOR	Street price (\$/21/04)	Overall rating	Quality of text/graphics	Comments
1	Best BUY Dell UltraSharp 1901FP find.pcworld.com/35777	\$719	87	Very good/ Very good	FEATURES: 16.2 pounds; dual video inputs; tilt, swivel, height, and pivot adjustments; optional speakers; headphone jack; four-port USB 2.0 hub; TCO'99 compliant; three-year warranty; 24-hour daily toll-free tech support. SUMMARY: Thoughtfully designed monitor offers a plethora of useful features and fine image quality to suit nearly any office or home user. (★★★★☆ Mar 04)
2	Best BUY Samsung SyncMaster 193P NEW find.pcworld.com/42444	\$779	86	Outstanding/ Very good	FEATURES: 15.6 pounds; dual video inputs; tilt, height, and pivot adjustments; color- and image-adjusting software; TCO'03 compliant; three-year warranty; 24-hour daily toll-free tech support. SUMMARY: This model, which displayed especially sharp text on our spreadsheets test, is highly adjustable and allows a variety of personalized preference profiles. (★★★★☆)
3	NEC MultiSync LCD1980SX NEW find.pcworld.com/42434	\$849	86	Very good/ Outstanding	FEATURES: 19.5 pounds; dual video inputs; tilt, swivel, height, and pivot adjustments; optional speakers; headphone jack; color- and image-adjusting software; TCO'03 compliant; three-year warranty; 24-hour daily toll-free tech support. SUMMARY: Realistic flesh tones contributed to a high graphics score for this monitor, which is from the vendor's high-end line. (★★★★☆)
4	Sharp LL-T19D1 find.pcworld.com/35765	\$749	85	Very good/ Outstanding	FEATURES: 15.2 pounds; dual video inputs; tilt, swivel, and height adjustments; color-adjusting software; TCO'99 compliant, three-year warranty, 24-hour daily toll-free tech support. SUMMARY: Physical adjustments could use some improvement, and controls could be beefed up, but this display offers crisp text and excellent graphics detail at a fair price. (★★★★☆ Mar 04)
5	ViewSonic VP191b find.pcworld.com/42442	\$789	84	Outstanding/ Outstanding	FEATURES: 16.5 pounds; dual video inputs; tilt, swivel, height, and pivot adjustments; TCO'99 compliant; three-year warranty; 24-hour daily toll-free tech support. SUMMARY: Highly adjustable, thin-bezel unit garnered the top image-quality scores on the chart after retesting under our new protocol; user settings and an attractive on-screen display make it painless to share. (★★★★☆)
6	HP L1902 NEW find.pcworld.com/42436	\$599	83	Very good/ Very good	FEATURES: 14.4 pounds; analog video input; tilt adjustment; TCO'03 compliant; three-year warranty; 24-hour daily toll-free tech support. SUMMARY: Low price is the main attraction of this analog-only corporate model, which presents well-organized and easy-to-understand controls but lacks physical adjustability and other desirable extras. (★★★☆☆)
7	Sony SDM-X93 find.pcworld.com/38303	\$799	83	Very good/ Very good	FEATURES: 16.5 pounds; dual video inputs; tilt, swivel, and height adjustments; headphone jack; TCO'99 compliant; three-year warranty; 24-hour daily toll-free tech support. SUMMARY: Fine color, intuitive controls, and above-average sound quality—even at loud volume—from built-in stereo speakers distinguish this multiple-input (two analog, 1 digital) monitor. (★★★★☆ Mar 04)
8	Philips Brilliance 190P5EB NEW find.pcworld.com/42438	\$899	82	Outstanding/ Very good	FEATURES: 18.3 pounds; dual video inputs; tilt, swivel, height, and pivot adjustments; headphone jack; image-adjusting software; TCO'99 compliant; three-year warranty; 16-hour weekday, 14-hour weekend toll-free tech support. SUMMARY: Good all-around performer includes software for sharpening photos and video—but it's the most expensive unit on the chart. (★★★★☆)
9	IBM ThinkVision L190p NEW find.pcworld.com/42864	\$779	81	Very good/ Very good	FEATURES: 16.1 pounds; dual video inputs; tilt, swivel, and height adjustments; TCO'99 compliant; three-year warranty; 24-hour daily toll-free tech support. SUMMARY: Competent business-oriented monitor has dual video inputs, but few frills beyond a nicely adjustable stand and long, comfortably curved control buttons that accommodate larger hands. (★★★★☆)
10	Princeton Digital SEnergy 914 find.pcworld.com/39395	\$649	81	Very good/ Good	FEATURES: 17.5 pounds; dual video inputs; tilt and height adjustments; TCO'99 compliant; three-year warranty; 9-hour weekday toll-free tech support. SUMMARY: Midrange device displays very good text and acceptable graphics, but vendor's weekday support hours are on the skimpy side—and its weekend support hours are non-existent. (★★★★☆ Mar 04)

FOOTNOTE: * 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. **HOW WE TEST:** Judges rate how well each monitor displays 13 text and graphics images at a native resolution of 1280 by 1024. Some screens are from DisplayMate for Windows (www.displaymate.com). See find.pcworld.com/34613 for testing details. Data based on tests designed and conducted by the PC World Test Center. All rights reserved. **CHART NOTES:** Overall ratings are based on text and graphics quality (20 percent each), price (15 percent), features (20 percent), ease of use (15 percent), and service and support (10 percent). With LCD monitors, the entire screen area is viewable. See find.pcworld.com/10860 for details on PC World's Star Ratings.

TOP 10 DVD DRIVES

TOP 100

TEST
Center

Visit find.pcworld.com/42934 for reviews of all products tested this month and ranked in this chart.

A 4.7GB DVD DOESN'T HOLD enough data for you? Consider a DVD+R DL (double-layer) drive, which allows you to write up to 8.5GB of data to a single disc. Sony's DRU-700A, the first double-layer drive we've tested, debuts in sixth place

on the internal drives list. Meanwhile, this month's chart is the first to separate the external drives from the internal ones. Memorex's stylish unit—from the same line as last month's sixth-place internal model—comes in second in its group.

INTERNAL DVD DRIVE		Street price (5/25/04)	Overall rating	Performance	Write performance (min:sec) ¹	Comments
1	Best BUY Plextor PX-712A find.pcworld.com/42466	\$205	91	Outstanding	• DVD+R 6:31 • DVD+RW 10:09 • CD-R 2:50	FEATURES: Internal IDE drive, 12X DVD+R, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 48X CD-R, 8MB buffer; Roxio Easy CD & DVD Creator 6.2 (with Drag-to-Disc and DVD Builder) and PhotoSuite 5 SE; 11-hour weekday toll-free support. SUMMARY: Speedy model took nearly 2 minutes less time than its predecessor to write to DVD+R (using 8X media), but +RW times were sluggish. (★★★★★ July 04)
2	Best BUY Lite-On SOHW-812S find.pcworld.com/41850	\$95	84	Very good	• DVD+R 9:18 • DVD+RW 9:09 • CD-R 3:14	FEATURES: Internal IDE drive, 8X DVD+R, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 40X CD-R, 2MB buffer; Sonic MyDVD 4.5, RecordNow DX 4.6, and DLA 3.6; 24-hour daily toll-free support. SUMMARY: Reasonably priced drive is a strong performer; software bundle is a couple of versions behind (upgrades are free downloads from the Lite-On site). (★★★★ June 04)
3	AOpen 8X DVD+/- RW Burner (DRW8800) find.pcworld.com/41846	\$100	81	Good	• DVD+R 9:33 • DVD+RW 11:51 • CD-R 3:38	FEATURES: Internal IDE drive, 8X DVD+R, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 32X CD-R, 2MB buffer; MediaStream NeoDVD 4.5, Ahead Nero Burning ROM 5.5 and InCD 4.1, Ulead VideoStudio 7 SE; 9-hour weekday toll-free support. SUMMARY: Drive has an array of software; but its rewrite performance is several minutes slower than the fastest we've seen. (★★★★ June 04)
4	Pacific Digital Mach 8 8x+/- DVD-Burner find.pcworld.com/42468	\$140	79	Good	• DVD+R 9:39 • DVD+RW 8:52 • CD-R 3:39	FEATURES: Internal IDE drive, 8X DVD+R, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 40X CD-R, 2MB buffer; Roxio Easy CD & DVD Creator 6.2 (with Drag-to-Disc and DVD Builder); 9-hour weekday toll-free support. SUMMARY: Performance nearly matches that of the less-expensive Lite-On drive, but you get an easier-to-use software bundle. Price drops \$40 this month. (★★★★ July 04)
5	Asus DRW-0804P find.pcworld.com/42472	\$130	79	Very good	• DVD+R 8:32 • DVD+RW 10:22 • CD-R 4:22	FEATURES: Internal IDE drive, 8X DVD+R, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 24X CD-R, 2MB buffer; Ahead Nero Express 6.3 (with Nero Vision Express, InCD, and Media Player); 15.5-hour weekday toll-call support. SUMMARY: Bare-bones model had competitive write-once performance, but trailed on our CD and rewritable tests. (★★★★ July 04)
6	Sony DRU-700A find.pcworld.com/42880 NEW	\$200	75	Very good	• DVD+R 9:23 • DVD+RW 10:13 • CD-R 3:12	FEATURES: Internal IDE drive, 8X DVD+R, 2.4X DVD+R double layer, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 24X CD-R, 2MB buffer; Ahead Nero Express 6.3 (with Nero Vision Express, InCD, and Back It Up); 12-hour weekday plus Saturday toll-free support. SUMMARY: Writes to 8.5GB double-layer media—if you can find any. Includes a bezel for use with black desktop systems. (★★★★)
7	Pioneer DVR-A07 find.pcworld.com/40421	\$150	75	Good	• DVD+R 8:23 • DVD+RW 9:32 • CD-R 4:46	FEATURES: Internal IDE drive, 8X DVD+R, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 24X CD-R, 2MB buffer; Ulead MovieFactory 3 SE, BurnNow 3.5, VideoStudio 7 SE and Photo Explorer 8, NovaStor Nova Backup 7.1; 10.5-hour weekday toll-free support. SUMMARY: A versatile software bundle complements this drive's fine write-once performance, but its CD-R speed is slow. (★★★★ Apr 04)
EXTERNAL DVD DRIVE		Street price (5/25/04)	Overall rating	Performance	Write performance (min:sec)	Comments
1	Best BUY TDK External Indi DVD 840G 8x Multiformat find.pcworld.com/40475	\$260	78	Very good	• DVD+R 8:22 • DVD+RW 9:02 • CD-R 3:02	FEATURES: External USB 2.0 and FireWire drive, 8X DVD+R, 4X DVD+RW, 4X DVD-R, 2X DVD-RW, 40X CD-R, 2MB buffer; Roxio Easy CD & DVD Creator 6.1 (with Drag-to-Disc and DVD Builder), PhotoSuite 5 SE, DVDMax Player, and Toast Lite (for Mac); 8-hour weekday toll-free support. SUMMARY: Attractive, dual-interface external drive has quick +R/+RW performance. (★★★★ Apr 04)
2	Memorex True 8X External Dual-Format DVD Recorder NEW find.pcworld.com/42872	\$205	75	Good	• DVD+R 9:40 • DVD+RW 9:58 • CD-R 3:40	FEATURES: External USB 2.0 and FireWire drive, 8X DVD+R, 4X DVD+RW, 8X DVD-R, 4X DVD-RW, 24X CD-R, 2MB buffer; Ahead Nero Express 6.3 (with Nero-Vision 2.1, InCD 4.1, Back It Up, and ReCode 2); 9-hour weekday toll-free support. SUMMARY: Sleek, moderately priced external model has a well-rounded software bundle and good documentation. (★★★★)
3	I/O Magic External 8X USB 2.0 Dual DVD IDVD8DBE find.pcworld.com/42474	\$180	69	Good	• DVD+R 10:46 • DVD+RW 9:19 • CD-R 3:16	FEATURES: External USB 2.0 drive, 8X DVD+R, 4X DVD+RW, 4X DVD-R, 2X DVD-RW, 40X CD-R, 2MB buffer; Pinnacle Instant CD/DVD SE, Roxio Easy CD & DVD Creator 6.1 (with Drag-to-Disc and DVD Builder) and PhotoSuite 5 SE; 9-hour weekday toll-call support. SUMMARY: Unit has lots of software, but +R speed is more than 2 minutes slower than the external TDK. (★★★ July 04)

FOOTNOTE: ¹ Write speed is the time (in minutes:seconds) to write 4.35GB to DVD, to format a blank rewritable DVD disc and copy 2.64GB of data to that disc, and to write 700MB to a CD-R. **HOW WE TEST:** See find.pcworld.com/42952 for our test methodology and for a breakdown of the overall rating, and see find.pcworld.com/10860 for details on PC World's Star Ratings.

TOP 10 DIGITAL CAMERAS

Visit find.pcworld.com/42866 for reviews of all products tested this month and ranked in this chart.

THE TREND TOWARD EVER SMALLER, ever more powerful digital cameras continues: Sony's Cyber-shot DSC-W1, for example, takes accessory lenses but is small enough to fit in your hand. This attractive model's 2.5-inch LCD makes playing back your shots a joy. Olympus puts 6.1 megapixels in

your pocket with its new C-60 Zoom; it looks like a simple point-and-shoot but offers an assortment of advanced creative controls. Both units are ideal for light-and-fast travel photography. The ultrathin Kyocera Finecam SL400R and Pentax Optio S40 missed the chart; read their reviews on our site.

	POINT-AND-SHOOT CAMERA	Street price (\$/26/04)	Overall rating	Image quality	Ease of use	Battery life/shots	Comments ¹
1	Best BUY Sony Cyber-shot DSC-W1 NEW find.pcworld.com/42834	\$400	82	Very good	Very good	Outstanding/342	FEATURES: 5.1-megapixel resolution, 32MB Memory Stick, 38mm to 114mm focal range, 640 by 480 video with audio, 8.8 ounces. SUMMARY: What's not to like—the DSC-W1 is relatively compact but boasts a huge 2.5-inch LCD, provides some advanced controls (such as full-manual exposure), and takes optional lenses. (★★★★★)
2	Best BUY Nikon Coolpix 3200 find.pcworld.com/42054	\$249	81	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, the Coolpix produces fine images for a 3.2-megapixel model. Includes 15 scene modes and white-balance calibration. (★★★★ July 04)
3	HP Photosmart R707 find.pcworld.com/41998	\$349	80	Good	Good	Very 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 some advanced controls, such as white-balance calibration and manual focus. (★★★★ July 04)
4	Canon PowerShot A75 NEW find.pcworld.com/42004	\$300	80	Fair	Very good	Outstanding/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. (★★★★)
5	Kodak EasyShare DX7630 find.pcworld.com/42264	\$500	78	Good	Very good	Outstanding/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: A dazzling 2.2-inch LCD highlights this relatively small camera, which also includes controls for aperture priority, shutter priority, and full manual exposure. (★★★★ July 04)
6	Olympus C-60 Zoom NEW find.pcworld.com/42830	\$449	78	Very good	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. SUMMARY: Powerful yet compact unit offers a fine selection of semiautomatic (aperture- and shutter-priority) and manual exposure modes; a wireless remote trigger makes for easy self-portraits. (★★★★)
7	Sony Cyber-shot DSC-T1 find.pcworld.com/42324	\$499	77	Very good	Very good	Fair/175	FEATURES: 5.1-megapixel resolution, 32MB Memory Stick, 38mm to 114mm focal range, 640 by 480 video with audio, 6.3 ounces. SUMMARY: Ultrathin and very pricey Sony lacks an eye-level viewfinder, but its supertiny, 2.5-inch LCD more than makes up for that. The camera is easy to use, despite its small size. (★★★★★ July 04)
8	Olympus D-580 Zoom find.pcworld.com/41948	\$250	76	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. SUMMARY: 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. (★★★ July 04)
9	Canon PowerShot S1 IS find.pcworld.com/42038	\$499	76	Good	Very good	Fair/144	FEATURES: 3.2-megapixel resolution, 32MB CompactFlash card, 38mm to 380mm focal range, 640 by 480 video with audio, 17.6 ounces. SUMMARY: The S1 IS is nicely designed, but it combines high-end features (including image stabilization) with a relatively low 3.2-megapixel resolution. (★★★★ July 04)
10	Canon PowerShot S500 Digital Elph find.pcworld.com/41916	\$499	76	Good	Very good	Fair/178	FEATURES: 5-megapixel resolution, 32MB CompactFlash card, 38mm to 108mm focal range, 640 by 480 video with audio, 8 ounces. SUMMARY: Rugged, finely crafted camera fits easily into a small bag or large pocket and has exceptionally fast startup; no scene modes to help novice photographers, however. (★★★★ July 04)

FOOTNOTES: ¹Resolutions 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 (25 percent), 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.

MORE REVIEWS

MISSED AN ISSUE OF *PC World* or passed your copy along to a friend? Here's a recap of *Top 100* topics and other reviews 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. In next month's *Top 100*, we will include charts ranking advanced digital cameras, graphics boards, and hard drives. In addition, our Spotlight review will take a closer look at notebook PCs.



THE SAMSUNG SyncMaster 172X, a svelte 17-inch LCD monitor, has a small footprint and a fast, 12-millisecond response time ideal for DVD viewing and for gaming. It comes with dual video inputs and image-adjusting software.



A BUILT-IN 1.2-megapixel camera, an MP3 player, and organizing apps make the PalmOne Zire 72 a good tool for leisure and business. The camera takes fairly sharp photos, as well as videos.

REWRITABLE DVD DRIVES find.pcworld.com/42512	17-INCH LCD MONITORS find.pcworld.com/42236	PDAs find.pcworld.com/42476	DIGITAL CAMERAS find.pcworld.com/42888
1 Best BUY Plextor PX-712A find.pcworld.com/42466	1 Best BUY Dell UltraSharp 1703FP find.pcworld.com/39407	1 Best BUY HP iPaq Pocket PC H4150 find.pcworld.com/39011	Canon PowerShot S1 IS find.pcworld.com/42038
2 Best BUY TDK External Indi DVD 840G 8x Multiformat find.pcworld.com/40475	2 Best BUY Samsung SyncMaster 173P find.pcworld.com/39383	2 Best BUY Asus MyPal A716 find.pcworld.com/42194	Canon PowerShot S500 Digital Elph find.pcworld.com/41916
3 Lite-On LDW-812S find.pcworld.com/41850	3 Eizo Nanao FlexScan L557 find.pcworld.com/39377	3 HP iPaq Pocket PC H4350 find.pcworld.com/39008	Fujifilm FinePix A330 find.pcworld.com/42044
4 AOpen 8X DVD+-RW Burner (DRW8800) find.pcworld.com/41846	4 Samsung SyncMaster 172X find.pcworld.com/40877	4 Toshiba Pocket PC E405 find.pcworld.com/42240	Best BUY HP Photosmart R707 find.pcworld.com/41998
5 Kano Technologies K8Xtreme find.pcworld.com/40472	5 IBM ThinkVision L170p find.pcworld.com/37499	5 Sony Clié PEG-TH55 find.pcworld.com/42358	Kodak EasyShare DX7630 find.pcworld.com/42264
6 Memorex True 8X Dual Format DVD Recorder find.pcworld.com/40424	6 Hewlett-Packard L1730 find.pcworld.com/39380	6 Toshiba Pocket PC E800 find.pcworld.com/42238	Konica Minolta DiMAGE Z2 find.pcworld.com/42290
7 TDK Internal Indi DVD 8x+/8x- Multiformat Burner 880N find.pcworld.com/41852	7 Sony SDM-HS73P find.pcworld.com/42212	7 PalmOne Zire 72 find.pcworld.com/42246	Best BUY Nikon Coolpix 3200 find.pcworld.com/42054
8 Asus DRW-0804P find.pcworld.com/42472	8 NEC MultiSync LCD1765 find.pcworld.com/42202	8 PalmOne Tungsten E find.pcworld.com/38030	Olympus D-580 Zoom find.pcworld.com/41948
9 I/O Magic External 8X USB 2.0 Dual DVD IDVD80BE find.pcworld.com/42474	9 Iiyama ProLite E431S find.pcworld.com/42196	9 PalmOne Tungsten C find.pcworld.com/36887	Panasonic Lumix DMC-FZ10 find.pcworld.com/42260
10 Pioneer DVR-A07 find.pcworld.com/40421	10 ViewSonic VG710s find.pcworld.com/39389	10 PalmOne Zire 31 find.pcworld.com/42248	Sony Cyber-shot DSC-T1 find.pcworld.com/42324
From the July 2004 issue	From the July 2004 issue	From the July 2004 issue	From the July 2004 issue

POINT-AND-SHOOT MODELS FROM OUR ARTICLE "TAKE YOUR BEST SHOTS" (CAMERAS NOT RANKED)

HERE'S HOW

EDITED BY MICHAEL S. LASKY, DENNIS O'REILLY, AND ERIC DAHL



HARDWARE TIPS

KIRK STEERS

Complete PC Preventive Maintenance Guide

"TAKE GOOD CARE of your PC, and it will take good care of you."

It's a nice sentiment, but reality is more like "Take good care of your PC, and it won't crash, lose your data, and cost you your job—probably." Follow these steps to stop PC problems before they stop you.

Your PC's two mortal enemies are heat and moisture. Excess heat accelerates the deterioration of the delicate circuits in your system. The most common causes of overheating are dust and dirt: Clogged

vents and CPU cooling fans can keep heat-dissipating air from moving through the case, and even a thin coating of dust or dirt can raise the temperature of your machine's components.

Any grime, but especially the residue of cigarette smoke, can corrode exposed metal contacts. That's why it pays to keep your system clean, inside and out.

If your PC resides in a relatively clean, climate-controlled environment, an annual cleaning should be sufficient. But in

most real-world locations, such as dusty offices or shop floors, your system may need a cleaning every few months.

All you need are lint-free wipes, a can of compressed air, a few drops of a mild cleaning solution such as Formula 409 or Simple Green in a bowl of water, and an antistatic wrist strap to protect your system when you clean inside the case.

THINK OUTSIDE THE BOX

BEFORE YOU GET STARTED cleaning, check around your PC for anything nearby that could raise its temperature (such as a heating duct or sunshine coming through a window). Also clear away anything that might fall on it or make it dirty, such as a bookcase or houseplants.

Always turn off and unplug the system before you clean any of its components. Never apply any liquid directly to a component. Spray or pour the liquid on a lint-free cloth, and wipe the PC with the cloth.

Clean the case: Wipe the case and clear its ventilation ports of any obstructions. Compressed air is great for this, but don't blow dust *into* the PC or its optical and floppy drives. Keep all cables firmly attached to their connectors on the case.

Maintain your mechanical mouse: When a nonoptical mouse gets dirty, the pointer moves erratically. Unscrew the ring on the bottom of the unit and remove the ball. Then scrape the accumulated gunk off the two plastic rollers that are set 90 degrees apart inside the ball's housing.

Keep a neat keyboard: Turn the keyboard upside down and shake it to clear the crumbs from between the keys. If that doesn't suffice, blast it (briefly) with compressed air. If your keys stick or your keyboard is really dirty, pry the keys off for easier cleaning. Computer shops have

152 HARDWARE TIPS

Stop trouble before it stops your PC, by following our comprehensive guide to hardware maintenance.

156 WINDOWS TIPS

Add real-time Internet data to your Windows desktop; get a graphical view of folders with the free TreeSize utility.

158 STEP-BY-STEP

You can't tell your ports without a scorecard: a side-by-side comparison of all your PC-connector alternatives.

160 INTERNET TIPS

Avoid viruses and scams by knowing what to click and what to trash; faster downloads via free peer-to-peer.

162 ANSWER LINE

Keep people from installing software on a shared PC; restore a .zip file-download option; mystery tilde (~) files revealed.



156



FIGURE 1: THE CMOS BATTERY on your motherboard may need to be replaced after four or five years.

special tools for removing keys, but you can also pop them off by using two pencils with broken tips as jumbo tweezers—just be sure to use a soft touch.

Make your monitor sparkle: Wipe the monitor case and clear its vents of obstructions, without pushing dust into the unit. Clean the screen with a standard glass cleaner and a lint-free cloth. If your monitor has a degauss button (look for a small magnet icon), push it to clear magnetic interference. Many LCDs can be cleaned with isopropyl alcohol; check with your LCD manufacturer. Wipe your LCD lightly: The underlying glass is fragile.

Check your power protection: Reseat the cables plugged into your surge protector. Check the unit's warning indicator, if it has one. Surge protectors may power your PC even after being compromised by a voltage spike (making your system susceptible to a second spike). If your power protector doesn't have a warning indicator and your area suffers frequent power outages, replace it with one that has such an indicator and is UL 1449 certified.

Swipe your CD and DVD media: Gently wipe each disc with a moistened, soft cloth. Use a motion that starts at the center of

the disc and then moves outward toward the edge. Never wipe a disc in a circular motion.

INSIDE THE BOX

BEFORE CRACKING open the case, turn off the power and unplug your PC. Ground yourself before you touch anything inside to avoid destroying your circuitry with a static charge. If you don't have a grounding wrist strap, you can ground yourself by touching any of various household objects, such as a water pipe, a lamp, or another grounded electrical device. Be sure to unplug the power cord before you open the case.

Use antistatic wipes to remove dust from inside the case. Avoid touching any circuit-board surfaces. Pay close attention to the power-supply fan, as well as to the case and to CPU fans, if you have them. Spray these components with a blast of compressed air to loosen dust; but to remove the dust rather than rearrange it, you should use a small vacuum like the \$12 Belkin MiniVak (www.belkin.com).

If your PC is more than four years old, or if the expansion cards plugged into its motherboard are exceptionally dirty, remove each card, clean its contacts with isopropyl alcohol, and reseat it. If your system is less than a couple years old, however, just make sure each card is firmly seated by pressing gently downward on its top edge while not touching its face. Likewise, check your power connectors, EIDE connectors, and other internal cables for a snug fit.

While you have the case open, familiarize yourself with the CMOS battery on the motherboard (see **FIGURE 1**). For its location, check the motherboard manual. If your PC is more than four or five years old, the CMOS battery may need to be replaced. (A system clock that loses time is one indicator of a dying CMOS battery.)

LOOK FOR TROUBLE

GIVE YOUR PC a periodic checkup with a good hardware diagnostic utility. Two excellent choices are Sandra Standard from SiSoftware and #1-TuffTest-Lite from #1-PC Diagnostics. Go to find.pcworld.com/42168 to download the free version of Sandra (the full version of the application costs \$35), and visit find.pcworld.com/42170 to download #1-TuffTest-Lite (the fully functional version is \$10).

Adding and removing system components leaves orphaned entries in the Windows Registry. This can increase the time your PC takes to boot and can slow system performance. Many shareware utilities are designed to clean the Registry, but my favorite is Registry Drill from Easy Desk Software. The program is free to ▶

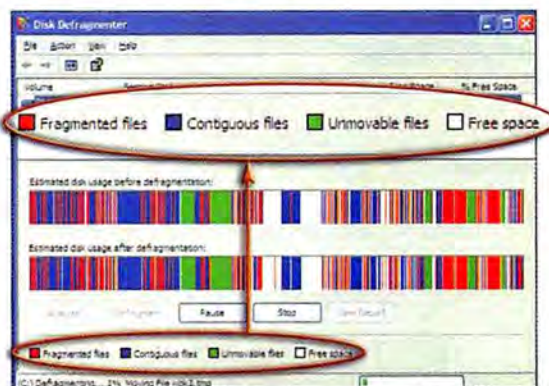


FIGURE 2: RUN WINDOWS' DISK defragmenter regularly to speed up hard-disk performance.

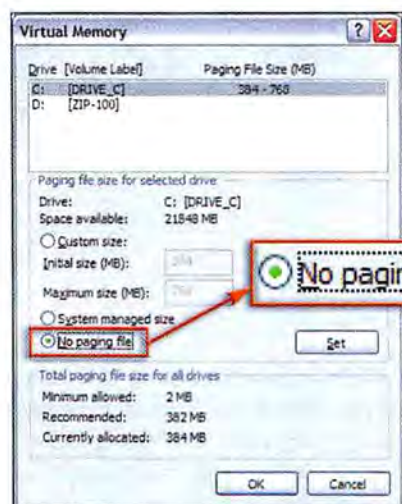


FIGURE 3: RESET YOUR SWAP file by temporarily disabling its Windows setting.

try and \$40 to keep. Go to find.pcworld.com/42172 to download a trial copy.

Windows stores files on a hard drive in rows of contiguous segments, but over time the disk fills and segments become scattered, so they take longer to access. To keep your drive shipshape, run Windows' Disk Defragmenter utility. Click *Start>Programs (All Programs in XP)>Accessories>System Tools>Disk Defragmenter*. If your drive is heavily fragmented, you could boost performance (see **FIGURE 2**). Defragmenting may take hours, however. Disable your screen saver and other automatic programs beforehand to keep the defrag from restarting every few minutes.

Disk Defragmenter won't defragment the file on your hard drive that holds overflow data from system memory (also known as the swap file). Since the swap file is frequently accessed, defragmenting

it can give your PC more pep. You can defragment your swap file by using a utility such as the SpeedDisk program included with Norton SystemWorks 2004, but there's a way to reset it in Windows.

In Windows XP, right-click *My Computer* and choose *Properties*. Click *Advanced*, and then choose the *Settings* button under Performance. Click *Advanced* again and the *Change* button under Virtual Memory. Select another drive or partition, set your swap file size, and click OK. Visit find.pcworld.com/42380 for instructions on moving your swap file in other versions of Windows. If you have only one partition and no way to create a second one, and you have at least 256MB of RAM, disable the swap file rather than moving it: Select *No paging file* in the Virtual Memory settings (see **FIGURE 3**). If you have trouble booting, start Windows in Safe Mode and re-enable this option.

HARD-DRIVE CHECKUP

WINDOWS XP offers a rudimentary evaluation of your hard disk's health with its error-checking utility: Right-click the drive's icon in Windows Explorer and select *Properties>Tools>Check Now*. (Windows can fix errors and recover bad sectors automatically if you wish.) If the check discovers a few file errors, don't worry, but if it comes up with hundreds of errors, the drive could be in trouble.

To conduct a more thorough examination, go to find.pcworld.com/42176 and download Panterasoft's free HDD Health utility, which monitors hard-drive performance and warns of impending disaster

(see **FIGURE 4**). The program works only with drives that support S.M.A.R.T. technology, but nearly all drives released since 2000 are S.M.A.R.T.-compliant.

Many hardware and software designers humbly assume you want their program running on your PC all the time, so they tell Windows to load the application at startup (hence, the ever-growing string of icons in your system tray). These programs eat up system resources and

PC MAINTENANCE

Four Tips for Longer PC Life

1. **Keep your PC in a smoke-free environment.** Tobacco smoke can damage delicate contacts and circuits.
2. **Leave your PC running.** Powering up from a cold state is one of the most stressful things you can do to your system's components. If you don't want to leave your PC running all the time, use Windows' Power Management settings to put your machine into hibernation rather than completely shutting down. In Windows XP, right-click the desktop and select *Properties*. Click the *Screen Saver* tab and select the *Power* button. Choose the *Hibernate* tab to ensure that hibernation is enabled, and then select a time beneath 'System hibernates' under the Power Schemes tab. (Note that this option is not available on all PCs.) Computers running older versions of Windows may or may not provide similar power-management features. Look under the Power Management icon (Power Options in Windows 2000) in Control Panel to evaluate your machine's capabilities.

While our PC myths feature (page 107) says that turning your PC off "does more good than harm," I find that my PCs last longer when I keep them in hibernation.

3. **Don't leave your monitor running.** The best way to extend your display's life is to shut it off when it's not in use.
4. **Avoid jostling the PC.** Whenever you move your system, even if it's just across the desktop, make sure the machine is shut down and unplugged.

make hardware conflicts and compatibility problems more likely. To prevent them from launching, just click *Start>Run*, type *msconfig*, and press *<Enter>*. The programs listed under the Startup tab are set to start along with Windows. Uncheck the box at the left of each undesirable program to prevent it from starting automatically. ■

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.

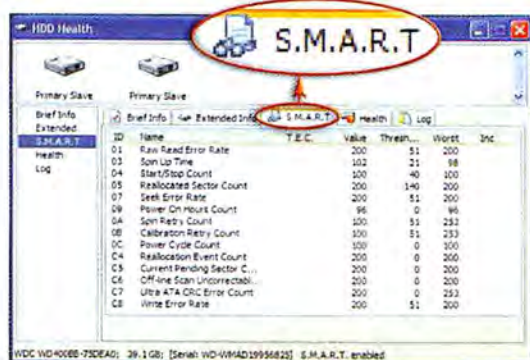


FIGURE 4: HDD HEALTH ALERTS YOU to impending trouble using your drive's built-in S.M.A.R.T. technology.

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WINDOWS TIPS

SCOTT DUNN

**LIVE WEB UPDATES
ON YOUR DESKTOP**

**IDENTIFY MYSTERY
SYS-TRAY ICONS**

**A FREEBIE GRAPHS
YOUR FILE SIZES**

Have the World Delivered to Your PC's Desktop

Windows 2K XP 98 ME WHETHER IT'S cluttered with icons or adorned with tasteful wallpaper, your Windows desktop just sits there. Why not put it to work showing you the information you really need? What's the weather going to be like on Saturday? How's my Martha Stewart Living stock doing? What does the commute traffic look like? In only a few minutes, you can add these and similarly useful items to your desktop. Once they're in place, Windows does all the work, automatically updating the information at the interval you choose.

Microsoft has some special Web toys designed specifically for the Windows desktop, but you can add any Web page or graphic that gets updated with useful information regularly. Check your favorite news, weather, traffic, sports, financial,

and other sites that refresh frequently. To add a whole Web page to your desktop, go to the site; click the URL in the Address bar at the top of the Internet Explorer browser (to highlight the URL); and press **<Ctrl>-C**, or right-click the URL and choose **Copy**. To add a single Web graphic, right-click the picture, choose **Properties**, and select the text to the right of 'Address:' (the graphic's URL). Press **<Ctrl>-C** to copy the address to the clipboard (see **FIGURE 1**). The address or URL you copy must refer to an actual file, such as one ending in .html, .gif, or .jpg.

Once you've copied the URL to the clipboard, right-click the desktop and choose **Properties**. In Windows 9x, 2000, and Me, click the **Web** tab. (To get to this tab directly, right-click the desktop and choose **Active Desktop**•**Customize my Desktop**.) If the option isn't checked, click **View my Active Desktop as a web page** (Windows 9x) or **Show Web Content on my Active Desktop** (Windows 2000 and Me). In Windows XP, select the **Desktop** tab, click the **Customize Desktop** button, and then click the **Web** tab. In all Windows versions, click the **New** button.

If you want to check out Microsoft's Desktop Gallery of goodies (such as a customizable stock ticker, a weather map, and sports scores), click **Yes** when prompted in Windows 9x or click **Visit Gallery** in other versions of Windows. If you want an item you see in the gallery, click **Add to Active Desktop** and follow the prompts on screen. Windows may later prompt you to install and configure some software.

To add a link to a Web page or graphic, click the **Location** field in the **New Active Desktop Item** dialog box (**New Desktop Item** in Windows XP). Press **<Ctrl>-V** (or right-click inside the field and choose **Paste**) and click **OK**. In the **Add Item** to **Active Desktop** dialog, click **Customize** to start the **Offline Favorite Wizard**. This sets a time for automatic updating. Click **Next**. When asked how to synchronize, decide how you'd like to keep the info up to date. If you're on dial-up and want to update items manually, select **Only when I choose Synchronize from the Tools menu**.

If you'd like the items to update automatically, select **I would like to create a new schedule** and click **Next**. Specify the update frequency and time. (We'll set the options for updating several times a day on the



FIGURE 2: SCHEDULE YOUR desktop updates with the Offline Favorite Wizard.

next page.) If you're adding other items to your desktop that you'll update at the same time, type a name for your custom schedule. If you're on a dial-up connection and want the synchronization to

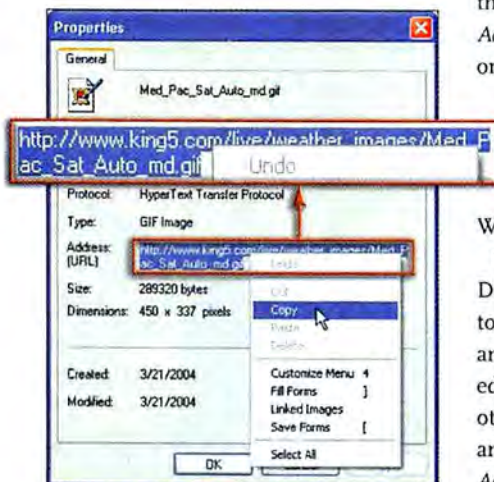


FIGURE 1: ADD A WEB PAGE, graphic, or animation to the desktop by copying its URL.

WHAT'S ON MY TRAY?

IF YOU'RE NOT SURE what all the little icons collecting in your system tray (the area at the end of the taskbar) are for, hold your mouse pointer over each one. A tool tip should pop-up with the name of the running application that the icon represents. If you need more information about the program associated with an icon, check the list of some common taskbar icons, along with information and links about each one, provided by the good folks at Computer Hope (www.computerhope.com). Visit find.pcworld.com/42160 to have a look at the list.

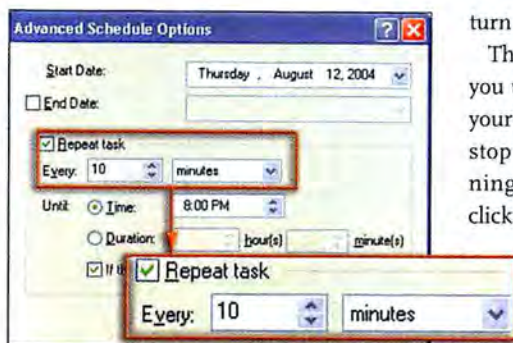


FIGURE 3: UPDATE DESKTOP items as often as you wish via **Advanced Schedule Options**.

access the Web automatically at the specified time, check the appropriate box. Click **Next** (see **FIGURE 2**).

If the site needs a password, select *Yes, my user name and password are* and enter the information to keep from having to enter it manually for each update. Otherwise, click *No* and then *Finish*. Finally, click **OK** in the **Add Item to Active Desktop** dialog box. Windows synchronizes the item and then adds it to the list of **Active Desktop** items in the **Web** tab.

Traffic reports and other items that need frequent updates require some further scheduling. Select the item in the list on the **Web** tab, and then click *Properties*. Choose the *Schedule* tab and make sure *Using the following schedule(s)* has been highlighted. Select the item you're going to schedule and click

turn off your PC (see **FIGURE 3**). Click **OK**.

The controls under the **Settings** tab let you update only when you're away from your computer (the *Idle Time* options) or stop updates when your system is running on batteries. Make your choices, click **OK** until you close the dialog boxes and return to your desktop.

Now that you have created a schedule for updating, you can skip these steps when adding future items to your desktop, if you don't mind them updating at the same time. When prompted to synchronize an item using the *Offline Favorite Wizard*, choose *Using this existing schedule*, select the schedule you named earlier, and follow the remaining prompts in the wizard.

To reposition or resize a desktop item, click it (but not a Web link) to make a border appear. Move the pointer to the top of the image to see a kind of titleless title bar that you drag to reposition your item. Drag any edge to resize it. As a general rule, graphics will look better if you don't resize them. Web pages have scroll bars, so you can position the information you want to see within the desktop item.

Place the items on your desktop where they look best and are easy to read. Use Windows' Paint or another image-editing program to create desktop wallpaper to organize your desktop items. The wallpaper is visible in the areas between your automatically updating items (see **FIGURE 4**).

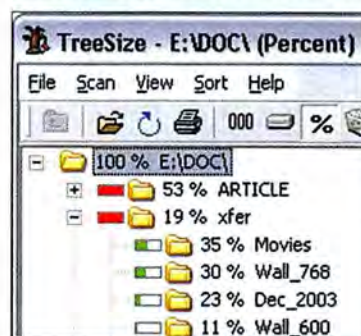
If you don't see a border or top bar around your item, the *resize* option may be locked: Right-click the desktop, choose *Active Desktop* (in Windows 2000 and Me) or *Arrange Icons By* (in XP), and uncheck *Lock Desktop Items* or *Lock Web Items on Desktop*, depending on your version. When the desktop items are positioned as you like, recheck the command to freeze them in place. (None of these commands appear on the *Active Desktop* submenu unless *Show Web Content* is checked.) In XP, return to the **Web** tab of the **Desktop Items** dialog box and check *Lock desktop items* to keep the items where they are on the desktop.

To update items manually, right-click the desktop and choose *Active Desktop*.

WINDOWS TOOLBOX

Track Disk Space Hogs With the Free TreeSize

NO MATTER WHAT you do, Windows' annoying low-disk-space warnings won't stop. How do you determine which of your bazillion folders hold the real space wasters? One easy—and free—solution is **TreeSize** from Joachim Marder of JAM Software. The program uses Explorer's familiar folder-tree diagram to show the contents of a selected folder or drive, but it adds a bar chart for each branch so you can see which folder or group of nested folders takes up the most space. You can



configure the display to see the size of each folder, the bytes allocated to each, the percentage of space each consumes, or the bytes wasted due to empty space in clusters used by the FAT32 disk format. For a more sophisticated analysis of your files and folders, try JAM Software's \$40 **TreeSize Professional** shareware. Browse to find.pcworld.com/42166 to download the free version of this utility.

Update Now (in Windows 9x) or *Active Desktop*•*Synchronize* (in Windows 2000 and Me). Or choose *Tools*•*Synchronize* in any folder window. Check the boxes for the items to update, and click *Synchronize*.

Ta-da! Now press <Windows>-D or <Windows>-M to minimize all other windows and see your items on the desktop. (Our thanks to Oscar Guerra of Seattle, Washington, for suggesting this tip.) ■

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.



FIGURE 4: ARRANGE DESKTOP items to get the best view of the information you need.

Edit. Choose the *Schedule* tab and then the *Advanced* button. Check *Repeat task* and specify the update interval. Use the options under 'Until' to stop the updating at the end of the day or when you leave or

STEP BY STEP

STAN MIASTKOWSKI

No More Cable Confusion

ARE YOU CONFUSED by the proliferation of jacks and connectors on the fronts and backs of today's PCs? Not so long ago, figuring out where to plug in the

keyboard, mouse, printer, and external dial-up modem was relatively simple. But now we have USB, FireWire, and network jacks, not to mention a whole

THE TOP DOWN

Vendors: Belkin (www.belkin.com), CableGear (www.cablegear.com), Cables To Go (www.cablestogo.com), PC Cables (www.pccables.com)

raft of audio and video connections—some of which look alike but are used to handle vastly different types of signals. Let's clear up the confusion. ■

See find.pcworld.com/31676 for more of Stan Miastkowski's Step-by-Step columns.



PS/2 keyboard and mouse connectors. Most keyboards and mice now use USB instead.



USB port. Used for mice, keyboards, printers, and more. USB 1.1 and 2.0 connectors look identical. Check your manual to see which type your PC has.



Network port. The eight-wire RJ-45 connector is the standard interface used to connect to a wired network.



Mini audio jack. These eighth-inch jacks come in several types and move audio around your sound system.



VGA monitor port. This connector is still the standard for linking an analog monitor to a graphics card.



Joystick connector. Most game controllers today connect to a USB port, so this jack is getting harder to find.



Toslink connectors. Used to carry digital audio to and from speakers and stereo gear.



RCA jack. These common ports can be used to carry composite video or audio in digital or analog format.



Parallel printer port. Though many printers use faster USB ports, some still carry this aging connector.



IEEE 1394 port. Also known as FireWire (Apple originally developed and trademarked it), IEEE 1394 is a high-speed (400 mbps) connection that's often used to transfer digital video between a camcorder and a PC or to connect an external hard drive.



S-Video jack. Though similar to PS/2 ports, these connectors have fewer pins and carry TV-style analog video.



DVI monitor port. Lets you connect a digital LCD monitor. Hooking up an analog monitor requires an adapter.



RJ-11 modem jack. This jack lets you connect to a standard phone line.



Serial port. Although rarely used today, serial ports formerly connected mice or modems.

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INTERNET TIPS

SCOTT SPANBAUER

**JUST HOW SAFE IS
ANTI-SPYWARE?**

**DOWNLOAD LARGE
FILES FASTER**

**CUT THE DANGERS
OF ACTIVEX FILES**

Think Before You Click to Avoid Viruses and Scams

ONE PHENOMENON that has become quite obvious from the vast numbers of virus victims over the last year is that people click first and ask questions later. Maybe we're inspired by the false belief that firewalls, antivirus software, and anti-spyware programs protect us from all

form of e-mail attachments. A few of them exploit security flaws in Windows or in your browser to launch automatically, but if you keep your programs updated, your chances of being infected via this route are slim to none.

Instead of exploiting software flaws, some of the worst recent viruses rely on recipients' tossing out common sense and launching a lethal e-mail attachment. Common executable—and therefore dangerous—file-name extensions include .bat, .com, .exe, .pif, .scr, and .vbs (go to find.pcworld.com/42378 to read the discussion of dangerous file types in February's *Windows Tips* column). To

may even have received spam from yourself as a result of this clever technique.

Of course, not all e-mail is bad. But if a message from a coworker or friend insists that you launch a file attachment, first confirm with the sender what the file is (make a call or send an e-mail asking whether the purported sender in fact e-mailed the file attachment, and whether it is indeed intended for you). If you have any doubts about the legitimacy of the message and its attachment, delete them.

Don't believe the message: To persuade you to launch a virus-laden mail attachment or provide your personal information, virus authors must earn your trust. They try to accomplish this by composing convincing-looking messages that appear to be sent from Microsoft, your ISP, or some other entity you do business with. The message may even contain links to a counterfeit version of the company's Web site, complete with genuine-looking graphics and corporate logos.

Often the message laments that the company is experiencing technical problems, and that it needs you to click an executable attachment. You don't need to rely on your intuition to determine whether this message is truthful. If the message hasn't been verified by a company representative via phone or in person, it almost certainly contains a virus.



FIGURE 1: DON'T OPEN THAT ARCHIVE, even if the person who created the virus it contains provides the password.

viruses, worms, and intrusive programs. But even the best of these shields can't always protect you from your biggest security threat: yourself.

Curiosity killed the cat, and sometimes it ropes us into launching viruses, gobbling spam, installing browser-disabling add-ons, or even forking over credit card numbers and passwords. You're probably smarter than that, but I'll bet you have a credulous friend or relative who needs a wake-up call. Here's what they—and you—can do to avoid the latest “social engineering” tricks.

Don't click e-mail attachments: Most viruses and worms arrive on your PC in the

elude the dangerous-attachment filters built into most e-mail programs, virus authors may enclose their nasty code in a .zip or .rar archive file. The file may even be password-protected to foil antivirus programs that scan inside archives. And naturally, the author includes an image of the password in the message body for the convenience of the gullible (see **FIGURE 1**).

Don't believe the return address: Though an e-mail message may claim it's from your bank, your ISP, or even your boss, that doesn't mean it is. Spammers and virus mailers generally spoof the From address field in their messages with a legitimate address that they've stolen. You

REDUCE LONG DOWNLOADS

FILE SHARING HAS a bad name these days, but it needn't. Downloading large files—such as Linux distributions or live recordings of bands who give their blessing to tapers—can be legit. Unfortunately, Web and FTP sites get swamped quickly, making big downloads a strain for everyone. BitTorrent (find.pcworld.com/42042) is a free, open-source program that spreads file distributions evenly among all users who are downloading a file. The 2.7MB program has no settings to adjust. Simply install it and click a BitTorrent file link (at a site such as bt.etree.org or qa.mandrakesoft.com/torrent). While you download the file, you simultaneously upload it to others. Share and share alike.

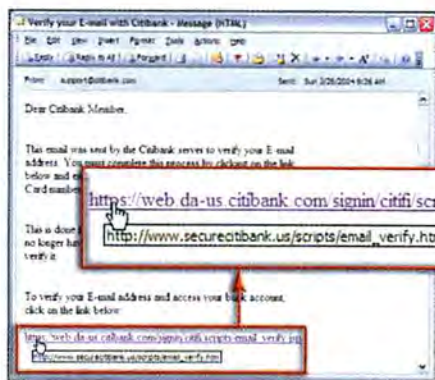


FIGURE 2: BEWARE OF hidden URLs masquerading as links to legit Web sites.

Microsoft doesn't e-mail updates to its customers, and neither should your ISP. **Don't believe the link, either:** A link in an e-mail message that claims to point to a Citibank Web site may not really go there (see **FIGURE 2**). Devious phishing scams use the wonders of HTML to snooker you into uploading your Social Security number, PIN, credit card number, password, or other sensitive data to a scammer's Web site. A carefully crafted e-mail message purporting to be from your bank, PayPal, or some other institution (and often also containing links to the real company's Web site) warns that you must update your records there. The biggest tip-off should be this: Banks and ISPs don't lose your information and then send e-mail requests for you to reenter it online. Another tip-off is that the link text and the real underlying URL don't match. Always examine log-in Web pages and their URLs closely. The site shown in **FIGURE 2** sends unsuspecting Citibank customers to a non-Citibank site (which no longer exists, fortunately). If you do get hooked by creeps on a phishing expedition, notify your bank, ISP, or other institution immediately.

Don't download the browser code: You're browsing the Web via Microsoft's Internet Explorer when suddenly an official-looking dialog box pops up, asking if you want to download a browser plug-in. Why not? You do the same thing all the time when using Microsoft's Windows Update Web site. This one even has a digital certificate (see **FIGURE 3**). But if you want to avoid a flurry of pop-ups, undesirable

toolbars, a home-page hijacking, or worse, don't do it. Certificates won't protect you from adware and other online annoyances borne by these ActiveX controls. If you're really unlucky, you could end up with the dreaded CoolWebSearch infestation (see last month's *Internet Tips* column at find.pcworld.com/42376 for tools that can remove this hard-to-exterminate browser parasite).

Last September's *Internet Tips* column (find.pcworld.com/42040) detailed how to avoid dangerous ActiveX controls. Here's the executive summary: Choose *Tools • Internet Options*, click the *Security* tab, select the *Internet* zone, and confirm that the 'Security level' slider is set to Medium or higher. At this setting, IE will ask you whether you want to accept ActiveX downloads, but it won't run them automatically. You should consider the con-



FIGURE 3: AVOID UNWANTED plug-ins by skipping any ActiveX controls that you're unsure about.

trols as potentially hazardous as executable file attachments. Or switch to a Web browser such as Mozilla or Opera that doesn't support ActiveX controls. When you want to visit Windows Update, you can still launch IE manually.

IS SPAMMY ANTI-SPYWARE SAFE?

AMONG THE DELUGE of spam messages pitching term life insurance, Viagra, and college degrees, you may have noticed another category—advertisements for free anti-spyware software.

If you're like me, you might wonder:

Could an anti-spyware program hawked via spam be any good?

I decided to check out several programs whose names showed up either in my inbox's lunch-meat department or in a search engine's paid results section. All four—Noadware.net's Noadware 2, Enigma Software's SpyHunter, SwankSoft's SpyKiller, and ParetoLogic's XoftSpy—are widely available through dozens of Web sites, thanks to their makers' affiliate marketing programs. You can find a link to download any of the four utilities at find.pcworld.com/42956. (For more downloads of worthwhile security and other software check out "The Best Free Software" on page 80.)

Because these tools' creators rely on affiliate marketers (who in turn employ spam to sell products), I figured that some or all of these programs would contain adware. I tested all four, scanning the PC with the free Spybot Search & Destroy (find.pcworld.com/32678) both before and after installation. To my surprise, Spybot found nothing objectionable in any of them.

That doesn't mean you should use them, however. All four downloads are time- and/or feature-limited trial versions of commercial anti-spyware tools, and a few of them employ scare tactics. For ex-

ample, SpyKiller informed me that a cookie related to Microsoft's Passport log-in service was a Severe danger. To remove this innocuous text file, I would have to pay SwankSoft a stiff \$50 to register the product.

At least until *PC World* conducts more-extensive testing of these and other spyware catchers, I recommend that you stick with either Spybot Search & Destroy or Lavasoft's equally free Ad-aware 6 (find.pcworld.com/34058). ■

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.

ANSWER LINE

LINCOLN SPECTOR

Restrict Software Installs on a Shared Computer

? OTHER FAMILY members keep installing software—some of it undesirable—on the PC that all of us share. How do I stop them?

Daniel Otten, Englishtown, New Jersey

SHORT OF DISABLING your CD drive and Internet link, there's no guaranteed way to block software installations. But

blank if you don't have one. When you're done, click OK, and then *Cancel*. To create other accounts in Windows 2000, select *Start•Settings•Control Panel•Users and Passwords*. Check *Users must enter a user name and password to use this computer*. Click *Add* to launch the Add New User wizard. When you're asked 'What level of access do you want to grant this user?' select *Restricted user*.

In Windows 98 and in Windows Me, you must use a third-party utility to keep other people from installing software. I recommend the \$25 WinGuard Pro. Jump to find.pcworld.com/42208 to download a limited-function trial version. After you install the program, click the *Lock Programs* tab, and then check both *Registry Editor* and *System Configuration Utility* (see **FIGURE 1**). On

the *Users* tab, change the Setup Password and the User Password. On the *Advanced* tab, check *Lock Software Installations*.

RECHECK 'ALWAYS ASK'

? I ACCIDENTALLY unchecked the 'Always ask' option in the File Download dialog box when I downloaded a .zip file. Now I'm no longer asked about whether I want a downloaded .zip file opened. How can I get that choice back?

Jonathan Kwan, Edmonton, Alberta

IN WINDOWS EXPLORER, select *Tools•Folder Options* (View•*Folder Options* in Windows 98). Click the *File Types* tab. In the 'Registered file types' list, select the appropriate type (ZIP in your case). Click

the *Advanced* button (*Edit* in Windows 98). Check *Confirm open after download*, and click *OK* and/or *Close* as necessary.

WHAT ARE THOSE ~ FILES?

? I OFTEN SEE files named with only a tilde (~) and no extension. What are they, and can I delete them?

Herb Daum, Powell River, British Columbia

A FILE NAME with a tilde and a number just before the period, as in 'thisis~1.doc', means that its Windows long file name has been lost, leaving only a short DOS name. Tildes elsewhere in a file name suggest a backup file. If the name consists only of a tilde, however, it's probably an Outlook Express Address Book backup file, which preserves your address book as it was before your latest changes. The file is supposed to have the extension .wa~ and go into the same folder as your address book. But if you have Internet Explorer 5.5 or 6 and have updated Windows, your backup gets named '~' and is saved in not-always-predictable locations.

If you delete the files, you lose your address book backups; but if you back up regularly, this won't be a problem. ■

Send your questions to answer@pcworld.com. Answer Line pays \$50 for published items. See find.pcworld.com/31577 for more Answer Line columns. You'll find Contributing Editor Lincoln Spector's humorous writing at www.thelinkinspector.com.

MORE HARDWARE INFO

IN APRIL I recommended several ways to get the details on your hardware (find.pcworld.com/42206). Reader Sam Noe of Spring Valley, New York, pointed me to two others: one built into Windows, and the other freeware. The first is Windows' own DirectX Diagnostic Tool. To launch the tool, select *Start•Run*, type *dxdiag*, and press <Enter>. Much of the information given there is about DirectX, but the applet also displays lots of hardware information. For a more thorough report on your hardware, try Tamas Miklos' AIDA32, which is free for nonprofessional use. Visit find.pcworld.com/42204 to download the program.

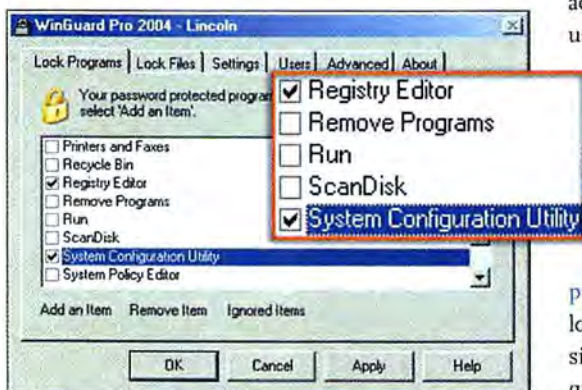


FIGURE 1: STOP UNAUTHORIZED installations with WinGuard Pro, which blocks two vital Windows utilities.

the following suggestions worked with every Windows installation I tested.

With Windows 2000 and XP, you can stymie installs by having the only administrator account on the PC, if the account is password protected. In Windows XP, select *Start•Control Panel•User Accounts*. Click *Change an account•your account•Create a password*. (If you see a 'Change my password' option, the account already has a password.) Follow the instructions to create a password. The User Accounts window is where you create 'Limited' accounts for others who share the system.

In Windows 2000, press <Ctrl>-<Alt>-<Delete>, click *Change Password*, and fill in the form. Leave the Old Password field

PC WORLD

It's your last chance to win this 42-inch flat-screen TV. Don't miss out.

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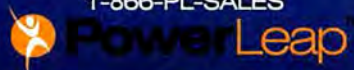
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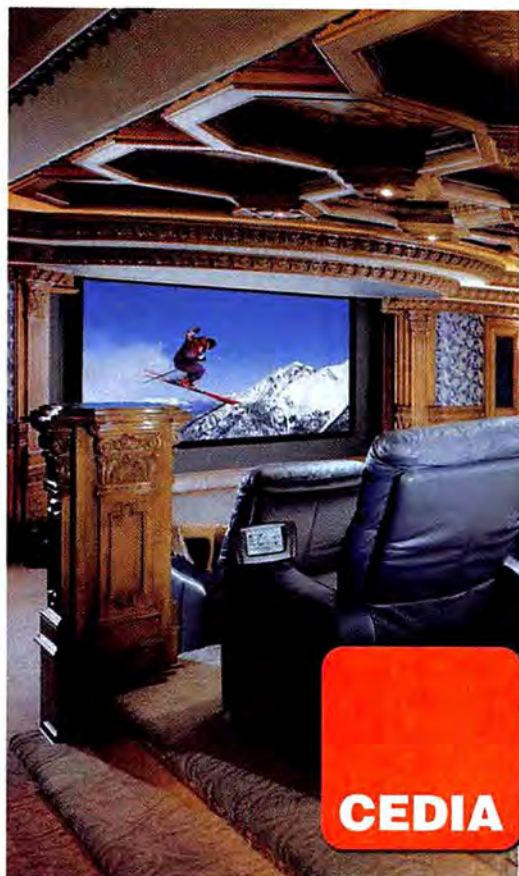
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Finally, Instant Information Is at Hand

AH, FICKLE BROADWAY! Idling outside the Al Hirschfeld Theater in New York a few weeks ago, my wife and I noticed that the place had formerly borne the appellation of one Martin Beck. Who he? A couple of minutes Googling on my PalmOne Treo 600 PDA/phone and we knew the answer:

an Austrian-born entertainment tycoon who ran the Orpheum theater chain in the United States, turned Houdini into a household name, and built the theater that had kept his own name before the public for nearly 80 years.

That's when it hit me: This nearly instant access to even the most obscure facts truly puts us in the age of "Information at Your Fingertips"—the concept that Bill Gates began touting in his 1990 Comdex keynote speech. But whereas Gates saw a Windows-based universe of computers large and small, it's now clear that more and more people will instead be getting lots of info via Web-enabled cell phones. If I'm watching a ball game on TV and want a quick stat, I no longer have to run upstairs to the computer; I simply grab the Treo from my pocket.

Mobile data's great overarching advantage is its ubiquity. Today you can get data service, meaning Web and e-mail, just about anywhere you can make a phone call, meaning just about any venue with a higher density of people than cows. But mobile data is still in its infancy and remains a slave to the peccadilloes of the wider Web. Although it's already pretty good, here's what's needed to make it great.

Better reliability: Data services are improving, but they can still be even flakier than voice. Providers need to do a better job of deploying and maintaining networks.

Smarter sites: Web sites are increasingly being optimized for Internet Explorer and broadband. Alas, the bandwidth-intensive graphics and media that are such a nuisance over dial-up connections are downright infuriating in the mobile world of sluggish speeds and small screens. Webmasters will need to improve the way sites

present themselves to users who are on the go—by stripping out inessentials, not by dumbing down content. The golden example in this area is, as usual, the uncluttered, fast-acting Google.

Clever clients: Even the best handheld browsers can't render some complex pages at all, but you never know which ones until it's too late. Browsers must get smarter about offering on-the-fly control, trading graphics for speed and original layouts for intelligent reformatting.

Mobile Internet mail clients need real spam filters and better ways of organizing and displaying documents. Users will also want improved mobile-oriented applications such as word processors, so that we can more easily massage all that information we summon up.

More bandwidth: Data services for devices like my Treo run at speeds comparable to bad old-fashioned dial-up. Fast pipelines like EvDO and UMTS are on the way, but it will be a while before they're widespread and longer before they're cheap. Still, they'll enable even full-motion video eventually, and we'll look back at today's era as charmingly lame.

Yet even the present slow-moving world of mobile data can become so addictive that you forget its great bonus mode: Hold the device to your ear and talk to almost anybody in the world. Call it "Information at Your Earlobes." ■

Visit find.pcworld.com/31595 to see additional columns by Contributing Editor Stephen Manes. He has written about technology for two decades.

With a Web phone, you're always in the know.



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