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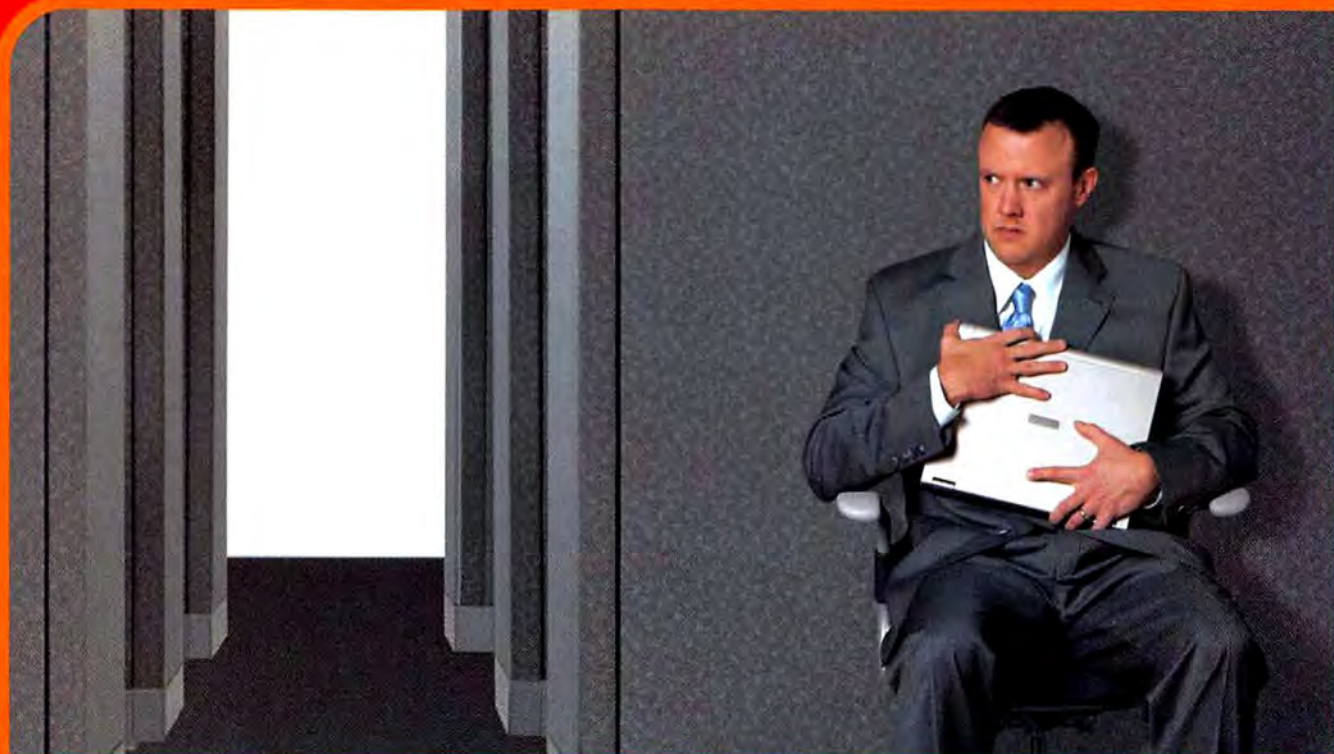
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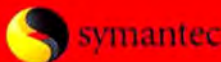
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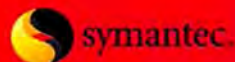
¹Gold Maintenance includes standard business hours technical support (8:00 a.m. to 5:00 p.m. CST), 1-year upgrade protection and 1-year of virus definitions; call your CDW account manager for details. Licensing requires a minimum order of 10 licenses; call your CDW account manager for details. Reflects Level B pricing; Maintenance includes upgrade protection and 1 year of 24 x 7 technical phone support. Additional savings available on purchase of Symantec LiveState Recovery 6.0 Advanced Server for current and new users of ANY VERSION of Symantec Backup Exec™; call your CDW account manager for details.



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1-9 server license² \$633.99 CDW 874619

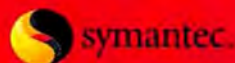
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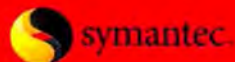
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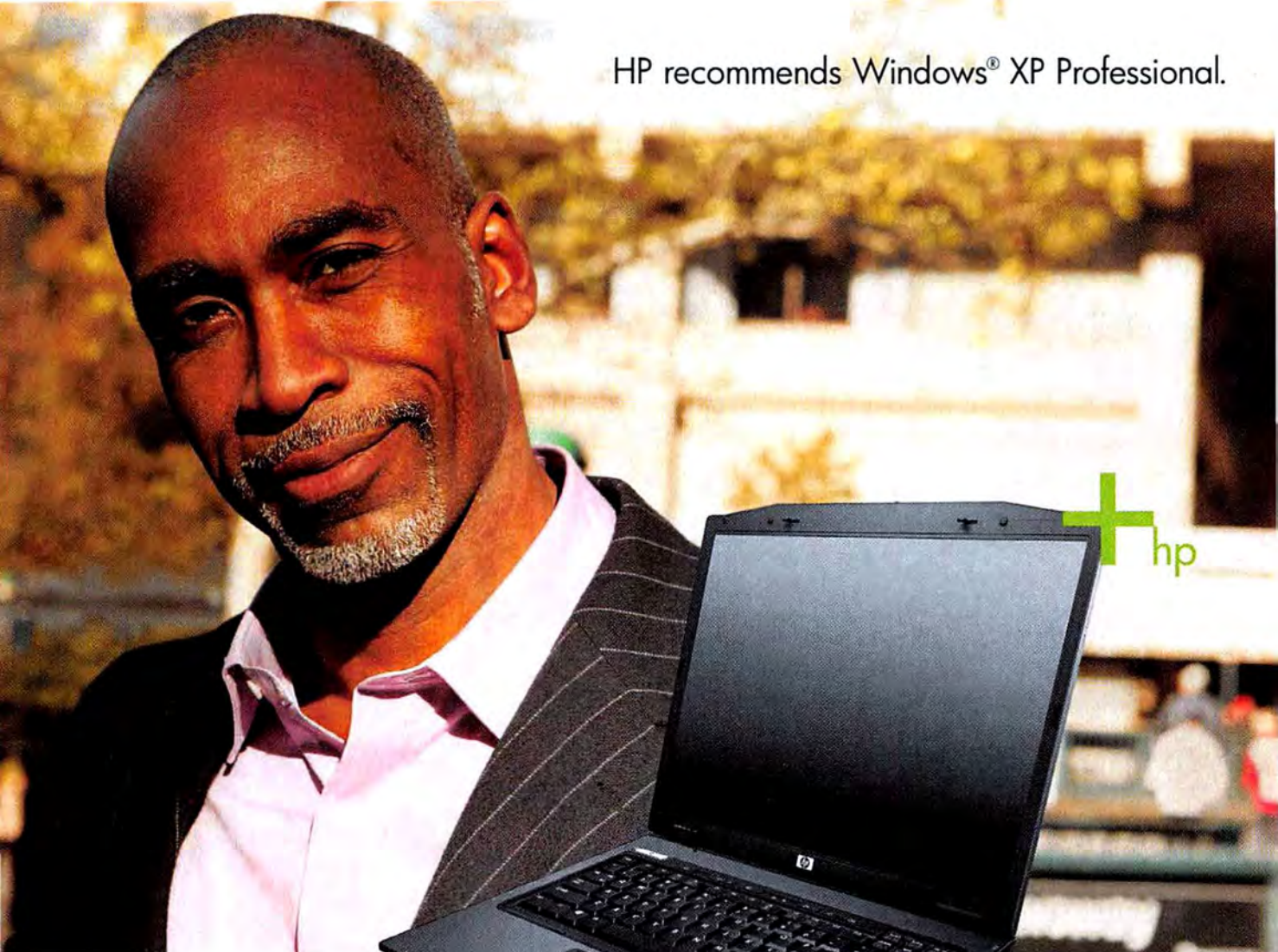
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- 24X DVD/CD-RW Combo Drive⁹

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COVER STORY

76 Windows Hacks

With just a few simple tweaks to Windows XP's Registry, you can tailor the OS to your taste. We show you how and suggest a few utilities that make the job even easier. And if you're eager to jump from XP to the upcoming Vista, don't miss our in-depth preview of its revamped design and enhanced security features.

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92 Get More Out of Your Wireless Network

Suddenly, it seems, a multitude of gadgets have added wireless capability to their repertoire. Whether for making phone calls, sharing files, or streaming music and video, here are some of the best on the market.

POWER TIPS

109 Battery Boosters

Every gadget you own lives or dies by its batteries. We tell you how to wring every bit of life out of them, which types last longest, and what new technologies are on the horizon.

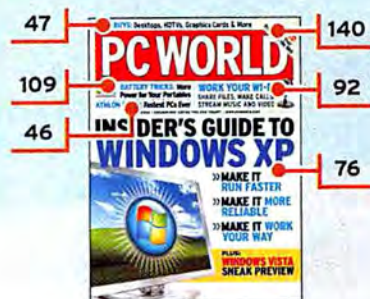
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133 Projectors for Everyone

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3 Canon PowerShot Pro1 Best \$699 find.pcworld.com/43364	81 Very Good	• Image quality: • Battery life: 60 • Overall design:
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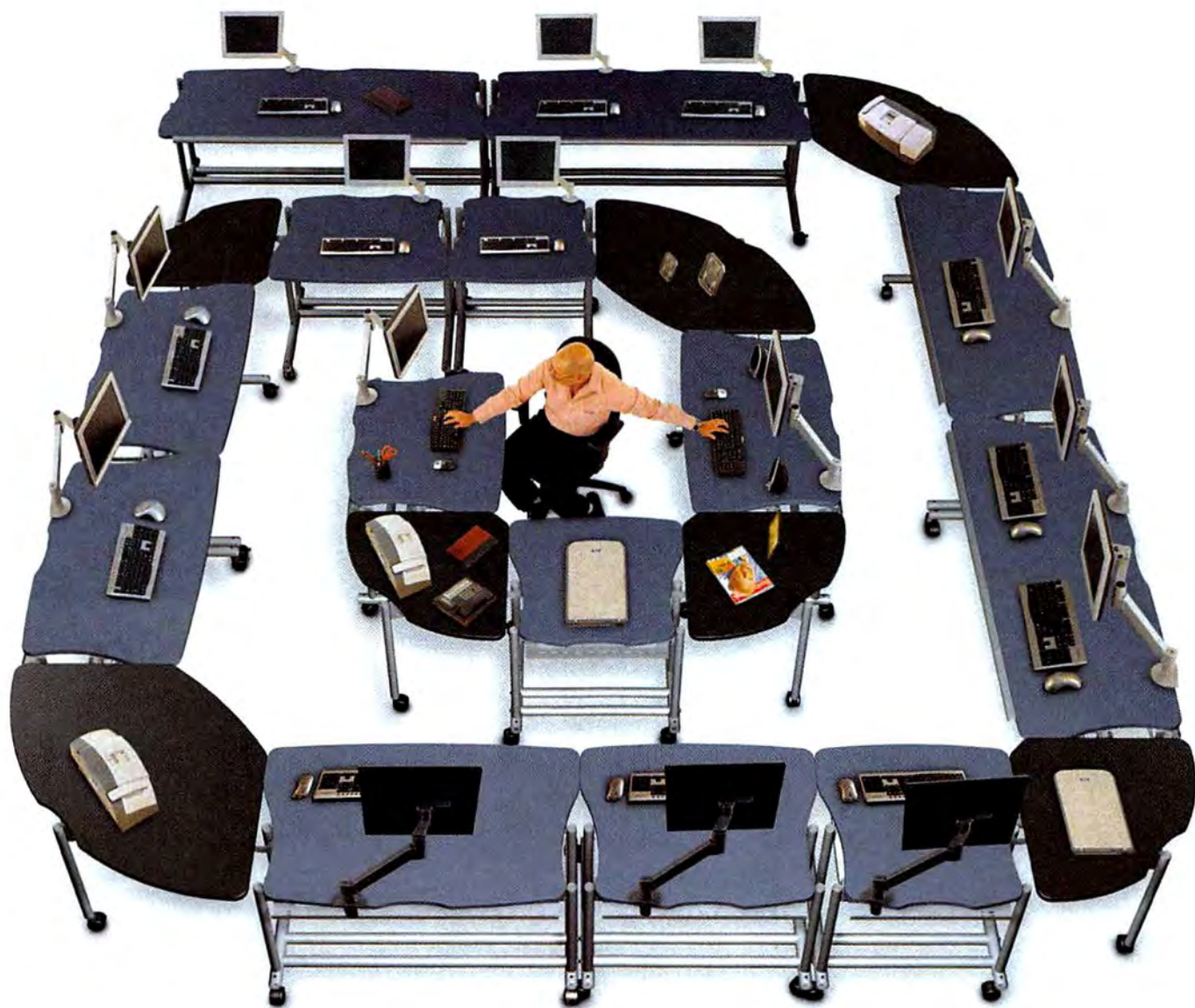
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UP FRONT

HARRY MCCrackEN

TV on the Net: Ready for Prime Time?

Move over, music—the day of the video download is (finally) dawning.

EVERY ONCE IN A WHILE, a technological development switches into fast-forward mode without warning. If you downloaded a TV show across the Internet on October 11 of last year, chances are you were cheerfully trampling on some media giant's copyright. One day later Apple introduced

a video-capable iPod and \$1.99 downloads of a few programs, such as *Desperate Housewives* and *Lost*. All of a sudden, the phrase "legal TV downloads" was no longer an oxymoron.

Just a few months later, they're not only a reality—they're a booming trend. Apple now offers more than 40 TV series, and it has acquired an archrival in Google (who else!), which is now hawking a hodgepodge of everything from current hit shows to random smatterings of TV Land-like reruns. CBS is selling downloads directly, as well as through Google; NBC, meanwhile, has begun gratis streams of the nightly news.

Love movies? Vongo, a new service from the Starz cable-TV people, delivers unlimited flicks for a monthly fee. And more services are in the works, such as AOL's In2TV, a free service that promises DVD-quality, ad-supported streams of thousands of episodes of countless old shows (welcome back, *Kotter*).

In short, TV companies that once ignored or feared the Internet are beginning to embrace it. That's a necessity if the Net is going to do to video what it's already doing to music: radically affect how we buy it and what we can do with it.

But if a revolution is upon us, it's just dawning. And it won't be complete until TV download and streaming services...

...talk to the TV. Most of us still do most of our TV watching on, well, a TV. These new services focus on PCs and handheld



devices, and few folks have easy means to get video off the Internet and onto a standard television. That'll change, especially as wireless networking gets quicker and more bulletproof. Even then, though, newfangled, Net-based services will compete with video-on-demand offerings from living-room veterans like Comcast.

...bulk way, way up. Someday, Net-based video may put every episode of virtually all the shows that anybody remembers at our fingertips. Despite their recent growth spurt, current services still offer only enough stuff to whet your appetite. As with music, assembling sizable digital libraries will take time. (And even now, music services' catalogs have gaping holes—bought a Beatles download lately?)

...get watchable. The picture quality of shows I've downloaded from the iTunes Music Store is a bit better than I'd have

guessed it would be on the video iPod's 2.5-inch screen—and much worse than I'd like on my 27-inch standard-def TV. Once video downloads are no longer a novelty, we'll want them to look decent on a wide range of devices; once HDTV is completely mainstream, we'll expect them to look spectacular.

...get easy. Historically, TV has been the least demanding of media—hey, there's a reason why its addicts are called "couch potatoes." But puzzling out the current world of video downloading is, unquestionably, work.

For one thing, no two services are the same when it comes to which devices they work with. Shows from Apple play on Windows computers and Macs, but not on any portable player that isn't a video iPod. The Windows-only Vongo service touts its ability to copy movies to handhelds

that run Microsoft's Portable Media Center version 2 (total count of such products at press time: zero). Google's Video Store is downright enigmatic: It couldn't decide whether a show I bought worked only with Windows or could also run on a Mac, an iPod, or a PSP—and its advice for copying to an iPod left out a crucial step.

Am I beginning to sound like a Net-TV naysayer? Nah—in the long term, I'm a believer. Someday, most of the video we watch will be delivered over the Internet...and while I'm not ready to predict just how soon that'll be, I know that *PC World* is going to have a blast covering the services, software, and devices that make it all possible. Stay tuned. ■

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NEWS & TRENDS

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Spam Mutates

JUNK ADS ARE MIGRATING TO BLOGS, INSTANT MESSAGES, AND CELL PHONES. **BY TOM SPRING**

PETER SHINBACH recently threw in the towel and shut down Bach Door, his online-communications blog.

The public relations executive from Birmingham, Michigan, was fed up with so-called comment spam. Returning from a weeklong vacation, he found a slew of comments on his blog that had nothing to do with communications: They were posts from spammers promoting gambling sites and prescription drugs.

"I'm not in this to spend hours a week cleaning up the mess spammers leave behind," Shinbach says. Ironically, the surge in spam to his blog coincides with a decrease in spam to his inbox: Shinbach says that his desktop antispam software and his ISP's spam filters together block about 95 percent of junk e-mail sent to his account.



Shinbach is one of many who are starting to fret more about spam on blogs, instant messages, and cell phones than about traditional unsolicited e-mail—at least in part because old-style spam appears to be losing some

momentum. While the volume of junk e-mail continues to mount, it stopped growing at double-digit rates last year. Many ISPs and e-mail providers claim that they blocked more than 90 percent of unsolicited commercial e-mail.

"Spam filters have gotten so good, a properly managed filter can turn the sting of spam into a minor inconvenience," says Richi Jennings, analyst at Ferris Research, a market research firm that specializes in messaging.

In contrast, other forms of spam—prompted by the rise of new messaging media—are just gathering steam.

"Many spammers are re-inventing themselves," says Paul Judge, chief technical officer for messaging security firm CipherTrust. "Whatever messaging paradigm that consumers are using, spammers will be right there."

Comment spam is one of the new forms. Another is the splog—short for spam blog, a blog that is created purely for marketing purposes.

Some spammers create dozens, if not hundreds, of

splogs that link to the spammer's Web site, helping to artificially inflate its ranking in Google and other search engines. Another type of splog seeks to get visitors to click ads that link to sites that pay the splogger referral fees.

Derek Gordon, spokesperson for Technorati, a blog-resource Web site, estimates that 10 to 15 percent of the 70,000 new blogs created daily are splogs. CipherTrust's Judge says he expects that percentage to grow in 2006. These shady blogs have become a serious headache for companies, such as Google, Microsoft, and Yahoo, that offer free blog services. Many are fighting back with software designed to identify splogs, similar to programs that identify e-mail spam.

Bloggers plagued by comment spam can also get help from sites such as SplogSpot and Splog Reporter, which collect information on such content to help network administrators filter it out.

SPAM MORPHS

SPAMMERS ARE testing other waters, such as instant messaging and mobile phone text messaging, as well.

Judge estimates that 10 percent of instant messaging traffic is spam. "It is where e-mail traffic was several years ago," he says, adding that IM spam is likely to become even more ubiquitous as online messaging networks become interoperable (Microsoft and Yahoo, for example, have announced plans to allow their IM users to communicate with each other). The growing availability of IM services on cell

phones will make instant messaging even more appealing to spammers—and vulnerable to viruses spread by spam, warns IMlogic, a messaging security firm.

Spammers have become increasingly attracted to cell phone text messaging. In fact,

While spam filters have improved, junk e-mail marketing is getting ever uglier.

at least one case involving text messages has already made its way through the courts: This February, a federal court judge granted Verizon Wireless's request for an injunction barring Passport Holidays, a travel agency based in Ormond Beach, Florida, from sending unsolicited text messages to Verizon Wireless customers. In addition, Passport Holidays agreed to pay Verizon Wireless \$10,000.

Verizon Wireless's lawsuit alleged that Passport sent 98,000 unsolicited messages to Verizon Wireless customers encouraging them to call a toll-free number to claim a cruise to the Bahamas.

But carriers aren't relying solely on the legal system to deal with the problem.

"We use filters and other tools to prevent spam from reaching our customers," explains Rochelle Cohen, a Cingular spokesperson.

Cingular also lets customers block incoming text messages at certain times of the day, and ban all incoming text messages that are sent via e-mail.

Wireless carriers say customers never see most spam because their spam-filtering software intercepts it. Verizon Wireless spokesperson Jeffrey Nelson says that the carrier works closely with conventional ISPs to learn the best ways to combat spam.

But while ISPs may be getting more effective at filtering traditional e-mail spam, junk e-mail marketing in general is getting ever uglier. "Filters make spamming harder, so spammers have to break the law to get a good delivery rate," acknowledges Amir Gans, the owner of New-Approach, an Israeli direct e-mail marketing company. Gans is identified by antispam nonprofit group SpamHaus as one of the top spammers—a label that Gans does not repudiate.

CAT-AND-MOUSE GAME

BUT WHILE sending spam that can bypass filters (for example, by disguising a sales pitch to look like a personal e-mail) violates the U.S. Controlling the Assault of Non-Solicited Pornography and Marketing (CAN-SPAM) Act of 2003, many spammers shield their identity by using hijacked PCs—often referred to as spam zombies—to send spam (see our interview with a spammer on page 20).

Dan Larkin, head of the FBI's Internet Crime Complaint Center, says spam zombies are one of the agency's biggest challenges. And not only are more spammers employing the technique to increase spam volumes, but the e-mail itself has become more sinister and potentially

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more lucrative, Larkin says.

"Spam has grown from annoying to, in some cases, dangerous," he adds.

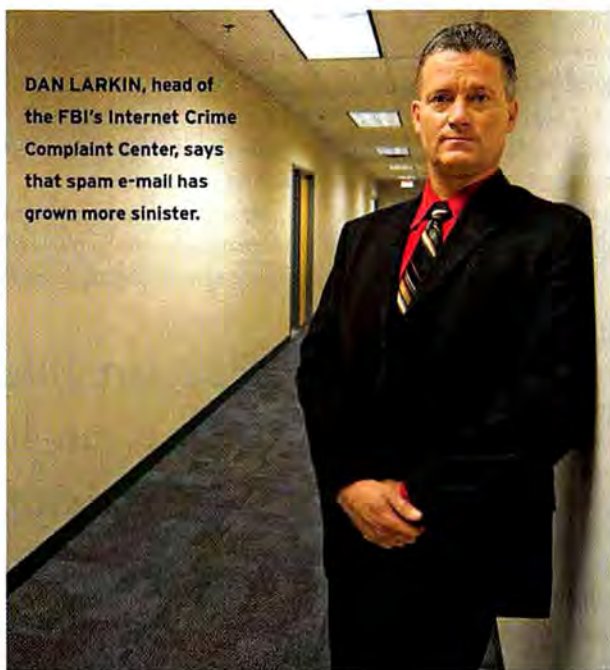
In 2005 more than half of the 15,000 complaints filed each month to Larkin's group related to phishing, the use of e-mail disguised to look as if it comes from a bank or other financial institution in an attempt to trick the recipients into disclosing personal information, thereby exposing them to identity theft.

A new variant of phishing, called spear phishing, involves fraudulent messages that appear to come from an individual, company, affinity group, or organization the recipient

might have dealings with. The idea is that people are more likely to respond to an e-mail from the alumni association of their alma mater, for example, than to an e-mail from eBay asking them to update their billing information (see find.pcworld.com/51996).

And so the spam war goes: Even as advances are made on one front, wily new tactics open up another.

Brian Sullivan, America Online's senior technical director of mail operations, is resigned to the likelihood of long-term combat. "We'll just keep our guard up so the next place it pops up, we'll be there to knock it down again."



DAN LARKIN, head of the FBI's Internet Crime Complaint Center, says that spam e-mail has grown more sinister.

INTERVIEW

SPAMMER: IT'S NO LONGER EASY MONEY

MIKE IS A SMALL-TIME spammer with big-time problems. Sending junk e-mail, he says, isn't paying the bills the way it used to because of better spam filters. In addition, arrest is a constant threat as authorities get more aggressive in enforcing antispam laws.

So Mike is trying to change with the times: Today he says he makes \$500 a week in the spam trade by selling lists of IP addresses of compromised computers, some-

times called zombie PCs, which the list buyers use to send spam. The money isn't as good as it was when he did the mailings himself, but Mike believes that this way, he's less likely to get caught.

PC World found Mike through a Web site where spammers meet and share tips. He agreed to an interview on the condition that his real name be withheld.

Q: Do you think what you do is wrong?

A: I don't care what people think.

Q: Why don't you send bulk e-mail legally?

The CAN-SPAM [Controlling the Assault of Non-Solicited Pornography and Marketing] Act allows you to.

A: Playing by the rules is bad for business.

The only way spammers can sneak by an ISP's antispam filter these days is by tricking them, and the techniques to trick antispam filters are illegal, according to CAN-SPAM. So if you want to be sure you don't end up in a court, don't let them find you.

Q: Are antispam laws and better filters succeeding?

A: Yes, they are. Today, big ISPs block e-mail from suspicious sources. They filter out spam based on e-mail addresses, words, links in the e-mail, pictures, or anything. But the better filters get, the more determined we will get. It's not as if spammers really want to break the law. It's just that we are looking for any edge possible to get past the filter.

Q: So why are you still involved in the spam business at all, if it's becoming both

riskier and less profitable?

A: For me, it's what I know how to do. And I just would hate to give up. It's like admitting defeat.

Q: How does the future of spamming look to you?

A: Not good. The capital investment in computers and software required to make it worth the risk is enormous. A lot of people younger than me are spamming. But for a lot of people like myself, it's no longer easy money. We are throwing in the towel.

Q: So you are seeing a changing of the spam guard, so to speak?

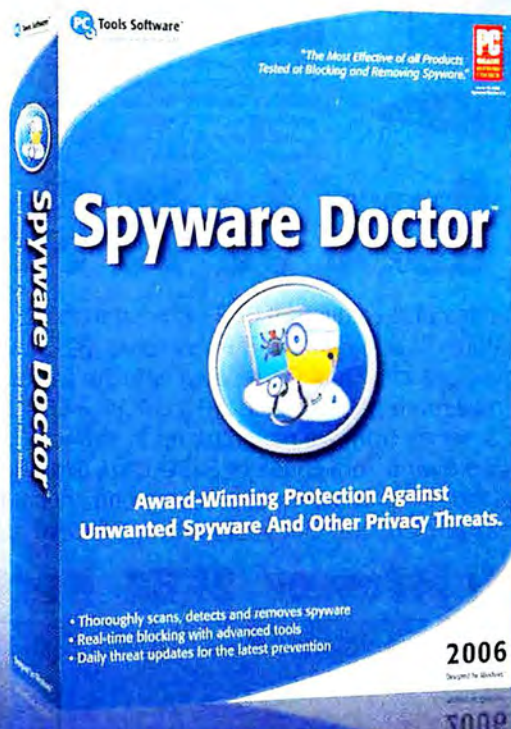
A: Spammers today are diverse. They work with adware; they control botnets of computers; they are virus writers. Today's spammers don't just want to sell you Viagra; they want to trick you into handing over your credit card number, or infect your system and turn it into a zombie.

Q: Will spam ever go away?

A: Spam will never go away. If nobody was really interested in spam and people never bought anything that was advertised to them, spam would go away. That's simply not the case.



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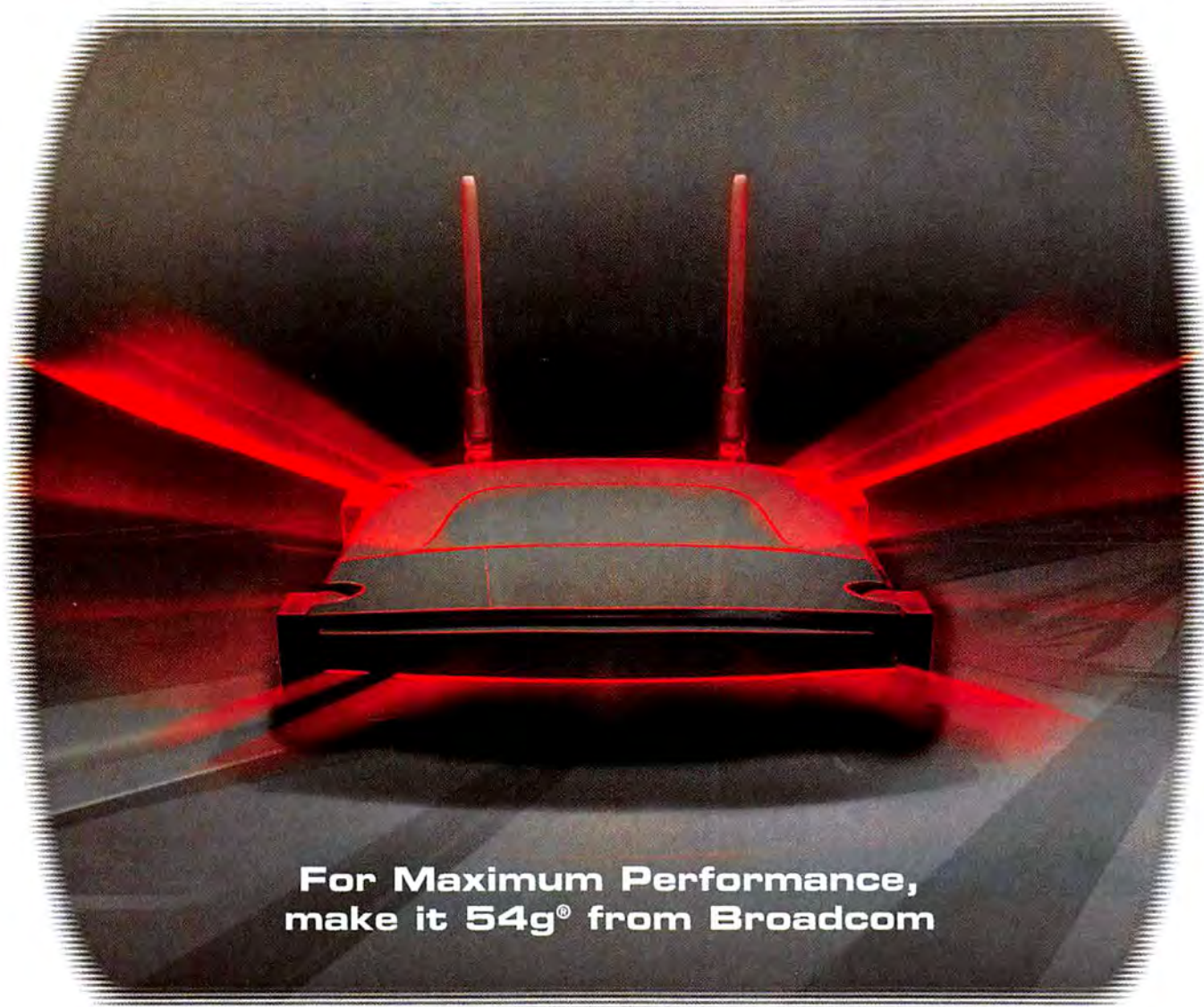
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INTERNET

Microsoft Sets New Web Apps

THE COMPANY'S MOST AMBITIOUS WEB INITIATIVE YET BRINGS FREE AND FOR-FEE SITES AND SERVICES TO BUSINESSES AND INDIVIDUALS.

ARE YOU READY to use a browser as your desktop? Microsoft hopes you'll do just that using Web-based software and services bearing the Live label and intended to compete against similar offerings from Google and Yahoo. Whether the effort will succeed is yet unknown, but in the short term there may be useful freebies in it for you.

Microsoft will slap the Live brand on several products with Web components this year; but the first ones, Windows Live and Office Live (both in various stages of testing), tackle everything from localized search and mapping to e-mail and instant messaging. They're not Microsoft's first Web initiatives, but they are the most ambitious.

Specifically, Windows Live includes new e-mail and IM programs plus a customizable Live.com home page, which you can populate with your favorite blogs, RSS news feeds, and mini-apps (requiring Internet Explorer) called Gadgets. Office Live, meanwhile, provides small-business goodies ranging from a free, basic, ad-supported Web page to subscription software bundles. Microsoft hopes third-party software developers will create additional applets for Windows Live and Office Live.

JOYS OF LIVE.COM

EVEN IF YOU don't want to use Live.com as your home base, you may like some of its



SEARCH WITH A VIEW: The Windows Live Local search and mapping program gives a unique bird's-eye view of U.S. cities and landmarks.



POINT AND DESIGN: Office Live provides simple design tools to help small-business owners create a free, basic, ad-supported Web page.

software. For starters, the free Windows Live Mail replaces and improves on Hotmail. It works faster because it's built on Ajax (Asynchronous JavaScript and XML), the latest hot Web technology (see find.pcworld.com/51672), which allows Web-based software to look and behave more like its desktop counterparts, Microsoft's Adam Sohn says.

Another convenience: Live Mail includes 2GB of storage, compared with Hotmail's

250MB limit. Meanwhile, Live Messenger, Microsoft's new IM app, has a feature that lets you share documents (automatically updated via peer-to-peer technology) with fellow Live Messenger users.

New Windows Live Gadgets mini-apps (microsoftgadgets.com/gallery) look like Apple's Dashboard and Yahoo's Konfabulator Widgets. Early third-party Gadgets include a rather clunky Pac-Man game and a top-iTunes-downloads tracker.

Gadgets will be able to run in Windows Vista (as a floating object, or in the upcoming OS's Sidebar) as well as in Internet Explorer, something Microsoft hopes will encourage third-party development.

Also innovative: The Windows Live Local search and mapping service (formerly MSN Virtual Earth; see find.pcworld.com/51674) displays bird's-eye, 45-degree-angle images based on satellite photos, along with directions and Yellow Pages info. Satellite images in Google and Yahoo counterparts look straight down and show only rooftops.

In June Microsoft plans to release Windows OneCare Live, a PC security and anti-virus service that will cost \$50 per year to cover up to three PCs. See a list of Windows Live projects at ideas.live.com.

SMALL-BIZ SMARTS

OFFICE LIVE, slated for release in the fall, is designed for companies with fewer than ten people, which typically have no IT staff.

Most notably, Office Live lets you set up a company Web page with five e-mail accounts (at a domain name of your choosing) for free—so long as Microsoft can run business-relevant ads on the page (say, ads for office supplies, but not dating services).

The free Web page deal isn't unique: Yahoo has similarly offered free Web pages to small businesses since spring 2005 (listings.local.yahoo.com). Like Microsoft, Yahoo provides design tools and business e-mail (although Microsoft's pages looked a bit more creative in the Office Live beta I tried). But Yahoo ►

has hosting and e-commerce services, as well. Overall, it's too early to tell which giant's small-business services will be better, says Raymond Boggs, IDC's vice president for small-business research.

AD-FREE OPTIONS

AN AD-FREE subscription-based alternative, Office Live Collaboration, offers 20 Web-based applications such as a sales activity tracker and project manager, plus access to collaboration features such as a password-protected Web site. A premium version, Office Live Essentials, will add a Web-based version of Front Page for site design, and up to 50 e-mail accounts.

Fees have yet to be set, but don't expect the type of beefy

functionality you'd find in Intuit's QuickBooks or Sage's ACT contact manager. In my tests with the Office Live beta, I found that some of the applications are more like templates for organizing small-business data. For example, a "Competition Tracker" stores information about your rivals (number of employees, date founded, and so on). If you've been in business a while and already use a sophisticated contact or project manager, you may not find anything intriguing here.

Web-based programs certainly offer benefits: You can run the apps anywhere you have Web access, vendors take care of updates, and trying something new entails payment for only a month or two.

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Adventure Works	Great	Current
Alpine Ski House	Good	Current
Blue Yonder Airlines	Average	Current

CUSTOMERS AT A GLANCE: One of Office Live's 20 Web apps for small businesses gives you a clean look at key customer data.

You have to trust your data to Microsoft's servers, however, and you can export data only to Excel or Outlook.

Judging from what's available to date, Microsoft's Live initiative is unlikely to change computing as we know it any-

time soon. In time, new applications may yet fulfill the promise of the Web to become the place where breakthrough software makes its debut. Whether it's from Microsoft remains to be seen.

—Laurianne McLaughlin

BROWSERS

Internet Explorer 7 Adds New Security

FIRST PUBLICLY AVAILABLE BETA ALSO INCLUDES TABBED BROWSING AND OTHER FEATURES.

A NEW PREVIEW version of Microsoft's Internet Explorer, with tabbed browsing, an integrated search box, and RSS support—all features long taken for granted by Firefox users—is now available.

The Beta 2 preview of version 7 also sports a much more compact and streamlined interface than that of the current IE, with a strong emphasis on dedicating as much of the window as possible to the displayed Web site.

If you use Windows XP with Service Pack 2, you can download the new beta from find.pcworld.com/51922. Like any still-in-development program, this preview release has bugs and rough edges: You will en-



IE 7 SPORTS A NEW LOOK to go with its new features, such as the "Quick Tabs" thumbnail preview of all currently open tabs.

counter some display problems and program crashes.

In this edition of IE, only two slim toolbars sit up top, with the navigation buttons back, forward, refresh, and

home split up between them.

Tabs, new to version 7, appear on the second toolbar. Although you can't move the tabs around, you do get a nice feature called "Quick Tabs":

Clicking a gridlike icon next to the tabs brings up a convenient thumbnail display of all your currently open pages.

New security features include an antiphishing filter that warns you if you happen across a known phishing site, better ActiveX management, and programming changes that try to reduce the number of avenues for attack. Also offered is a one-click option to clear your personal browsing data, including the history, cookies, and the cache.

A more polished Beta 2 release is due to come out in the coming months, and the final IE 7 release is planned for the second half of 2006.

—Erik Larkin

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POLICY

Patent Overload Hampers Tech Innovation

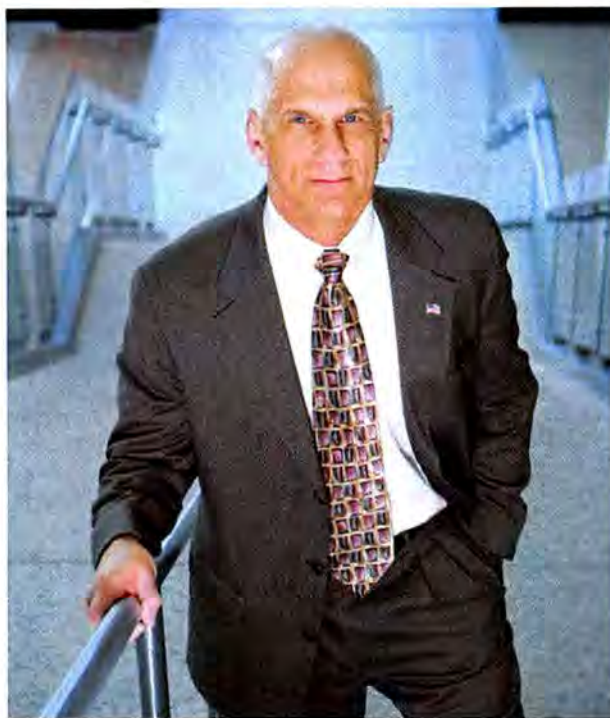
APPLICATION BACKLOG AND CONTINUING PATENT DISPUTES ADD UP TO A MOUNTING CRISIS.

MUCH HAS BEEN made of recent patent applications—such as one involving emoticons on cell phones—that seem a far cry from real breakthroughs like the lightbulb. And while many of the weakest patent applications are eventually rejected, some experts believe that an overworked and underfunded U.S. Patent and Trademark Office is issuing more and more patents that never should have passed their first review.

Increasingly, patents of dubious quality are ending up at the heart of legal disputes. And when those disputes turn ugly, the results can hurt everyone, making all of us pay more for technology products and wasting our time through increased inconvenience.

For example, as we went to press, a patent case between NTP Inc. and Research in Motion threatened to force 3.2 million BlackBerry users to find another wireless e-mail device. And patent disputes affecting Microsoft have necessitated changes to the way software updates over the Internet and added extra clicks to the process required to run ActiveX controls in a browser.

Even IBM, which receives far and away the most patents, acknowledges the problems. As a result of patent fights, consumers have to pay more for software and hardware—“and ultimately there are fewer products in the market because companies decide not to make [them],” says David Kap-



THE PATENT PROCESS is overwhelmed and unable to handle the volume of new applications, says USPTO commissioner John Doll.

pos, IBM's vice president and assistant general counsel for intellectual property.

PATENT BACKLOG

THE PATENT OFFICE faces a perfect storm: According to USPTO commissioner John Doll, the greatest number of new patent applications are for business processes or computer hardware and software innovations. And the former is one of the most difficult types of patent to evaluate.

“We do not have the ability to examine all the new cases that are being filed, and that's especially true in the high-tech areas,” Doll says. The USPTO started 2005 with a backlog of

500,000 new patent applications, and ended the year with a backlog of nearly 600,000.

Examiners are supposed to evaluate applications against “prior art”—similar, earlier inventions. But in areas like software, “it's impossible for everyone to have their hands on every relevant piece of art” in the given time, says Kappos.

Patent examiners have a set amount of time—an average of 20 to 30 hours for computer software and hardware—to review a patent, handling any appeals and updates from the applicants as well, before issuing a final approval or rejection, says Robert Budens, president of the Patent Office

Professional Association that represents examiners.

That time frame, Budens says, has not changed since 1976, despite added procedural complexity and accelerating technological advancement. If examiners exceed the time limits, they lose their jobs.

“From an examiner's point of view,” says Budens, “the quality [of patent examinations] is suffering” as a result.

REFORM EFFORTS

TO HELP ALLEVIATE the patent backlog, the USPTO plans to hire 1000 new examiners every year for the next five years, training each examiner for eight months before they're put on the job.

IBM and the Open Source Development Labs are working on several reform initiatives, including a source-code database that examiners can search for examples of prior art. They also want outside experts and specialized software to provide early feedback to examiners on patent applications' quality and complexity.

Other long-term solutions under discussion include shifting more of the burden of proving that an invention is unique onto patent applicants.

But none of these solutions are a panacea, says patent attorney Peter Zura, who writes the 271 Patent Blog: “As long as modern patent examination has existed, there have always been, and always will be, bad patents.”

—Andrew Brandt

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PLUGGED IN

ERIC DAHL

Google, Amazon Add Online Video

PLUS: YOUR NEXT WI-FI NETWORK; XM WITH YOUR MP3 PLAYER.

VIDEO OPTIONS GROW

The Buzz: Google got a lucky break when Kobe Bryant dropped 81 points on the Raptors, sending NBA fans running to download the historic game just after the company launched its video store (video.google.com) in January. But at press time Google's video offering deserved its ubiquitous beta tag, due to a number of annoying issues. The store's interface is hard to navigate, the service tethers most videos to your browser, and the overall video selection is small (beyond the NBA archive). The search giant isn't the only company looking to emulate Apple's iTunes Store in selling TV and video downloads. Amazon



also has its own video plans in the works, with an online show hosted by Bill Maher set to premiere this June and rumors swirling of an innovative try-before-you-buy movie download option.

Bottom Line: See this issue's *Up Front* (page 15) for the big boss's take on online video. For me, though, instant access to video isn't that big a draw, so Netflix and TiVoToGo serve my needs just fine.

802.11N...NOT JUST YET

The Buzz: We've tested wireless networking gear that delivers over 100 mbps already, but at present that speed entails a sacrifice: These superfast wireless products don't adhere to the upcoming 802.11n standard. Although the first draft spec for that standard was approved in January, this next stage in Wi-Fi's evolution still has a long way to go. The final 11n standard won't be approved until September 2007—with products close behind.

Bottom Line: Don't depend on vendors' claims of firmware-upgradability to the final 802.11n spec. If compatibility is a concern, stick with your 11g hardware, or cross your fingers and buy all your new gear from one manufacturer.

POCKET-SIZE SATELLITE RADIO

The Buzz: Pioneer and Samsung are set to take satellite radio service to the next level, with nearly identical \$400 devices (Pioneer's is called the Inno; Samsung's, the Helix XM2Go) that combine a portable satellite radio receiver with a 1GB flash-based MP3 player. Both devices let you listen to live XM

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2 KOSMIX: Promising new search site targets health, travel, and politics. kosmix.com

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4 MADEHOW: Illustrated and understandable explanations of the manufacture of products. madehow.com

5 AMAZON CONNECT: Keep tabs on blogs by your favorite authors. find.pcworld.com/51926

radio, record and time-shift your favorite tracks, flag songs you like for later purchase through Napster's online service, and create playlists using tracks from both XM radio and your own MP3 collection. Plus, they run for about 16 hours on a single battery charge—enough for a long day, or two, of hard-core listening.

Bottom Line: If that Napster feature works well, sign me up. I'd pay \$400 just to avoid those moments when I finally get to the record store, only to immediately forget what discs I wanted to buy. ■

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



FUTURE TECH

New TV Type: SED



WHAT'S AS BRIGHT as a CRT but as flat as an LCD TV? A new breed of high-def display called a Surface-conduction Electron-emitter Display. SED TV uses millions of tiny electron guns to power its pixels, instead of the one scanning electron gun used in CRT displays.

According to backers Toshiba and Canon this technology creates a superbright, flicker-free picture that leaves traditional LCDs and plasmas in the dust. Toshiba wowed CES visitors with its demo units at CES in January and hopes to sell its first 50-inch-plus SED TVs this year for premium (read: very expensive) prices before ramping up production for 2007. At that rate, I may even be able to afford one before the end of this decade.

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-Eric Singleton, CIO TOMMY HILFIGER

For these and other third-party findings, go to microsoft.com/getthefacts

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LETTERS

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SITES GET WHAT THEY PAY FOR



ALARM OVER COPY CONTROLS

ROBERT McMILLAN's article on Sony's antipiracy efforts ["Copy Controls: How Far Will They Go?" *News and Trends*, February] really hit home with me when I unsuccessfully tried to play MP3 files on my new high-end Sony DVD recorder. It won't display .jpg files either. I also bought a Sony DVD burner for my PC, and the software that came with it will work only if that burner is installed in that PC. I'll be thinking two or three times before buying any more Sony gear. I imagine even Sony TVs will have something mimicking a Homeland Security agent in the box!

Gary Keck, Las Vegas

YOUR ARTICLE did not go nearly far enough. Consider the scariest thing of all: No antivirus or antispyware vendor warned its customers about the XCP attachment until a blogger made it public. That means that either these companies were not technically capable of spotting this threat or they spotted it but put the welfare of Sony ahead of the welfare of their own customers!

TELL US WHAT YOU THINK

RATE THIS ISSUE by going to www.pcworld.com/pcwinput—you could win a \$500 gift certificate from Amazon.com. You'll need to provide the subscriber number from your mailing label to take this survey online. The site explains the official rules and also describes how you can participate in the drawing if you're not a *PC World* subscriber.

This incident clearly shows that individual users cannot trust any company to look out for them, even the companies that claim their business is looking out for us. So, is it even possible to protect ourselves anymore? If so, how?

Ronny Richardson

*Southern Polytechnic State University
Marietta, Georgia*

Author's response: We didn't have room to discuss this angle of the story, but see my article at find.pcworld.com/51906 for more.

—Robert McMillan, IDG News Service

MORE ONLINE TECH SUPPORT

REGARDING "Hanging Up on Tech Support" [*Consumer Watch*, February], Anne Kandra lists some great resources for people who want to help themselves. One she neglected to mention is Protonic.com.

Protonic.com has hundreds of volunteer support technicians who have particular areas of expertise. The service is free and has been around for years. Most sites that charge for help don't provide technical support anywhere near this good!

Carey Holzman

*Cohost, Computer America
and author of The Healthy PC (McGraw/Hill)*

I FOUND THAT your list of online support forums lacked one major site that should have been included. PC Help Forum (www.pchelpforum.com), which was founded in May 2004, has a track record of providing professional, fast, and free tech support. It is an excellent site.

Ryan Stalets, Springfield, Illinois

FINDING FAKES

REGARDING YOUR February article "Fakes!": The computer itself can provide certain information about its hardware. For example, Windows' Device Manager will display the names or model of installed hard drives and DVD/CD-ROM drives. If the counterfeiter hasn't modified the component's electronic ID tag, this should confirm its legitimacy.

Ken West, via e-mail

QUICKBOOKS' HIDDEN COST

YOUR FEBRUARY REVIEW of QuickBooks 2006 [*Reviews and Rankings*] didn't mention that the payroll function is unusable until the customer signs up for an overpriced tax table service costing at least \$199 a year, which effectively doubles the cost of the software for small business.

Skip Schwarz, via e-mail

YOUR OWN FILE SHREDDER

ANDREW BRANDT makes some good points in the February *Privacy Watch* about securely deleting personal files if you're about to recycle or donate a PC.

Spybot Search & Destroy has a built-in secure shredder. Click on *Tools* in the lower-left corner of the opening window and then click *Secure Shredder*. Simply drag files to be shredded into the window and click the *Chop it away!* button. The default setting overwrites the files five times, but you can easily increase that as much as you want (the U.S. Department of Defense standard is seven times).

Ron Herman, Sunnyvale, California

Author's response: Free file shredders that work great are everywhere, but for donating a PC, it's easier to make a bootable floppy or CD that overwrites the entire hard drive in one go. Spybot shreds only individual files.

—Andrew Brandt ▶

Data Recovery Made Easier

R-Studio 3.0 from R-Tools raises the bar on information restoration.

Proving that a good thing can get even better, R-Tools Technology Inc. has released version 3.0 of **R-Studio**, its family of robust and economical undelete and data recovery software.

Already renowned for its ability to recover mission-critical data lost to viruses, malicious attacks, hardware failures, or operating system crashes, R-Studio 3.0 has a new file recovery algorithm allowing users to increase the quality of file recovery and recover files not recognized in file system metadata.

In addition, R-Studio 3.0 now supports UFS1 and UFS2 file systems as well as enhanced remote host scanning procedures that analyze data on the remote host rather than the local host, speeding up data recovery time. R-Studio 3.0 also includes **R-Studio Emergency** version free of charge, allowing users to recover data on a computer on which Windows cannot be booted due to system file corruption or deletion. And to make things even more user-friendly, R-Studio and R-Studio Emergency demo versions can be registered on the fly.

R-Studio 3.0 joins the growing list of business continuity solutions from R-Tools that includes **R-Drive Image 3.0**, a powerful utility that

effortlessly creates disk image files for backup and duplication. These files are exact copies of a drive partition and are created without interrupting normal business operations. R-Drive Image 3.0 can also be utilized for mass

system deployments when configuring multiple computers identically.

In addition, R-Tools also offers **R-Word** to recover damaged Microsoft Word files; **R-Excel** to reconstruct precious Excel files that have been corrupted or attacked; **R-Mail** to reconstitute email messages

accidentally deleted or damaged .dbx files; and **R-Wipe & Clean** that automatically keeps disks free and clear of data clutter.

For information on the exciting new features in R-Studio 3.0 or to learn more about how the family of R-Tools solutions can keep your business up and running, visit www.r-tt.com.

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LETTERS

BIG TVs: CONSIDER DLP

FEBRUARY'S "Just-Right LCD TVs" [*Reviews and Rankings*] continues a trend I see in both tech and mainstream media—that is, to write mainly about LCD and plasma HDTV, ignoring DLP sets. It is hard to understand why someone would spend \$2000 on a 32-inch LCD HDTV when for the same money they could buy a 46-inch DLP set. For the optimum HDTV effect, you'd need to view the LCD from just a few feet away—as in a mobile home or an efficiency apartment.

Richard C. Rhoads, Honey Grove, Texas

WHY WEB 1.0 ISN'T RIGHT

AS A WEB DEVELOPER myself, I agree with much of the February *Full Disclosure* column ["Web 2.0? First, Let's Get Web 1.0 Right!"]. Nothing irritates me more than finding a page that doesn't work as I expect. But Stephen Manes fails to recognize that every bit of coding to fix a bug on a site requires a programmer's time and effort. Many smaller companies can't afford to keep paying developers after the site is initially set up. The fixes to Web 1.0 can't just magically happen without an investment of time and money.

Also, the Web is plagued with people who think they can save on costs simply by using do-it-yourself applications and services. Web 2.0 won't change that.

George Jaros, via e-mail

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

CORRECTIONS

IN FEBRUARY'S "Is XCP Running on Your System?" (a sidebar to the *News and Trends* copy controls story), we should have said that the command-line tip from Mark Russinovich works only in Windows XP.

In February's "Wi-Fi Reaches the Speed of Ethernet" (*News and Trends*), we should have identified Linksys's line carrying True MIMO Gen3 technology as the SRX400.

PC World regrets the errors.



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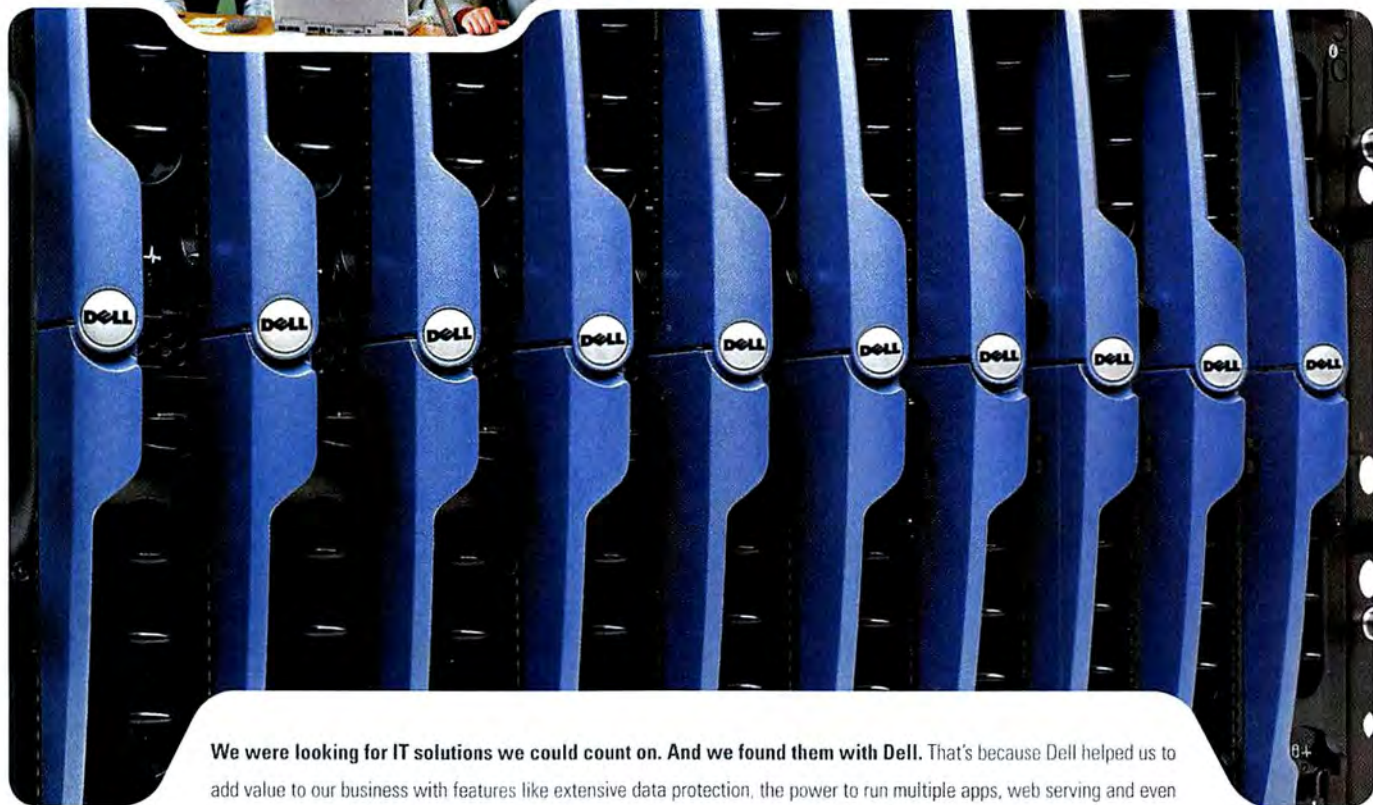


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BY ANNE KANDRA

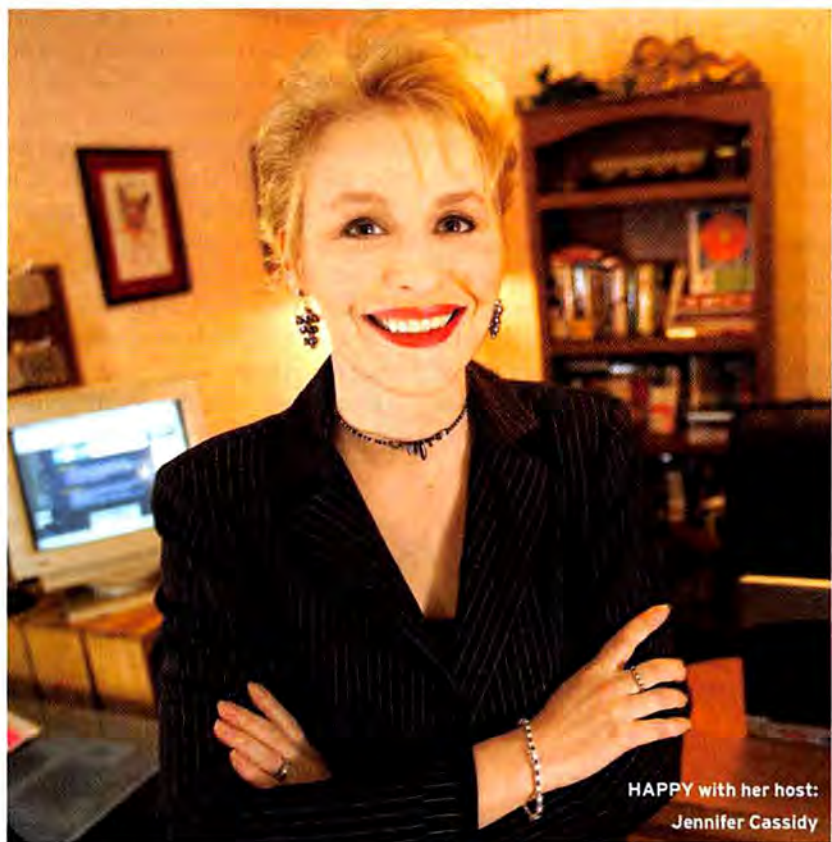
**HOW TO CHOOSE A WEB
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Find a Good Home for Your Home Page

How to seek out affordable and reliable Web hosting that meets your needs.



HAPPY with her host:
Jennifer Cassidy

JENNIFER SULLIVAN CASSIDY learned the hard way that there's more to choosing a Web host than beating the budget.

Cassidy selected the first Web host for her Kansas City, Missouri-area design and consulting company based on its bargain-basement price. "I was just starting my business, and I needed to save pennies," she explains.

Cassidy's Web storefront was gaining steam and making some sales when the host's server went down over a long holiday weekend. She was unable to reach anyone in tech support to fix the prob-

lem until the following Tuesday—and her Web woes were only beginning. The company's self-touted 24/7 tech support turned out to be more like 24/5 since the support staff was never available on weekends. Even on weekdays, getting a response often took hours.

Cassidy decided she wanted out when she realized she had more than a dozen unanswered support calls pending. "I had to plead for a month's refund due to their server issues," she says. She has since migrated to a new hosting service that has proved more dependable.

The most cursory online search will turn up countless hosting companies, most of which promise next-to-perfect server reliability, round-the-clock service and support, bulletproof security, and more. But how can you tell which hosts actually live up to their promises?

PAYING FOR RATINGS

IT ISN'T EASY, admits Ron Dunlap, editor of Webhost magazine (www.webhostmagazine.com), an online publication that tests and evaluates Web hosting companies based on criteria including support, reliability, features, security, and value. To complicate matters, Dunlap adds, a plethora of Web sites rate these services without testing them.

"Many of the so-called host review sites look like they provide real reviews, but in fact their top reviews are based on ad revenue," says Dunlap. In other words, the more a hosting service has paid a review site, the higher its ranking.

The moral? Don't trust host review sites that are littered with ads, that don't say how they test hosts, or that publish reviews that read like advertising copy—that's probably exactly what they are.

GET WHAT YOU NEED

BEFORE SHOPPING FOR a hosting service, determine what features your site will require. For example, if you're planning a business site, make sure a potential host provides adequate and affordable disk space and bandwidth—but don't trust a site that promises unlimited quantities of either: If you check the fine print, you'll probably figure out how the service weasels out of it. Also inves- ►

tigate its e-mail and file transfer options, e-commerce and payment tools, security options, and support for the scripts and extensions your site uses.

For example, one popular host offers plans ranging from about \$4 to \$15 a month (add a \$30 setup fee if you opt for less than a year's service contract). At the top end, you get 15GB of storage, 500GB of bandwidth, FrontPage extensions, a shopping cart, an FTP manager, and other e-commerce features.

In contrast, a personal or family site can probably get by with a bare-bones plan costing less than \$10 a month (or the free hosting included in some ISP plans). Free hosting from a third-party firm usually involves putting up with ads festooned across your pages.

For tips on bandwidth, disk space, and other requirements, check out sites such as Web Hosters (webhosting.devshed.com) or Findmyhosting.com. Then go to a site that lets you search for Web hosts by criteria such as features, server platform, and price. Ask friends and colleagues for their recommendations.

To evaluate contenders, start by looking for contact information on each site. Along with street and general e-mail addresses, look for names of company principals, working phone numbers, and active e-mail links to tech support, customer service, sales, and the like.

Test the support e-mail addresses and phone numbers at different times of day, especially if the company boasts of 24/7

Send e-mail and make phone calls to verify 24/7 support, if it's promised.

support—and don't be afraid to ask lots of questions. If a host isn't prompt and courteous in responding to a query from a potential customer, it's unlikely to be more accessible once it has your money.

Find out how long the company has been in business. New services aren't

necessarily untrustworthy, but one that has been around for several years is probably doing something right. Avoid companies that don't provide references.

BACKUP PLANS

ASK HOW THE company expects to keep your site up and running in the event of a power failure or a hardware crash. It should have a backup plan, such as an alternative power source. Ask how often the service backs up files—anything less than daily should make you think twice.

Carefully review service and support policies. Is there a money-back guarantee if you're not satisfied? Can you try out the service before signing a long-term contract? If you want to leave before the contract expires, can you get a refund? Does the service make transitioning to a competitor difficult?

Aside from verifying round-the-clock service (if promised), look for live online chat, a good FAQ and/or knowledge base, and prompt response to e-mail.

To augment your own research, look for user comments (as well as practical ►

PRIVACY WATCH

How Much Does Google Know About You?



WANT TO KNOW WHAT'S going on in someone's mind? Look at the words they enter in their favorite search engine. Fortunately, that information is private, right? Maybe not.

If you use Google, for instance, and are not blocking cookies, the search

engine likely has placed a cookie on your system that won't expire until 2038. That cookie lets Google track what you searched for, when you conducted the search, and which results you clicked. The cookie doesn't identify you by name, but it does identify you by your system's information and IP address.

This is what the U.S. government was after when it subpoenaed Google for search records of millions of random users to establish the need for a federal online pornography law. The company was fighting the subpoena as this article went to press, but AOL, MSN, and Yahoo have already given the government at least some of the kinds of data it wants.

The case highlights the sensitivity of search records in general, and Google's in particular. The company's position at the top of the search engine food chain means that its

archives could contain years of detailed logs on what millions of users search for and where they surf. (Google has not said how long it keeps such records and didn't respond to our requests for information on the subject.)

Fortunately, there are well-established ways to rid your PC of tracking cookies, either using your browser or one of many third-party antispyware and system cleanup utilities. For detailed instructions on cleansing private information from your browser, see this month's *Internet Tips* (page 140).

But ending the privacy threat that cookies pose requires action by Web sites as well as by individuals. As storage gets cheaper, system administrators at commercial sites tend to log everything and keep the data as long as possible, broadening the window for misuse. At last December's Usenix Large Installation System Administration conference, an Electronic Frontier Foundation attorney recommended that administrators keep only the logs they need, and destroy the rest.

If Google truly wishes to live up to its corporate motto—"Don't Be Evil"—the company should be selective about the logs that it keeps, and should chuck everything else.

—Andrew Brandt

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advice) on forums such as Hostsearch Forums (hostsearch.com), Webhosting Forums (webhosting.info), or Webhosting Chat (webhostingchat.com). There are dozens of these sites, so if you look long enough, chances are you'll find someone who has comments about even the most obscure hosting service.

All this investigation takes effort and patience. But with luck, your up-front investment will pay off by helping you find a Web host that will take good care of you for a long time. ■

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

ON YOUR SIDE

Lemon-Law Rights for PC Owners

TWO WEEKS AFTER I received a new Sony S480 notebook, it began to freeze intermittently. I have a two-year on-site repair agreement, so a Sony technician came by and replaced the hard drive. When the problem resurfaced, Sony had me send the portable to a repair center, where the drive was replaced again. But the problem persisted. I sent the unit in again but have been unable to get an update by phone. Is there a lemon law that covers this issue?

Martin Sheridan, Baltimore

On Your Side responds: After we contacted Sony, the company determined that the notebook's problem was caused by a faulty motherboard. Sony

repaired the notebook and extended Sheridan's on-site repair warranty for an additional year.

There are no PC-specific lemon laws, but the federal Magnusson-Moss Warranty Act says that a company that doesn't provide successful warranty repair for any product must provide a new replacement or a full refund—and pay court costs for consumers who must sue to exercise these rights. If you think you might want to sue under this law, Martin Sackett, spokesperson for Kimmel & Silverman, a law firm specializing in lemon laws, recommends keeping thorough documentation of problems and detailed logs of all interaction with the vendor.

—Amber Bouman

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STEVE BASS

Clean House on a Junk-Filled System Tray

Boost your computer's performance by clearing the tray of useless icons.

WANT TO SEE the winner of the most bloated system tray award? It weighs in with 30 icons and counting (see find.pcworld.com/50982). This month I'll tell you how to shake the system tray free of worthless items while retaining the essential ones.

The Hassle: Every time I boot up my Windows XP Home system (which takes forever), heaps of icons appear in my system tray. I checked my Startup folder and, except for two items, it's empty. Where are these programs coming from, and do I need to keep them all?

The Fix: Your computer's definitely stressed. There are two issues. First, every time you boot, Windows has to load the programs or processes represented by some of those icons. Second, and more significantly, they're gobbling up resources and CPU cycles, slowing down your system. It's a safe bet (I'll even give you odds) that plenty of the items are useless, can be dumped, and won't be missed.

Removing the junk from your system tray can be an exciting adventure. (Stop laughing. It's better than emptying the dishwasher, right?) Determining what applications are loading behind the scenes is the easy part; figuring out which ones you can safely remove is harder.



My cohort, Woody Leonhard, scratched the surface of the system tray in January's "Gunk Busters!" feature (find.pcworld.com/50972). I've got more to say, and it's summed up in two words: WinPatrol Pro. The latest version, 9.8 (find.pcworld.com/50974), is a must-have tool.

WinPatrol works in two ways. First, when you install a program and it tries to add an icon to the tray at boot-up, you'll get a WinPatrol warning—and a way to nip it in the bud (or kill and remove it afterward). That's important for programs such as AOL, Apple's QuickTime, and RealPlayer, all notorious for adding junk

icons. WinPatrol also enables you to stop programs such as Adobe Acrobat that insist on running useless, daily version-update checks; and it prevents programs from changing file extensions willy-nilly.

Second, WinPatrol gives you an easy way to comb through existing background-loading programs; its 'info' button provides basic details, including the company name, version, and startup location—enough to help you figure out which entries are removable. The free version is good, but I strongly urge you to spend \$25 for the Pro version. Its comprehensive database gives you more details and specific recommendations for which programs to keep and which to remove. I promise you'll get that money back by eliminating your system tray headaches.

Quick tip: Rather than remove an entry, I use WinPatrol's Disable feature until I am sure the entry is unnecessary.

WinPatrol also removes tracking cookies, monitors services, watches Internet Explorer helpers, and blocks Sony's annoying rootkit-like DRM scheme.

By the way, if you want lots of programs running from the system tray, don't mind the clutter, and are willing to spend some bucks, you can improve your PC's startup speed simply by adding more RAM. I maxed out my computer with 2GB and rarely experience resource issues. ■

TOOL OF THE MONTH

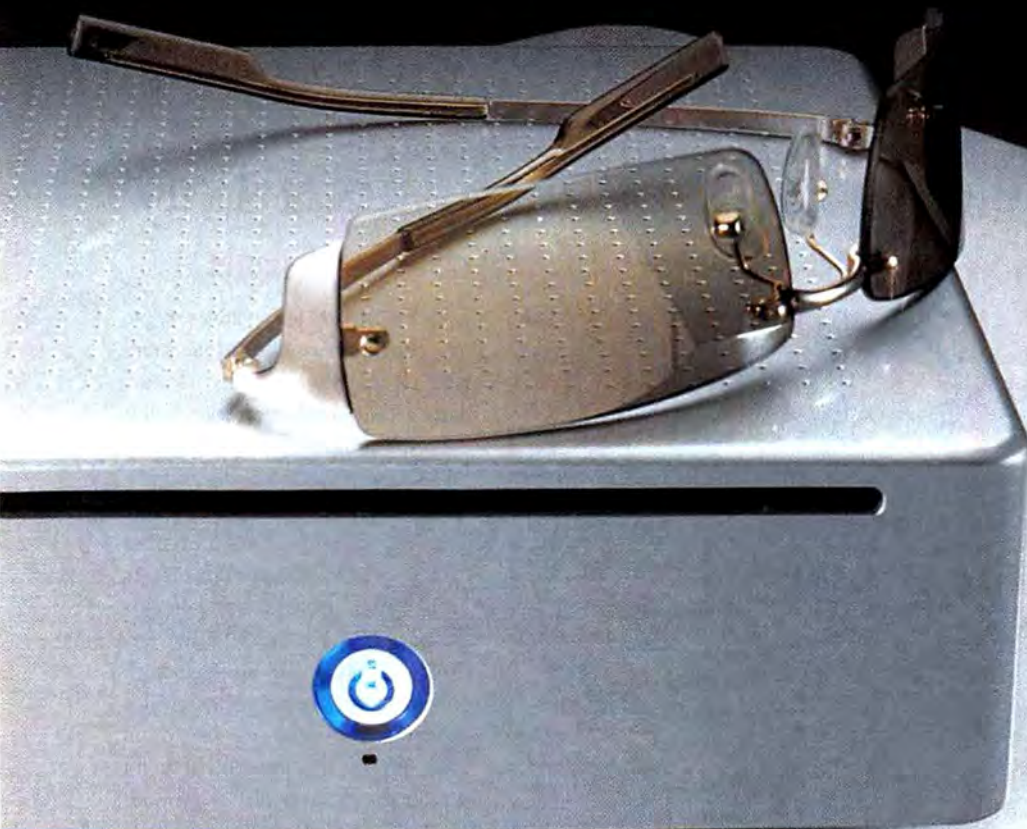
Unclutter Your Desktop

I PREACH NEATNESS, but my notebook's desktop is an unholy mess, with icons everywhere. That's fine with me—until I have to do a presentation and everyone gets a look at my disorderly desktop. My trick is to use an obscure feature built

right into Windows to temporarily hide my desktop icons. Right-click your desktop and uncheck *Show Desktop Icons* under *Arrange Icons By*. This tactic is also ideal when I need to capture a screen shot of a dialog box and want a blank background.

Contributing Editor Steve Bass writes the *Bass Blog* (see find.pcworld.com/50264) and is the author of *PC Annoyances*, published by O'Reilly (see find.pcworld.com/43818). Contact him at hasslefreepc@pcworld.com. To read Steve's previous columns and newsletters, go to find.pcworld.com/50268.

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GADGET FREAK

BY DAN TYNAN

High-Def Discs Battle for Your Bucks

Should you buy a new HD disc player? Probably, but not anytime soon.

IN THE MARKET for a Sony Betamax? You can find one on eBay for less than \$100. Of course, only serious electronics geeks would want a player that's been obsolete for more than 20 years. But if you're not careful, you could end up owning something much like it, thanks to the raging war between the Blu-ray and HD DVD high-definition disc formats.

By the time you read this, Toshiba plans to ship two HD DVD players: the basic HD-A1 (\$499) and the enhanced HD-XA1 (\$799), which features a snazzier remote and more output options. Pioneer's competing Blu-ray Elite BDP-HD1 player (\$1800) should appear in May, followed soon after by Blu-ray players from Philips, Sony, and others.

Both formats use blue-laser technology to cram more data onto optical discs and to store images that look terrific on a big \$10,000 plasma HDTV. (Then again, anything looks great on an HDTV. Even I don't look half bad.) But try to pop a Blu-ray disc into an HD DVD player, or vice versa, and you'll see No Definition because the formats are incompatible. So if you're desperate to watch HD movies on disc, you'll just have to choose. Pick the wrong format, and you could end up with precious little to watch.

DISC CONTENTED

WHY CHOOSE A Blu-ray device? Capacity and content, says Sandy Benedetto, a director of product management for Pioneer Electronics. Single-layer BD discs will contain 25GB, or 10 gigs more than HD DVD. That's enough to hold a 2-hour movie at full 1920 by 1080 resolution, surround-sound audio in three language

es, and more than 100 minutes of other HD content. Blu-ray has more Hollywood studios lined up behind it, which could mean more BD titles in stores by midyear. Gamer bonus: The much-hyped PlayStation 3 will sport a BD player.

Why spring for HD DVD? Interactivity and low cost, says Toshiba spokesperson Mark Knox. Because they lean heavily on



existing DVD technology, HD DVD players will be cheaper, and so will the discs. Knox says that interactive elements like Web access and games will be available on all HD discs but not on all BDs (Benedetto respectfully disagrees), and that superior compression will help HD DVD discs store up to 4 hours of high-def content. He says 200 movies will be released in HD DVD this year (at press time, some 85 titles had been announced for each format). Gamer bonus: The Xbox 360 will support external HD DVD drives.

Can't we all just get along?

Apparently not. Jennifer Aniston is likelier to remarry Brad Pitt than Blu-ray

and HD DVD are to settle their differences. The smart choice is to wait for a player that handles both formats.

You might not have to wait long, says Don Shulsinger, a VP of business development for Broadcom, which makes a chip set that allows devices to play either type of disc. He expects at least one major vendor to announce a universal player before year's end, although it's unlikely to be available until 2007.

Another good reason to wait: If you buy a blue-laser product now, you won't get support for "managed copy," which will let you make a single digital copy of a movie and play it across your home network. Both sides say that they'll support managed copy, but at press time the spec hadn't been finalized.

BLUE-LASER BLUES

OF COURSE, EARLY adopters are likely to barge ahead and buy one or the other of the high-def player types, just for bragging rights. But average consumers may end up getting burned. My friend Dave the dentist wouldn't know a composite cable from a composite filling but he's about to drop serious cash on an HD home entertainment system. And he has already decided which format he'll spring for.

"I think Blu-ray will win," he says. "It's got a better name."

It's as good a bet as any. And if he's wrong, well, he can always hang on to it for 20 years and then sell it on eBay. ■

Contributing Editor Dan Tynan is author of *Computer Privacy Annoyances* (O'Reilly Media, 2005). You can send e-mail to him at gadgetfreak@pcworld.com.

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T.sonic™ 520 MP3 Player



• TS1207NE10 • TS1607NE10



BUGS & FIXES

STUART J. JOHNSTON

Windows Flaw Makes Surfing Riskier

Also: Hackers may use Outlook e-mail messages to take over your computer.

ATTACKERS HAVE been using increasingly novel means to break into Windows systems—for example, using doctored media files like music, Web graphics, and video. Now joining that roster of dirty tricks are booby-trapped text fonts embedded in Web pages.

The bug sleuths at eEye Digital Security found a way to breach Windows' security by exploiting a flaw in how the OS displays text on Web sites. Web designers often use embedded fonts to guarantee that the text on a page will look the same in every browser.

All a cyberthug has to do is create a corrupted font on a Web site and wait for unsuspecting visitors. When you view the affected font in Internet Explorer—or in any application that uses Windows to show the fonts in question—the doctored text triggers a



buffer overflow, disabling your PC's security and allowing the thug to then take control of your computer. Reading or even just previewing an affected HTML e-mail message in Outlook or Outlook Express can launch the attack too.

This flaw affects all versions of Windows, from Windows 98 through XP Service Pack 2, which means the majority of people online are potentially

at risk. Microsoft has distributed the patch via Windows Update. You can also get it at find.pcworld.com/51564.

The discovery follows a recent rash of attacks that exploited holes in the way Windows displays certain types of images embedded in Web pages. Smart crackers figured out how to use what are called Windows Metafile (WMF) images to disable a PC's security. (For details, see

last month's column at find.pcworld.com/51970.)

More than ever, it pays to be careful what you click. These new vulnerabilities are especially troubling because you can compromise your system just by looking at a poisoned e-mail message or Web page.

BLOCK OUTLOOK HOLE

A SEPARATE vulnerability affecting Outlook 2000, XP, or 2003 users may give a hacker control of your machine as well. Again, you simply have to open or preview a doctored e-mail to be compromised. Outlook's mishandling of a file format called Transport Neutral Encapsulation, or TNEF, is to blame. The problem is "critical" in Microsoft's eyes because the application uses TNEF when it sends or receives e-mail in the com-

IN BRIEF

Winamp Danger

IF YOU OPEN a specially crafted playlist (from a link on a malicious Web site, for example) with version 5.12 of Winamp, you'll end up with a buffer overflow error that could let the bad guys take over your PC. To get the fix, you need to upgrade to version 5.13 or later at www.winamp.com/player.

Microsoft Small Biz Accounting Glitch

IF MICROSOFT Office Small Business Accounting 2006 gives a nondescript error and crashes every time you start it, reinstall the program's Service Pack 1. Find out more from Microsoft at find.pcworld.com/51678.

monly used Rich Text Format.

As before, you can run Windows Update to get this patch; you can also download it at find.pcworld.com/51565. ■

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

BUGGED?

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

SYMANTEC ANTIVIRUS SECURITY BUG

SYMANTEC HAS RELEASED patches to fix a hole in the way its antivirus software library handles certain compressed files.

If a hacker hides a booby trap inside a file or e-mail attachment ending with .rar, the library unwittingly launches the attack when it scans the file, running any command the hacker wants. Most of Symantec's products use the affected library.

To plug this hole, manually run Symantec LiveUpdate (by clicking LiveUpdate in the toolbar) to make sure you have the necessary patch. Repeat, if necessary, until you have all available updates. Get more information at find.pcworld.com/51566.

REVIEWS & RANKINGS

EDITED BY ERIC BUTTERFIELD AND MELISSA J. PERENSON

- 50 HP MD5880N, MITSUBISHI WD-62628, JVC HD-56FH96
- 55 SIRIUS S50
- 55 APPLE IMAC
- 56 CORELDRAW GRAPHICS SUITE X3



60



SUPERFAST: Polywell's Poly 939N4-SLI2/FX60 (left) and ABS's Ultimate M6 Sniper II.

FX-60 Powers Fastest PCs

Record benchmark scores show that AMD-based systems continue to deliver top performance.

POWER PCs

TEST Center WHENEVER AMD announces the launch of a new cutting-edge CPU, record-breaking desktop systems are not far behind. The company's pricey new processor for desktop PCs, the dual-core Athlon 64 FX-60, is no exception. We tested three of the first desktops to incorporate the new CPU and ended

up with the highest benchmark scores we've ever seen. Naturally, all three of these power PCs jump onto our Top 5 chart (see next page).

Of course, Intel isn't standing still. This month we also built a reference system based on the chip giant's new dual-core Pentium Extreme Edition 955 processor. (It was so new when we tested it that no ven-

dor systems were yet available.) This machine proved to be the fastest Intel-based desktop we've benchmarked, but it still trailed the speediest new AMD-based system by a sig-

nificant margin. (For more on the Extreme Edition 955, see "Intel's Latest: Faster, but Still Not the Champ" on page 48.)

How fast is the FX-60? Our quickest test machine notched

PCW RATINGS



VISIT find.pcworld.com/49902 for a complete explanation of our new rating system, as well as information about the test methodology we use.

60 NIKON D200
 62 SAGE SIMPLY ACCOUNTING BASIC
 66 HP PAVILION DV5000Z
 66 WESTERN DIGITAL RAPTOR X
 70 MICROTEK SCANMAKER I800
 70 ATI RADEON X1900 XTX
 72 MORE REVIEWS AT PCWORLD.COM

RANKINGS

52 TOP 5 VALUE DESKTOP PCs
 58 TOP 5 MONOCHROME LASER PRINTERS
 64 TOP 5 VALUE GRAPHICS BOARDS
 68 TOP 5 SPEAKER SYSTEMS

68



a WorldBench 5 score of 141, about 8 percent higher than the figure posted by our previous top dog, a comparably configured desktop carrying AMD's dual-core 2.4-GHz Athlon 64 X2 4800+ CPU.

The FX-60 marks the transition of AMD's premium line of FX CPUs to dual-core technology, replacing the single-core, 2.6-GHz Athlon 64 FX-55. The single-core FX-57, which runs at 2.8 GHz, will remain available until a dual-core FX processor matching that speed arrives, AMD says.

FAST, PRICED SYSTEMS

WE TESTED A TRIO of new, shipping FX-60 systems: the \$4499 Ultimate M6 Sniper II from ABS, the \$3499 Gamer Ultra XLC from CyberPower, and the \$4250 Poly 939N4-SLI2/FX60 from Polywell.

Their ratings were similar—and that's not surprising since they have virtually identical hardware (an ASUS A8N32-SLI Deluxe motherboard, two high-performance 74GB Western Digital Raptor hard drives striped in a RAID 0 array, and a pair of SLI EVGA e-GeForce 7800 GTX graphics cards). The video cards used in the CyberPower and the Polywell

each had 512MB of graphics memory; the card in the ABS had 256MB. All three computers included a third hard drive outside the RAID setup; the ABS model stood out from the others with a huge (500GB)

Seagate Barracuda, while the other two had 250GB drives.

The ABS and Polywell systems came with 2GB of RAM and posted record-breaking scores of 141 and 140, respectively, on PC World's World-

Bench 5 benchmark. (The previous top mark, 130, was set by Xi Computer's MTower 64 AGE-SLI, which runs AMD's 2.4-GHz Athlon 64 X2 4800+ processor.) The third FX-60 system, the CyberPower

TOP 5 POWER PCs

AMD-Based PCs Muscle Onto Chart

Three new machines carrying the dual-core FX-60 processor and SLI graphics prove their mettle.

	POWER SYSTEM	PCW Rating	Performance	Features and specifications
1	Polywell Poly 939N4-SLI2/FX60 Best BUY \$4250 find.pcworld.com/51478	85 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 140 Superior Overall design: Very Good Graphics: Superior 	<ul style="list-style-type: none"> 2.6-GHz Athlon 64 FX-60 398GB (RAID) drive space 19-inch Hyundai L90D+ LCD 512MB EVGA e-GeForce 7800 GTX (two cards)
Bottom line: Gamers and power users who crave top performance and need easy upgrades will like this system's design and price.				
2	ABS Ultimate M6 Sniper II \$4499 find.pcworld.com/51474	84 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 141 Superior Overall design: Very Good Graphics: Superior 	<ul style="list-style-type: none"> 2.6-GHz Athlon 64 FX-60 648GB (RAID) drive space 19-inch Samsung SyncMaster 915N LCD 256MB EVGA e-GeForce 7800 GTX (two cards)
Bottom line: ABS's latest is for gamers and graphics mavens who want the fastest PC on the block and are willing to pay for it.				
3	Xi MTower 64 AGE-SLI \$3286 find.pcworld.com/48972	84 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 130 Superior Overall design: Good Graphics: Superior 	<ul style="list-style-type: none"> 2.4-GHz Athlon 64 X2 4800+ 600GB (RAID) drive space 19-inch ViewSonic VP191b LCD 256MB EVGA e-GeForce 6800 Ultra
Bottom line: With terrific storage, this MTower will appeal to power users who want high performance at a reasonable price.				
4	Velocity Micro Vision 64 \$3954 find.pcworld.com/49392	83 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 115 Very Good Overall design: Very Good Graphics: Superior 	<ul style="list-style-type: none"> 2.4-GHz Athlon 64 X2 4800+ 500GB (RAID) drive space 19-inch NEC MultiSync LCD1970GX LCD 256MB EVGA e-GeForce 6800 GT
Bottom line: Fast, SLI-ready dual-core system is a nice match for advanced gamers and graphics enthusiasts.				
5	CyberPower Gamer Ultra XLC \$3499 find.pcworld.com/51476	83 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 123 Very Good Overall design: Very Good Graphics: Superior 	<ul style="list-style-type: none"> 2.6-GHz Athlon 64 FX-60 398GB (RAID) drive space 19-inch ViewSonic VX924 LCD 512MB EVGA e-GeForce 7800 GTX (two cards)
Bottom line: This full-featured PC will please budget-minded gamers looking for high performance at a relatively low price.				

CHART NOTES: Ratings are as of 1/18/06. Drive space (hard-drive capacity) represents multiple drives.

Gamer Ultra XLC, included 1GB of RAM and turned in a WorldBench 5 score of 123.

Frame-rate scores on our Unreal Tournament gaming tests broke new ground, as well: The ABS system's score of 429 frames per second at 1280 by 1024 resolution, for example, eclipsed the previous top score by 10 percent. Test results for the older game Return to Castle Wolfenstein, on the other hand, though near the best we've seen, did not eclipse existing records.

CLASSY CONFIGS

ABS'S ULTIMATE M6 Sniper II came with Samsung's SyncMaster 915N 19-inch LCD monitor. Although game play was sterling, the monitor appeared rather dark. Working inside the case, while generally easy, was a little more difficult in some areas than with



CYBERPOWER'S GAMER ULTRA XLC, in a lean and clean aluminum case, provides high performance for a more affordable price.

the other two systems. An extremely sharp 19-inch ViewSonic VX924 LCD monitor accompanied CyberPower's Gamer Ultra XLC, and the PC's roomy case permitted easy access and painless up-

grading. All three machines offer two optical drives, a media card reader, 7.1-channel surround-sound support, and an ample supply of ports.

Among the trio, Polywell's Poly 939N4-SLI2/FX60 hits

the price/performance sweet spot. In our tests it finished less than 1 percent behind the leader, the ABS machine, yet it costs \$250 less. We advise you, however, to buy a different monitor than the excessively dark 19-inch Hyundai L90D+ flat-panel display that came with our review system.

The Poly also offers superior upgradability: After removing a few screws, we could easily reach the one open slot, two free RAM sockets, and three open drive bays. Quick-release latches make adding and removing optical drives a snap, and the two hard-drive cages slide out horizontally.

On our chart, Polywell's new system outscored ABS's and Xi's by a point to earn our Best Buy, thanks to its ability to deliver top performance for a relatively moderate price.

—Kirk Steers

DUAL-CORE CPU

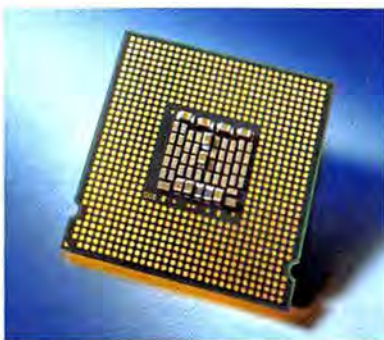
Intel's Latest: Faster, but Still Not the Champ

INTEL IS BY NO MEANS conceding the high-end market to AMD's FX line, having recently launched its high-end dual-core Pentium Extreme Edition 955 CPU. No manufacturer was ready to ship a 955-based PC in time for this article, so we built a reference system featuring the processor and Intel's new 975X Express chip set.

Our test machine's WorldBench 5 score of 109 was more than 10 percent higher than that of any other dual-core Intel-based PC we've evaluated, but our reference system lagged behind the fastest FX-60-based machines in WorldBench 5 performance by a significant margin (23 percent).

MORE CACHE, FASTER BUS

INTEL'S NEW DUAL-CORE 3.46-GHz chip, which will sell for about \$1000, carries 2MB of Level 2 cache per core (twice the amount



THE PENTIUM EXTREME Edition 955 processor outpaced Intel's previous fastest CPU by more than 10 percent.

the Pentium Extreme Edition 840 holds).

Other new features in the Extreme Edition 955 include a faster frontside bus (running at 1066 MHz) connecting the CPU with RAM, and Intel's Virtualization Technology,

which allows a PC with the appropriate software to run multiple operating systems simultaneously without having to reboot.

BUILT BY THE TEST CENTER

WE EQUIPPED OUR reference desktop with an Intel D975XBS motherboard; 2GB of DDR2-800 RAM from Crucial Technologies; a single EVGA e-GeForce 7800 GTX KO graphics card with 256MB of memory; a couple of 7200-rpm, 160GB Western Digital Caviar SE WD1600JS hard drives striped in a RAID 0 array; and an Antec Turbo-Cool 510 ATX-PFC power supply.

How soon will systems be available commercially? Alienware and Gateway have already announced high-end models based on Intel's newest processor, and several other vendors likely will have joined them by the time you read this.

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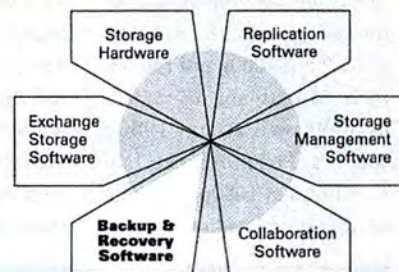
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Products for Small and Medium Business

Big TVs With 1080p Resolution

H D T V s

TEST CENTER IF YOU ARE going to shell out thousands of dollars for a big high-definition television set, you probably want it to deliver the highest resolution available so it won't be obsolete in six months. We tested three of the largest, newest microdisplay sets that offer 1920 by 1080 progressive resolution—the most you can get in a TV.

However, you won't find any 1080p sources (yet); getting a 1080p TV now is useful only for future-proofing. And not all so-called 1080p sets will accept 1080p video when it does become available. For example, the 56-inch JVC **HD-56FH96** (\$4000) that we tested does not accept 1080p sources; rather, it upconverts signals to 1080p resolution—so JVC can call it a 1080p set. The other two televisions we looked at, the 58-inch HP **MD5880n** (\$4000) and the 62-inch Mitsubishi **WD-62628** (\$4699), will accept 1080p sources. For more, see “No TV Shows at 1080p” on page 62; for an explanation of high-

definition standards, browse to “Ten HDTV Myths” (find.pcworld.com/51924).

The HP MD5880n earned our Best Buy award by dominating our image-quality tests and offering some unique design touches. The image quality of the other two sets was disappointing. The Mitsubishi's picture was the least sharp, marred by blurry spots and grainy patches, and the image crawled at several points. The JVC's picture sometimes looked sharp, but with certain programs, areas of sparkling color distracted our viewing, especially with standard-definition programming. To read full reviews of all three shipping sets, visit find.pcworld.com/51624.

THE REALLY BIG PICTURE

THE HP MD5880N and the Mitsubishi WD-62628 use a Texas Instruments DLP (Digital Light Processing) chip, while the JVC HD-56FH96 uses three LCoS (liquid crystal on silicon) chips. These televisions, like all rear-projection



HP'S 58-INCH MD5880n delivers high image quality, and will accept 1080p video sources.

sets, have large cabinets. The acceptable viewing angle with these models is narrower than you get with plasmas, direct-view CRTs, or LCD sets.

HP says the TV uses technology to project two slightly overlapping, shifting images to create a sharper picture. That may just be hype, but the HP had the most accurate color, the best contrast, and the sharpest picture, whether

it was displaying HDTV content, standard-definition programming, or DVD movies.

The HP's ports sit behind a large panel on the front of the set, making it easy to connect components. But to hide the cables, you'll have to snake them through the chassis.

All three sets have CableCard slots, digital and analog tuners, and two HDMI inputs. The Mitsubishi has a few more inputs than the other models (including three sets of component inputs).

Any of these sets costs a lot less than a flat-panel TV of the same size (if you can find one). Though the constricted viewing angle is a drawback, if you want a big TV with 1080p resolution, you'll get the most for your dollar with HP's DLP.

—Alan Stafford

	BIG 1080P HDTV	PCW Rating	Performance	Features and specifications
1	HP MD5880n Best \$4000 BUY find.pcworld.com/51448	84 Very Good	<ul style="list-style-type: none"> • HDTV: Very Good • SDTV: Very Good • DVD: Very Good • Overall design: Very Good 	<ul style="list-style-type: none"> • 58-inch screen • Tuners: one NTSC, one ATSC • Inputs: two HDMI, two component • CableCard ready
▶ Bottom line: DLP set aced our image-quality tests handily, and has unique, easily accessible front-mounted ports.				
2	Mitsubishi WD-62628 \$4699 find.pcworld.com/51472	76 Good	<ul style="list-style-type: none"> • HDTV: Fair • SDTV: Fair • DVD: Fair • Overall design: Very Good 	<ul style="list-style-type: none"> • 62-inch screen • Tuners: one NTSC, one ATSC • Inputs: two HDMI, three component • CableCard ready
▶ Bottom line: The biggest of the TVs here, the WD-62628 has a ton of inputs, but image quality wasn't as good as we'd expected.				
3	JVC HD-56FH96 \$4000 find.pcworld.com/51470	72 Good	<ul style="list-style-type: none"> • HDTV: Good • SDTV: Fair • DVD: Fair • Overall design: Good 	<ul style="list-style-type: none"> • 56-inch screen • Tuners: one NTSC, one ATSC • Inputs: two HDMI, two component • CableCard ready
▶ Bottom line: LCoS set won't accept 1080p inputs—though such sources don't exist yet. Image quality with current content was just okay.				

CHART NOTES: Ratings are as of 1/20/06. For more details about the products listed in this chart, see find.pcworld.com/51624.

Multitasking At Its Best



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TOP 5 VALUE DESKTOP PCs

Media Center and Dual-Core System Prices Fall

TEST Center DUAL-CORE systems can deliver high-end performance, and now they're breaking into the value chart. The HP Pavilion a1250n Desktop PC, one of two systems we tested this month that comes with a dual-core processor, lands on the chart in the fifth spot. Its WorldBench 5 score of 94 makes it one of the top value performers, marking it as a fine choice for common multitasking scenarios such as playing music while running office applications.

Nevertheless, remarkable adjustability and a low price of \$870 combine to boost the eMachines T6420 to the pinnacle of the chart—and a Best Buy. Though it doesn't use a dual-core processor, the T6420



AFFORDABLE MEDIA CENTER PC worth buying: eMachines' T6420.

achieved a respectable WorldBench 5 score of 90, just four points behind the dual-core HP. But power is only part of the story. Thanks to a roomy

minitower case and available slots for adding RAM, an extra graphics card, and a sound or TV-tuner card, the system can easily mutate from a bargain

unit to a more expensive—but considerably more versatile—multitasking monster. And because the T6420 runs the Windows XP Media Center OS, it's an excellent choice for managing multimedia files.

Four of the systems we tested this month didn't make the chart. The WinBook PowerSpec Extreme 9200, another dual-core PC, posted a noteworthy WorldBench 5 score of 118. Not only is this the all-time high WorldBench 5 score for a value system, but it ranks seventh overall compared with power systems. At \$1850, the 9200 is pricey for a value system; its performance and features, though, put it at the level of a \$4000 PC. Cost alone prevented this top-tier system from reaching our value-PC chart, where the contest is fierce and price is paramount.

Hefty price tags hampered our other three new systems, too. Velocity Micro's Vision GX attained a flashy WorldBench 5 score of 100, and we liked its attractive, upgradable design; its \$1499 price is the only strike against it. Amax's \$1500 Max64 3200 matched the HP's WorldBench 5 score of 94. Dell's \$1394 Dimension E510 earned a score of 89—but we've tested equally capable systems that cost less.

—Laura Blackwell

ONLINE

FOR MORE information on the desktop PCs reviewed in this chart, including details on how we tested them, go to find.pcworld.com/51404.

	VALUE PC	PCW Rating	Performance	Features and specifications
1	eMachines T6420 Best \$870 BUY find.pcworld.com/51390	84 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 90 WorldBench 5 rating: Good Overall design: Good Graphics: Poor 	<ul style="list-style-type: none"> 2.2-GHz Athlon 64 3400+ 200GB 17-inch eMachines E17T4 LCD Integrated nVidia GeForce 6100 using main memory
▶ Bottom line: This affordable Media Center PC delivers decent performance for the price—and it's highly upgradable.				
2	Cisnet NASCAR PC \$868 find.pcworld.com/50490	83 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 83 WorldBench 5 rating: Good Overall design: Good Graphics: Fair 	<ul style="list-style-type: none"> 2-GHz Athlon 64 3200+ 160GB 17-inch Cisnet NCA-701 LCD Integrated Radeon Xpress 200 using main memory
▶ Bottom line: Kids and die-hard NASCAR fans should enjoy this inexpensive, themed—but otherwise undistinguished—value PC.				
3	HP Pavilion s7220n Slimline Desktop PC \$870 find.pcworld.com/50488	82 Very Good	<ul style="list-style-type: none"> WorldBench 5 score: 69 WorldBench 5 rating: Poor Overall design: Very Good Graphics: Fair 	<ul style="list-style-type: none"> 1.5-GHz Celeron M 370 200GB 17-inch HP vs17 LCD Integrated Intel 915GV using main memory
▶ Bottom line: Affordable price and a very small footprint make this basic PC attractive for modest computing tasks in small spaces.				
4	CyberPower Media Center Ultra Edition \$1299 find.pcworld.com/50484	79 Good	<ul style="list-style-type: none"> WorldBench 5 score: 89 WorldBench 5 rating: Good Overall design: Very Good Graphics: Very Good 	<ul style="list-style-type: none"> 3-GHz Pentium D 830 250GB 19-inch ViewSonic VX924 LCD 256MB nVidia GeForce 6600
▶ Bottom line: Strong performance and expandability make this inexpensive console Media Center PC at home in the living room or office.				
5	HP Pavilion a1250n Desktop PC \$1230 find.pcworld.com/51364	78 Good	<ul style="list-style-type: none"> WorldBench 5 score: 94 WorldBench 5 rating: Good Overall design: Good Graphics: Fair 	<ul style="list-style-type: none"> 2-GHz Athlon 64 X2 3800+ 250GB 17-inch HP vs17 LCD Integrated Radeon Xpress 200 using main memory
▶ Bottom line: Media Center PC manages music and images adequately, but needs upgrades to be a useful home entertainment center.				

CHART NOTES: Ratings are as of 1/17/2006. Drive space (hard-drive capacity) may represent multiple drives.

Lenovo recommends Windows® XP Professional



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ThinkPad Z60t

distinctive innovations

Active Protection System™ – Airbag-like technology to help protect your hard drive

system features

Intel® Pentium® M 740 Processor (1.73GHz)

Microsoft® Windows® XP Professional

Integrated BT and Verizon WWAN⁴

14.1" XGA Widescreen (1280x768)

512MB DDR2 memory at 533MHz

80GB Serial ATA Hard Drive,
DVD Recordable Drive

think express model

\$1799

PN 2511-FEU

Option

ThinkPad Essential Port Replicator

\$179 PN 250510W



ThinkPad Z60 notebook available with Intel® Centrino® Mobile Technology

ThinkPad T60

distinctive innovations

Active Protection System™ – Airbag-like technology to help protect your hard drive

system features

Intel® Centrino® Duo Mobile Technology
Intel® Core™ Duo Processor T2300
Intel® Pro Wireless 2915abg

Microsoft® Windows® XP Professional

14" XGA TFT (1280x768)

512MB DDR2 memory at 667MHz

60GB Serial ATA Hard Drive, CD-RW/
DVD Drive

think express model

\$1499

PN 1953D6U

Option

512MB DDR2 memory at 667MHz

\$94 PN 40Y7733

ThinkPad X60

distinctive innovations

ThinkVantage™ Client Security™ – Strong security as a standard feature

system features

Intel® Centrino® Duo Mobile Technology
Intel® Core™ Duo Processor T2300
Intel® Pro Wireless 2915abg

Microsoft® Windows® XP Professional

12.1" XGA TFT

60GB Serial ATA Hard Drive

4.1lbs travel weight⁵ and only 1.1" thin⁶

think express model

\$1499

PN 170947U

Option

ThinkPad X60 Series Extended Life Battery

\$179 PN 40Y7005

ThinkCentre E50 Tower

distinctive innovations

Rescue and Recovery™ – one-button recovery and restore solution

system features

Intel® Celeron® D 331 Processor (2.66GHz)

Microsoft® Windows® XP Home

256MB DDR memory at 400MHz

40 GB Hard Drive, CD-ROM

6 USB 2.0 ports (2 Frontside)

think express model

\$379

PN 9214A1U

Option

17" ThinkVision® Flat Panel L171 Monitor

\$319 PN 9417AB1

ThinkCentre E50 Tower

distinctive innovations

Rescue and Recovery™ – one-button recovery and restore solution

system features

Intel® Pentium® 4 519 Processor (3.06GHz)

Microsoft® Windows® XP Professional

512MB DDR memory at 400MHz

80GB Hard Drive, CD-RW

6 USB 2.0 Ports (2 Frontside)

think express model

\$699

PN 921525U

Option

Luxmark X7170 All-In-One printer with USB cable

\$149 PN 40Y8260

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Availability: All offers subject to availability. Lenovo reserves the right to alter product offerings and specifications at any time, without notice. Lenovo is not responsible for photographic or typographic errors. **Pricing:** Prices do not include tax or shipping and handling or recycling fees and are subject to change without notice. Reseller prices may vary. **Warranty:** For a copy of applicable product warranties, write to: Warranty Information, P.O. Box 12185, RTP, NC 27709. Attn: Dept ZP/A/B/G/R. Lenovo makes no representation or warranty regarding third party products or services. **Footnotes:** (1) **Mobile Processors:** Power management reduces processor speed when in battery mode. (2) **Wireless:** based on IEEE 802.11a, 802.11b and 802.11g respectively. An adapter with 11a/b, 11b/g or 11a/b/g can communicate on either of these listed formats respectively; the actual connection will be based on the access point to which it connects. (3) **Included software:** may differ from its retail version (if available), and may not include user manuals or all program functionality. License agreements may apply. (4) **Memory:** For PCs with a separate video card, memory supports both system and video. Accessible system memory is up to 64MB less than the amount stated, depending on video mode. (5) **Hard drive:** GB = billion bytes. Accessible capacity is less; up to 4GB is service partition. (6) **Battery:** These model numbers achieved Battery Runtime Time of at least the time shown during testing. A description of the testing is available at lenovo.com/pc/www/thinkpad/batterylife. Battery life (and recharge times) will vary based on many factors including screen brightness, applications, features, power management, battery conditioning and other customer preferences. (7) **Activating Verizon Wireless Service:** Lenovo customers will be contacted after purchase to activate service; requires separate agreement with Verizon Wireless and is subject to the Customer Agreement, Calling Plan and credit approval. Service and airtime charges will apply; \$175 early termination fee. Verizon Wireless, not Lenovo, is solely responsible for service. Service not available in all areas; purchaser is responsible for verifying that service is available for the intended location before purchasing a computer equipped with WAN card. Network details, coverage limitations and maps at: <http://www.verizonwireless.com/b2c/mobileoptions/broadband/>. (8) **Client Security Solution:** preloaded on select models; requires software download. (9) **Travel Weight:** includes battery and optional travel bezel instead of standard optical drive in Ultrabay, if applicable; weight may vary due to vendor components, manufacturing process and options. (10) **Thinness:** may vary at certain points on the system. **Trademarks:** The following are trademarks of Lenovo: ThinkPad, ThinkCentre, UltraConnect, Access Connections, Rescue and Recovery, ThinkPad Part Replicator II, Active Protection System, ThinkVantage and ThinkVision. IBM and the IBM logo are registered trademarks of IBM and are used under license. Microsoft and Windows are registered trademarks of Microsoft Corporation. Celeron, Celeron Inside, Centrino, Core Inside, Intel, Intel Core, Intel Inside, Intel SpeedStep, Intel Viv, Intel Xeon, Itanium, Itanium Inside, Pentium, Pentium Inside, the Intel logo, the Intel Inside logo are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries. Other company, product and service names may be trademarks or service marks of other companies. ©2006 Lenovo. All rights reserved. Visit www.lenovo.com/safecomputing periodically for the latest information on safe and effective computing.

Get Radio Anywhere

SATELLITE RADIO

THE \$330 **Sirius S50** is a handy device for discovering new music. It blends an in-car satellite radio dock with a removable iPod-like player that can store up to 50 hours of audio in its 1GB of flash memory. I liked the hybrid's

quirky array of features, but its inability to receive a signal away from the dock may deter some potential customers (also, the device requires a \$13 monthly subscription to the Sirius satellite service).

I took the shipping S50 for a spin after installing the antenna on my car's roof and hooking up the docking cradle inside the vehicle (some wires dangled from the dash). The S50's built-in FM transmitter let me listen through my car stereo, and the remote control made locating my favorite station easy; I selected the station as one of three My Sirius

Channels, which the device then recorded as I listened.

When I left the car, I took the sleek black player along. Because the tuner is built in to the cradle, I couldn't receive live radio, but with the included earbuds I could listen to several hours of music that the S50 had recorded while I was driving. To save a favorite tune, I simply put it in a playlist via a single button press.

At home, I used the My Sirius Studio software to upload my own MP3 and WMA files to the player via USB cable. The software doesn't let you download recordings of Sirius programs to a computer, but it does deliver Sirius music stations over the Internet.

SAVE YOUR favorite radio shows to the S50 by simply pressing a button.



The Sirius S50 is a little pricey, especially if you add the \$100 Home Dock for connecting the player to your PC or stereo. But having a steady stream of new music on the S50 was certainly enjoyable.

—Paul Jasper

S50

Sirius Satellite Radio

PCW Rating **80** Very Good

The Sirius S50 lets you take satellite radio with you, but the Home Dock costs \$100 extra.

Street: \$330, plus \$13 monthly fee and \$5 activation fee

find.pcworld.com/51654

Intel iMac Lacks Speed With Non-Apple Apps

DESKTOP

APPLE'S 20-INCH **iMac** with the 2-GHz Intel Core Duo processor looks identical to the 2.1-GHz iMac G5 that we reviewed in February (find.pcworld.com/51656). The primary difference is that while Apple's own applications run

faster on the new machine, current third-party software such as Adobe Photoshop CS2 is not yet optimized for the Intel processor, and such programs may run much more slowly than before.

Right now most of the Intel-friendly software is written by Apple, whose optimized iLife programs (iMovie, iPhoto, iTunes, and iDVD) were quicker than their PowerPC counterparts in tests conducted by our sibling publication *Macworld*. Also, *Macworld* found that the Intel iMac starts up nearly twice as fast as the previous iMac G5. In my own infor-

mal tests, I found using iTunes and browsing the Web with Safari to be much snappier. In contrast, Mozilla's Firefox took twice as long to do the same things.

In a worst-case scenario, software that's not yet optimized for the Intel processor, such as Microsoft's VirtualPC, won't run at all. Most software, however, just runs more slowly, since Apple Rosetta has to translate PowerPC-based software for the Intel processor. In *Macworld*'s tests, Photoshop took twice as long—and Microsoft Word about twice as long—to finish tasks on the Intel Mac as it did on the earlier non-Intel G5.

Apple added a mini-DVI port with second-monitor capabilities. However, you'll need to purchase a \$19 adapter to take advantage of it.

Because of the Intel-based

iMac's performance handicap with nonoptimized software, I rate this shipping iMac a point below its non-Intel predecessor. Though the move to the Intel platform speeds up natively written programs and opens the door to the possibility of being able to dual-boot with Windows Vista, right now programs that are not designed for the Intel Mac (and that's a lot of them) lose speed on this machine.

—Narasu Rebbapragada

iMac

Apple

PCW Rating **76** Good

The Intel-based iMac is a full-featured, appealingly priced system, but the new processor currently delivers speed only with software written for the Intel processor.

List: \$1699

find.pcworld.com/51990

FEW MAJOR non-Apple programs take advantage of the iMac's Intel chip set—so far.



CorelDraw's X3: Drawing Made Easier

GRAPHICS SOFTWARE

WHY THE "X3" in **CorelDraw Graphics Suite X3**? It's shorthand for 10+3—that's right, this is the illustration package's 13th major release. Like most updates to venerable applications, X3 focuses on refinements rather than on breakthroughs. Still, there are plenty of such touches. While the \$399 package is not without flaws, this powerful drawing program is easier to learn, packed with more stuff, and \$100 cheaper than its archrival Adobe Illustrator. I tried out the shipping version.

SAME EASY INTERFACE

THE BASICS OF the CorelDraw interface haven't changed a bit, and that's good news: Its uncluttered, logical design makes it unusually approachable for business folks who aren't graphics mavens. Also, drawing-software newbies will benefit from a new Hints window offering context-sensitive

guidance as you work.

Many of the application's changes are intelligent tweaks that enhance longstanding tools. For instance, Fit Text to Path—which lets you perform such tricks as wrapping a logo around a curve—now allows you to drag type interactively into the perfect position. More than ever, CorelDraw can double as a desktop-publishing program, thanks to such text-wrangling additions as bullets, drop caps, and support for multiple columns.

CorelDraw's new Smart Fill tool, like Illustrator CS2's Live Paint, is clever enough to flood a region with color even when that space is actually the intersection of two overlapping objects. Smart Fill does not match Live Paint's ability to keep a region filled even when you reshape the objects that created it, but in many ways it's more practical, since you can apply both Smart Fill and all of CorelDraw's other



THE LATEST CORELDRAW is a practical alternative to the pricier Adobe Illustrator, and it can double as a desktop publishing program.

effects, such as blends, bevels, and so on, to the same item. This isn't true of Illustrator's similar feature.

In earlier CorelDraw editions, you needed to use a separate utility to trace bitmapped pictures into line drawings; in X3, tracing is built into CorelDraw itself. I achieved excellent results with a little experimentation, though I found this tool unexpectedly pernickety. For example, the one-click Quick Trace option sometimes ignored large portions of images.

Although CorelDraw still touts itself as a suite, its X3 incarnation comes with just one major complementary application, the Photo-Paint image editor. Photo-Paint's most notable improvement is the Image Adjustment Lab, an extremely handy tool (also available within the CorelDraw app itself) that lets you use sliders to fiddle with attributes such as highlights and shadows, and set aside multiple variants of an image until you're satisfied.

Photo-Paint is unquestionably showing its age: It's neither as full of industrial-strength tools as Photoshop CS2 nor as simple a general-purpose retoucher as Photoshop Elements 4 or Corel's own Paint Shop Pro X. Even so, it remains serviceable overall, and it adds to this package's value. (To get both Illustrator and Photoshop, you'd have to spring for Adobe's \$899 Creative Suite 2.)

Factor in Corel's typical avalanche of bundled clip art and photos, and CorelDraw X3 is a deal—and a worthwhile \$179 upgrade for existing Corel aficionados.

—Harry McCracken

CorelDraw Graphics Suite X3

Corel

PCW Rating **B1** Very Good

Overall, a solid upgrade to a potent, reasonably priced drawing package, though the Photo-Paint image editor is getting long in the tooth. \$399 (\$179 upgrade) find.pcworld.com/51992

Image-Stabilizing Cameras



THE BEST REMEDY for shaky hands when you're shooting pictures isn't a shot of the hard stuff but, rather, one of the growing number of digital cameras with image stabilization mechanisms. Formerly a feature found on high-end digital video camcorders, these mechanisms have been making their way slowly to still cameras, including the new Canon PowerShot

SD700IS and Panasonic DMC-FZ7. In both models, the lens's internal components move to compensate for hand jitter or slow shutter speeds, but you get only an f-stop or two of shooting latitude. Still, that's often enough to give you a sharp picture.

—Alan Stafford



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Yellow Machine™

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Go to find.pcworld.com/51794

TOP 5 MONOCHROME LASER PRINTERS

New Mono Lasers Deliver Prints Quickly

IF YOUR REGULAR printing tasks entail mostly text documents or charts and images not requiring color, monochrome laser printers are the way to go. Though such models have been ubiquitous in the business world for years, dropping prices have made them more feasible for home and small-office use.

Beyond their output speed and text quality advantages over inkjet printers, monochrome laser models are also usually cheaper to maintain over time. Initially you may pay more for a black laser toner cartridge than for a set of inkjet cartridges, but the laser cartridge will yield far more

pages, helping to reduce your overall printing cost per page.

Four new printers achieved a place in this month's chart, and we noticed that for the most part new units are increasingly focused on delivering strong overall value. For instance, our Best Buy, Brother's HL-5250DN, produces great-quality prints at speeds competitive with pricier models. It also includes a built-in duplexer and an ethernet networking port, and costs just \$250. Furthermore, while a 250-sheet input capacity is typically standard for this printer class (without optional trays), the HL-5250DN can manage 300 sheets thanks to a manu-



BROTHER'S HL-5250DN is fast, makes high-quality prints, has a duplexer for double-sided printing, and supports ethernet networking.

al foldout tray on its front; this tray could hold 50 sheets of letterhead paper, for instance. You can also attach up to two optional 250-sheet paper trays to the printer's underside, but they cost \$200 each.

By contrast, Dell's Laser Printer 1710n, in fifth place,

has an optional 550-sheet drawer costing just \$100. Lexmark's E240n, with better text quality, ranks fourth and is otherwise very similar to the Dell, but Lexmark prices its 550-sheet drawer option at \$200. (So a word to the wise: If you think you may need to do high-volume printing, check out all the available options—and their cost—before you buy your new printer.)

In the second spot is our most affordable model, Brother's HL-2040. Its \$120 price tag somewhat makes up for what it lacks in quality. We also tested Oki Printing Solutions' \$229 B4250. Despite its retro look and its lack of a network port, it offers a solid enough mix of text quality, speed, and economy to earn a rank of third this month.

—Danny Allen

ONLINE

FOR MORE information on the monochrome laser printers reviewed in this chart, including details on how we tested them, go to find.pcworld.com/51682.

	MONOCHROME LASER PRINTER	PCW Rating	Performance	Features and specifications
1	Brother HL-5250DN Best \$250 find.pcworld.com/51406	85 Very Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Good Tested speed (ppm): 21.6 text/9.6 graphics 	<ul style="list-style-type: none"> 30 ppm text 300 sheets input (standard) 1200-by-1200-dpi maximum true monochrome resolution
	▶ Bottom line: Fast printing, fine-quality output, and a built-in duplexer make this networked laser a great value for the money.			
2	Brother HL-2040 \$120 find.pcworld.com/48106	79 Good	<ul style="list-style-type: none"> Text quality: Good Graphics quality: Poor Tested speed (ppm): 16.6 text/5.4 graphics 	<ul style="list-style-type: none"> 20 ppm text 250 sheets input (standard) 2400-by-600-dpi maximum true monochrome resolution
	▶ Bottom line: Light graphics is the only weak spot for this solid performer, which delivers nice speed and text quality at a low price.			
3	Oki Printing Solutions B4250 \$229 find.pcworld.com/51402	77 Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Fair Tested speed (ppm): 19.0 text/9.4 graphics 	<ul style="list-style-type: none"> 23 ppm text 250 sheets input (standard) 1200-by-600-dpi maximum true monochrome resolution
	▶ Bottom line: The B4250 lacks built-in networking, but it prints high-quality text at a competitive pace.			
4	Lexmark E240n \$299 find.pcworld.com/51412	77 Good	<ul style="list-style-type: none"> Text quality: Very Good Graphics quality: Poor Tested speed (ppm): 19.9 text/8.2 graphics 	<ul style="list-style-type: none"> 27 ppm text 251 sheets input (standard) 1200-by-1200-dpi maximum true monochrome resolution
	▶ Bottom line: This no-fuss laser produces good-looking text at a decent pace, but it has trouble with graphics.			
5	Dell Laser Printer 1710n \$299 find.pcworld.com/51408	75 Good	<ul style="list-style-type: none"> Text quality: Good Graphics quality: Poor Tested speed (ppm): 19.1 text/7.1 graphics 	<ul style="list-style-type: none"> 27 ppm text 250 sheets input (standard) 1200-by-1200-dpi maximum true monochrome resolution
	▶ Bottom line: Low toner costs and a bargain-priced 550-sheet paper tray option make the networked 1710n an economical choice.			

CHART NOTES: Ratings and prices are as of 1/13/06. Go to find.pcworld.com/51682 for our full test methodology.

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Nikon's Fast, Powerful, and Pricy SLR

DIGITAL CAMERA

TEST POWERFUL and wonderfully designed, Nikon's new **D200** fills a gaping hole in the company's lineup of digital SLR cameras. Ideal for professionals and serious amateurs, the \$1700 (body only), 10.2-megapixel camera fits nicely between the \$900, 6.1-megapixel D70s and Nikon's top-of-the-line and extremely costly (\$4500) 12.4-megapixel D2X. I predict that many D70s owners will want to upgrade to the D200's higher megapixel count and more-sophisticated controls.

Nikon built the D200 with a beefy magnesium body that feels like you could pound nails with it. Nikon also loaded it with dedicated buttons and dials. The D200 is clearly a descendent of the D2X, though not quite as



THE NIKON D200 offers a wealth of controls and autofocus options.

bulky. Even so, it still feels weighty (with battery it tips the scale at around 2 pounds).

Two of the D200's more intriguing features are its GPS connectivity, which lets you

add location information to your photos—very cool—and the ability to shoot multiple exposures to the same image file. This last option is exceptionally rare in digital cameras, although you could achieve the same effect by layering multiple images in an image editing program.

MENUS GALORE

THE D200'S CONTROLS are more intuitive than those on previous Nikon models. The menus, for example, while no less multilayered, are nicely organized, well labeled, and color-coded—all of which help speed navigation. Still, the sheer number of options means that finding specific controls when you first pick up this camera can take time. The Recent Settings menu assists with this, as does the built-in help system.

Nikon gave the D200 a huge—almost bewildering—selection of focusing options. The autofocus was dead-on

for most of my informal shots, with the surprising exception of a few scenic photos, usually the easiest type of picture for autofocus systems to handle. This lapse may be a case of the operator selecting the wrong type of autofocus, however, and the camera was generally quick and accurate, even with such challenges as capturing birds in flight.

As you'd expect with a 10.2-megapixel CCD, the images I shot with the D200 looked sharp, living up to my high expectations, though the D200 didn't earn the highest score for image sharpness in our lab tests. It earned very high marks for the absence of distortion in its images. Only the Canon 20D scored higher.

Like many digital SLRs, the D200 tends to underexpose slightly in autoexposure settings. Color saturation was a mixed bag—a bit muted with earth tones, but nicely saturated with bright whites and reds.

Until now, the Canon 20D was the leading candidate to become my next SLR. But the D200's higher scores for color quality and exposure accuracy, make it a tempting proposition as well. Now I have the luxury of choosing between two exceptional cameras.

—Tracey Capen

D200

Nikon

PCW Rating **76** Good

The missing link between consumer and professional SLRs, the D200 is fast, powerful, and beautiful.

Street: \$2000 (body and 18mm-70mm lens)

find.pcworld.com/51670

ASK OUR EXPERTS

Dead Battery Blues

I SPENT \$2000 on a notebook and seven years later the \$3 CMOS battery died, necessitating a \$300 repair. Why can't manufacturers make the battery user-replaceable?

Vern Wolfe, via e-mail



Senior Editor Tom Mainelli responds: Notebook vendors I talked to say that the average CMOS battery, which powers a tiny bit of memory for storing vital system data when there's no other power source, will last anywhere from

five to seven years. The cramped confines of most laptops often make it impractical to put the coin-size CMOS battery in a more accessible spot, and vendors note that the vast majority of users replace their notebook every three to four years anyway. To ensure your CMOS battery lives a long, full life, try not to let your notebook's regular battery run completely out of juice.

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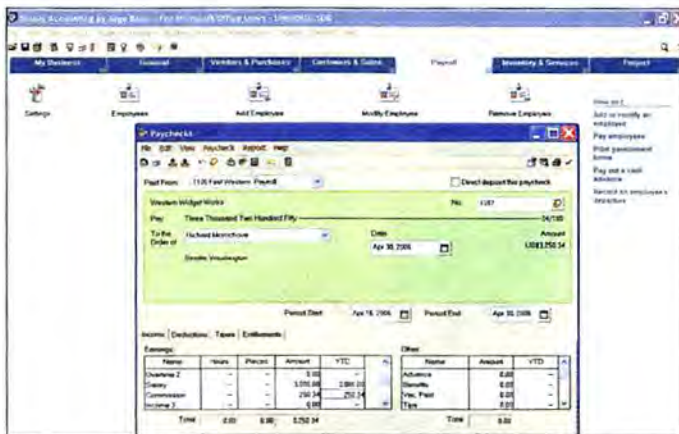
Simply Accounting Is a Bookkeeping Bargain

FINANCIAL SOFTWARE

DON'T BE FOOLED by the \$50 price tag on the 2006 version of **Simply Accounting Basic**. This updated small-business accounting application from Sage Software (formerly Best Software) offers a lot more bang for your bookkeeping buck than its chief rivals do.

The new version makes it easier to design custom accounting forms and features better integration with Microsoft Office than previous versions. It has strong capabilities for such an inexpensive program, including support for dual currencies—useful in import/export businesses.

The Basic version lets you synchronize customer and vendor records with Microsoft Outlook contacts, formerly possible only with the Pro version. You can also use MS



SIMPLY ACCOUNTING BASIC 13's larger payroll-check window makes the income and deduction fields more visible than they were in previous editions.

Word templates to prepare customer form letters, and you can create financial reports in MS Excel. Simply Basic stores accounting data in an MS Access database. The application has most but not all of the MS Office integration smarts found in Micro-

soft Office Small Business Accounting 2006 (\$179 list), so it's a credible alternative with a much lower price.

Simply Accounting Basic's redesigned Home Window is easier to use than the previous version's, with better menus for access to the program's general ledger, customer, vendor, employee, inventory, and project-tracking capabilities.

An improved wizard provides more help with setting up a new company. Checks are easier to align for printing. There's even a little eye candy: You can now display JPG and GIF images of your products and services.

A larger payroll-check window enhances your view of income and deduction fields. If you use Simply Basic to prepare payroll, for efficiency's sake you should consider subscribing to the optional payroll tax table update service for \$279 per year.

The shipping copy of Simply Accounting Basic 13 that I reviewed is a single-user application developed to handle entry-level business account-

ing needs. Sage also offers more-powerful (and pricier) versions of Simply Accounting with multiuser capabilities, but we didn't review these packages.

If you're currently using a spreadsheet (such as Excel) or a personal finance application (such as Quicken) to track business finances, you'll discover that Simply Accounting Basic represents a logical step up from

what you work with now. Its improved import/export wizard simplifies importing data from Excel, Quicken, QuickBooks, and MYOB.

Simply Accounting Basic will undoubtedly attract the bargain-hunting bean counters who tend to each bean vigilantly. Its features compare most closely with those of Intuit's QuickBooks Pro edition, which costs \$200—four times as much as Simply Basic. QuickBooks' entry-level Simple Start costs twice as much (\$100) and delivers far less accounting power.

The added capabilities make this version a worthwhile upgrade for existing Simply Basic users, while the low price will tempt some Intuit users to switch allegiance.

—Richard Morochove

Simply Accounting Basic 13

Sage Software

PCW Rating **90** **Superior**

Easy-to-use, low-cost bookkeeping program is perfect for budding small businesses.

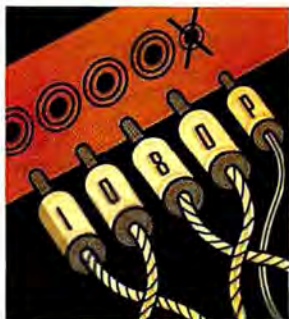
List: \$50

find.pcworld.com/51890

GOTCHA!

No TV Shows at 1080p

IF YOU'RE THINKING of getting a 1080p HDTV in anticipation of the day when 1080p content will be available, be careful when you shop—not all such TV sets will accept 1080p content.



Handling 1080p content requires more than a screen capable of displaying 1080 lines of progressively scanned video: The TV's inputs must be able to process a 1080p signal, and not all 1080p sets have such inputs. For example, Sony's KDS-R60XB1 cannot accept a 1080p signal. These sets merely up-sample, or convert, 720p and 1080i content to 1080p.

Vendors of 1080p sets argue that their products handle existing 1080i content better than 720p TVs, which are the most common HDTVs. Lack of 1080p support doesn't make a 1080p set bad, but it would make it a poor choice for future-proofing.

—Yardena Arar



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TOP 5 VALUE GRAPHICS BOARDS

Low-End Cards Offer Strong Performance

TEST CENTER YOU WON'T obtain killer frame rates, big software bundles, or lots of extras, but today's leading value-priced graphics boards offer strong performance for bargain hunters and casual gamers who want to upgrade PCI Express-based desktops.

Our top three cards, PNY's GeForce 6600 GT, XFX's GeForce 6600, and Asus's EAX1600Pro compete well with mainstream cards we've tested that cost up to \$100 more, so long as the competition is running at a midlevel resolution such as 1024 by 768.

That isn't terribly surprising in the case of the PNY card, which moved from our mainstream category (cards priced from \$150 to \$300) to our val-

ue category (cards priced below \$150) after a price cut. It's worth noting that PNY's card has only 128MB of memory—but that's DDR3 RAM, not the slower DDR2 and DDR RAM that you'll find on competing cards. The advantage of the faster RAM became obvious in tests by the PC World Test Center, which showed this card to be extremely competitive with other cards in its class that had twice as much on-board memory.

Our number two card, the XFX GeForce 6600, is a bit less expensive than the PNY, but it matched up very well on pure performance measures. You will have to buy your own composite and component cables if you want to output vid-



THE PNY GeForce 6600 GT is a top performer despite only 128MB of memory.

eo to a monitor equipped with those inputs, but that's a relatively minor shortcoming.

Both the Asus EAX1600Pro and the MSI GeForce NX6600

offer solid performance, excellent cooling systems, and a number of pretty good extras (Asus offers a decent games bundle; MSI, an excellent video adapter cable). Both are a performance level below the PNY and XFX cards, however.

EVGA's value card offering, the eGeForce 6600, has the lowest street price (\$110) of any top contender, but its performance in our test suite was underwhelming, and it lacked a software bundle.

Sapphire's Radeon X1300 failed to make the chart. Terrifically priced at about \$85, the card also comes with excellent cabling accessories, but its performance test scores were consistently below par.

—Ramon G. McLeod

	VALUE GRAPHICS BOARD	PCW Rating	Performance (frames per second)	Features and specifications
1	PNY GeForce 6600 GT Best \$137 find.pcworld.com/50628	87 Very Good	<ul style="list-style-type: none"> Battlefield 2: 27 Half Life 2: 40 Quake 4: 31 	<ul style="list-style-type: none"> 128MB nVidia GeForce 6600 GT Two DVI-out, S-Video-out, composite-out, component-out
	▶ Bottom line: Despite its relatively modest amount of memory, this card clearly benefits from having fast DDR3 RAM.			
2	XFX GeForce 6600 \$117 find.pcworld.com/51534	82 Very Good	<ul style="list-style-type: none"> Battlefield 2: 25 Half Life 2: 37 Quake 4: 27 	<ul style="list-style-type: none"> 256MB nVidia GeForce 6600 Two DVI-out, S-Video-out
	▶ Bottom line: This attractively priced board turns in top performance, but it skimps on extra features and has a thin software bundle.			
3	Asus EAX1600Pro \$129 find.pcworld.com/51522	81 Very Good	<ul style="list-style-type: none"> Battlefield 2: 28 Half Life 2: 37 Quake 4: 19 	<ul style="list-style-type: none"> 256MB ATI Radeon X1600 Pro DVI-out, 15-pin VGA-out, S-Video-out, composite-out, component-out
	▶ Bottom line: This impressively powerful card has a good cooling system and a decent collection of bundled games.			
4	MSI GeForce NX6600 \$134 find.pcworld.com/51530	78 Good	<ul style="list-style-type: none"> Battlefield 2: 21 Half Life 2: 30 Quake 4: 23 	<ul style="list-style-type: none"> 256MB nVidia GeForce 6600 DVI-out, 15-pin VGA-out, S-Video-out, composite-out, component-out
	▶ Bottom line: A good performer, this card includes an outstanding video cable and solid software utilities.			
5	EVGA eGeForce 6600 \$110 find.pcworld.com/51524	69 Fair	<ul style="list-style-type: none"> Battlefield 2: 19 Half Life 2: 21 Quake 4: 18 	<ul style="list-style-type: none"> 256MB nVidia GeForce 6600 DVI-out, 15-pin VGA-out, S-Video-out
	▶ Bottom line: An affordable price doesn't make up for so-so performance and the board's lack of a software bundle.			

CHART NOTES: Ratings and prices are as of 2/2/2006. All games performance times are in frames per second.

ONLINE

FOR MORE INFORMATION on the value graphics cards reviewed in this chart, including testing details, go to find.pcworld.com/51652.

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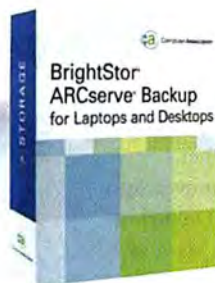
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*Cyber Security: A Crisis of Prioritization, February 2005.

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Well-Designed Laptop Offers Multimedia at a Fair Price

NOTEBOOK

TEST THE NEW 7.4-pound **Center** Pavilion dv5000z is the most portable and most attractively priced Media Center notebook we've seen from HP. It performed well in our tests, earning a WorldBench 5 score of 86. The dv5000z is more compact than HP's 17-inch, wide-screen dv8000 series, which is AMD-based, too.

Pavilion dv5000z

Hewlett-Packard

PCW Rating **86** Very Good

This reasonably priced Media Center notebook benefits from thoughtful design and impressive performance.

Street: \$1593

find.pcworld.com/51597

Our test unit came with a 2.2-GHz Turion 64 ML-40 processor, though you can customize and get the lower-cost Turion 64 or Sempron mobile CPU. The \$1593 model we tested had attractive options: 1GB of memory, a 120GB 4200-rpm hard drive, Wi-Fi, Bluetooth, and a dual-layer DVD±RW drive with LightScribe for burning silk-screen-like labels on CDs and DVDs.

The dv5000z has essentially the same chassis as HP's Intel-based dv4000 notebooks, with a sleek but understated silver/black-with-flashes-of-blue motif. The ports are sensibly located and clearly labeled, and the keyboard was comfortable to type on. Other welcome



HP'S PAVILION DV5000Z offers good performance for under \$1600.

touches include Altec Lansing speakers (though these lack an underside subwoofer), and QuickPlay buttons to bypass Windows and play music or DVDs in seconds.

HP has ditched the dv4000's dedicated graphics for an integrated ATI Radeon Xpress 200M controller with 128MB of discrete video memory; you can also use up to 128MB of system memory. The 15.4-inch wide-screen display, with

its BrightView coating, produced vivid colors, although the occasional sight of my reflection was distracting. The top resolution of 1280 by 800 supports high definition, but the bundled ExpressCard TV tuner is analog-only.

If you're on a budget and want a multimedia desktop replacement that delivers solid performance, you could do a lot worse than the dv5000z.

—Danny Allen

Western Digital Hard Drive Shows All

HARD DRIVE

TEST WESTERN DIGITAL **Center** offers an appealing first with its 10,000-rpm Raptor drive, which features a durable see-through cover that lends a clear view of its spinning hard disk. Reinforcing its allure to appearance-conscious system builders, the \$350 Raptor X delivers state-of-the-art performance. And its expanded storage capacity (twice the

size of its roomiest predecessor) doesn't hurt either.

The Raptor X improves significantly on its 10,000-rpm predecessors: First, its maximum capacity has leapt from 74GB to 150GB, meaning that a two-drive striped desktop RAID will give you screaming performance and a comfortable 300GB of storage. WD has increased the buffer size from 8MB to 16MB, too, to accommodate more data. The interface remains Serial ATA-150 (instead of SATA-300), which the company says can still keep up with the drive's fastest transfers.

I looked at a shipping model of the clear-cover drive, while the Test Center checked out a



WESTERN DIGITAL'S Raptor X offers a window into its internal workings, and 10,000-rpm speed.

shipping version of the \$300 enterprise version (the same drive, minus the see-through lens). The drive is the fastest

we've ever tested: On the Nero component of our WorldBench 5 test, it whipped its next-fastest competitor by 80 seconds (16 percent).

At press time, the company had yet to establish a price for its retail kit, which will include an easy-to-follow setup poster, WD's Data Lifeguard utilities, and a SecureConnect data cable that provides an extra-sturdy connection. You have to be a real enthusiast to pony up the extra \$50 for the WD Raptor X with a clear cover (and you'll also need to buy a special see-through PC case in order to view it), but whichever model you choose, you can't find a faster desktop drive.

—Rex Farrance

Raptor X

Western Digital

PCW Rating **88** Very Good

Expensive 150GB drive offers ultrafast 10,000-rpm speeds and a see-through case.

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TOP 5 SPEAKER SYSTEMS

Surround-Sound Speakers Give PCs Big Audio

THE RIGHT surround-sound PC speaker system can make you feel like you're in the midst of a battle or in the middle of a rock concert. Our tests of six 5.1-channel models revealed, however, that spending the most money doesn't guarantee the best sound, the most convenience, or the best compatibility with your PC.

To assess audio quality we listened to samples of three stereo music tracks: AC/DC's "Hells Bells," Gorillaz' "Feel Good, Inc.," and Omar Sosa and Adam Rudolph's "Eye of the Blackbird." We also sampled the *Harry Potter and the Half-Blood Prince* audio book. In addition, we listened to "White Rabbit," a track on



THE LOGITECH Z-5500 DIGITAL has deep bass and digital audio inputs.

Blue Man Group's *The Complex* DVD-Audio disc, and heard the opening space-fight scene in *Star Wars Episode III: Revenge of the Sith*. For the overall PC World Rating, we also took into consideration features, design, and price.

Logitech's Z-5500 Digital was our chart topper and Best Buy. It was the only one of the group to have digital inputs (coaxial and optical) for keeping the audio signal digital as long as possible. We actually liked the Z-5500 better than

the company's Z-5450 model, which we reviewed for the January issue (find.pcworld.com/51516). The Z-5450 set includes convenient wireless back speakers, but it costs \$100 more than the Z-5500.

Klipsch's ProMedia Ultra 5.1 produced rich, full audio in low, middle, and high ranges. However, it ranked only third in our chart because it was more expensive and less user-friendly than Creative Labs' second-ranked GigaWorks ProGamer G500 set. Cambridge Soundworks' MegaWorks 505 placed fourth because of lesser sound quality and a basic controller.

M-Audio's product combo—the \$350 LX4 2.1 system and \$200 LX4 Expander—offered good overall sound quality except for some brittleness in the middle to upper frequencies, but it isn't well designed for use with a computer. For one thing, it accepts cables with 0.25-inch plugs (not included) rather than standard 0.125-inch mini-plugs.

Sicuro's RW-670X did not make the chart due to poor sound quality. The satellite speakers and the subwoofer have blue LEDs that blink to the beat, but we found this feature merely distracting.

—Narasu Rebbapragada

ONLINE

FOR ADDITIONAL information about all the speaker systems reviewed in this article, including details on how we tested them, browse to find.pcworld.com/51128.

	5.1-CHANNEL SET	PCW Rating	Performance	Features and specifications
1	Logitech Z-5500 Digital Best \$400 BUY find.pcworld.com/52038	88 Very Good	<ul style="list-style-type: none"> Overall performance: Very Good Stereo music tracks: Very Good DVD-Audio: Very Good DVD movie: Very Good 	<ul style="list-style-type: none"> Analog, digital coaxial, and optical inputs Remote control and wired controller Front and rear volume control Decodes Dolby Digital and DTS
▶ Bottom line: Well-designed product has digital inputs to best take advantage of digital surround sound, and is suited for bass-heavy audio.				
2	Creative Labs GigaWorks ProGamer G500 \$250 find.pcworld.com/51454	85 Very Good	<ul style="list-style-type: none"> Overall performance: Very Good Stereo music tracks: Very Good DVD-Audio: Very Good DVD movie: Very Good 	<ul style="list-style-type: none"> Analog inputs Remote control Front and rear volume control No Dolby Digital or DTS decoding
▶ Bottom line: Relatively inexpensive set of speakers has a treble control, and performed best in our tests of stereo music tracks.				
3	Klipsch ProMedia Ultra 5.1 \$350 find.pcworld.com/51452	84 Very Good	<ul style="list-style-type: none"> Overall performance: Very Good Stereo music tracks: Very Good DVD-Audio: Superior DVD movie: Superior 	<ul style="list-style-type: none"> Analog inputs Wired controller Front and rear volume control No Dolby Digital or DTS decoding
▶ Bottom line: This system isn't new, but it's the best PC-based set that Klipsch offers, and it scored the best overall in our sound tests.				
4	Cambridge Soundworks MegaWorks 505 \$400 find.pcworld.com/51456	77 Good	<ul style="list-style-type: none"> Overall performance: Good Stereo music tracks: Good DVD-Audio: Very Good DVD movie: Very Good 	<ul style="list-style-type: none"> Analog inputs Remote control Master and subwoofer volume control only No Dolby Digital or DTS decoding
▶ Bottom line: Cambridge Soundworks' only 5.1-channel offering lacks center and rear speaker controls but has a treble switch.				
5	M-Audio LX4 2.1 System and LX4 5.1 Expander \$550 find.pcworld.com/51450	62 Fair	<ul style="list-style-type: none"> Overall performance: Good Stereo music tracks: Good DVD-Audio: Very Good DVD movie: Very Good 	<ul style="list-style-type: none"> Analog inputs No remote or wired controller Master and subwoofer volume control only No Dolby Digital or DTS decoding
▶ Bottom line: Expensive product combo omits PC conveniences such as cables, a volume controller, and adapters for 0.125-inch inputs.				

CHART NOTE: Ratings are as of 1/17/05.



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Big Scanner, Better Images

SCANNER

IF YOU WORK with graphics and photography, a flatbed scanner like Microtek's **ScanMaker i800** can be a vital tool. This \$400 device offers excellent image quality plus extras to add sparkle to your photos and film.

The ScanMaker i800's capacious 8.5-by-14-inch scanning bed handles legal-size documents and can scan more photos simultaneously than a standard flatbed with a letter-size scanning area. The 14.5-pound i800 is also better suited for scanning items like large maps, drawings, paintings, and books.

In testing a shipping ver-



MICROTEK'S ScanMaker i800 scans legal-size documents.

sion, I admired the scanner's overall image quality and was especially impressed with its ability to perform automatic color restoration on faded

prints and aging 35mm slides. I made good use of its Digital ICE feature (a Kodak-licensed utility that automatically removes dirt and some scratches from both prints and film), which now includes Brush and Eraser tools for manually fine-tuning the degree of correction.

Using the i800 is easy, thanks to a host of one-touch buttons that activate common tasks, such as scanning photo prints and converting paper documents into text or PDF files. I tested the i800 via its USB 2.0 connection and found its performance about average compared to the speed of other models that

share its 4800-dpi resolution.

The unit's fat bundle of software includes a choice of scanning drivers (ranging from simple to advanced), an image organizer, an optical character recognition tool, and a LAN application. Microtek's documentation is thorough.

The versatile ScanMaker i800 is a good choice for scanning batches of print or film images and larger documents.

—Richard Jantz

ScanMaker i800

Microtek

PCW Rating **77** Good

This legal-size flatbed scanner delivers good image quality at a fair price.

Street: \$400

find.pcworld.com/51892

ATI Fields a Powerful Graphics Board

VIDEO CARD

TEST CENTER HIGH-END graphics just got interesting again with ATI's launch of its **Radeon X1900 XTX** card. In our tests, the \$649 card proved to be a worthy challenger to nVidia's powerhouse 7800 GTX chip, outrunning the former benchmark champ in a handful of performance tests.

The X1900 graphics processor replaces ATI's late-arriving (and disappointing) X1800, but it's not just an update of that chip. It has more transis-



ATI RADEON X1900 XTX card delivers high frame rates.

tors (384 million, up from 321 million), and notable architecture changes such as 48 pixel shaders (up from 16).

In each of seven tests performed at 1600 by 1200 resolution with antialiasing turned on, our shipping X1900 XTX card with 512MB of RAM easily outran a shipping X1800 XT card with 512MB. And it bested the previously tested

XFX GeForce 7800 GTX XXX Edition with 512MB of RAM (see find.pcworld.com/51900) in three of the seven tests.

The X1900 XTX came out on top in three of our test games: Battlefield 2, Half Life 2, and Far Cry. In these tests, it reached 79 frames per second, 95 fps, and 73 fps, respectively, speeds 4 to 11 fps higher than the 7800 GTX board's.

The 7800 GTX surpassed the X1900 XTX, however, by 2 to 8 fps on four other benchmarks run at the same settings: Quake 4, Splinter Cell Chaos Theory, Doom 3, and Unreal Tournament 2004. But the XFX card is hard to find, which has driven its cost even higher than its outrageous \$750 launch price.

That figure hardly makes the X1900 XTX a bargain. Despite the card's stellar performance, its high price, bulky two-slot design, unremarkable specs, and complete lack of games combined to drive its overall PCW rating down.

That said, if you're a long-suffering ATI fan, this is the high-performance card you've been waiting for. With luck, you've saved up your pennies.

—Tom Mainelli

Radeon X1900 XTX

ATI

PCW Rating **79** Good

Powerful card competes well against rival nVidia's top dog, but it will cost you.

Street: \$649

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—Dan Sommer, Senior Associate Editor



ANTISPYWARE

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find.pcworld.com/51910

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Top performance versus better-known rivals and a low price make this easy-to-use app a pillar of your PC defenses.



FIREWALL

ZoneAlarm Free, street: free
find.pcworld.com/51912

Zone Labs offers a paid security suite for \$60, but you can cover the basics with this effective, free firewall.

SHORT LIST: NOTEBOOK COMPONENTS

Notebooks Power Up

THIS YEAR'S notebooks offer many new technologies that will help you get your work done. Here are three technologies to watch—and perhaps include—in your next laptop purchase.

—Anush Yeghazarian, Senior Editor



PROCESSOR

Intel Core Duo, prices vary
find.pcworld.com/51914

Intel's new dual-core mobile chips are designed to help you multitask and get your work done more quickly.



HARD DRIVE

Seagate Momentus drive family; prices vary
find.pcworld.com/51916

Using perpendicular hard-drive technology, this family of drives can pack more data per inch, with capacities of up to 160GB.



GRAPHICS

nVidia Quadro NVS chip set; prices not set
find.pcworld.com/51918

NVIDIA is extending its workstation graphics technology to notebooks; the graphics platform supports multiple displays.

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Adobe Premiere Pro 2

Street: \$849

find.pcworld.com/52014

This high-end video editor has a slick new automatically adjusting interface, better high-definition video handling, and a multicamera editing mode that helps you perform precise cuts with the click of a mouse.



Sicuro RW-670XL

Street: \$170

find.pcworld.com/51458

Speakers with a glare: This 5.1-channel speaker set is clad in shiny, faux-chrome plastic, but our lab results indicate the sound isn't quite as bright.



Digital Duo Video: Home Geek Home

find.pcworld.com/51946

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BEHIND THE RATINGS



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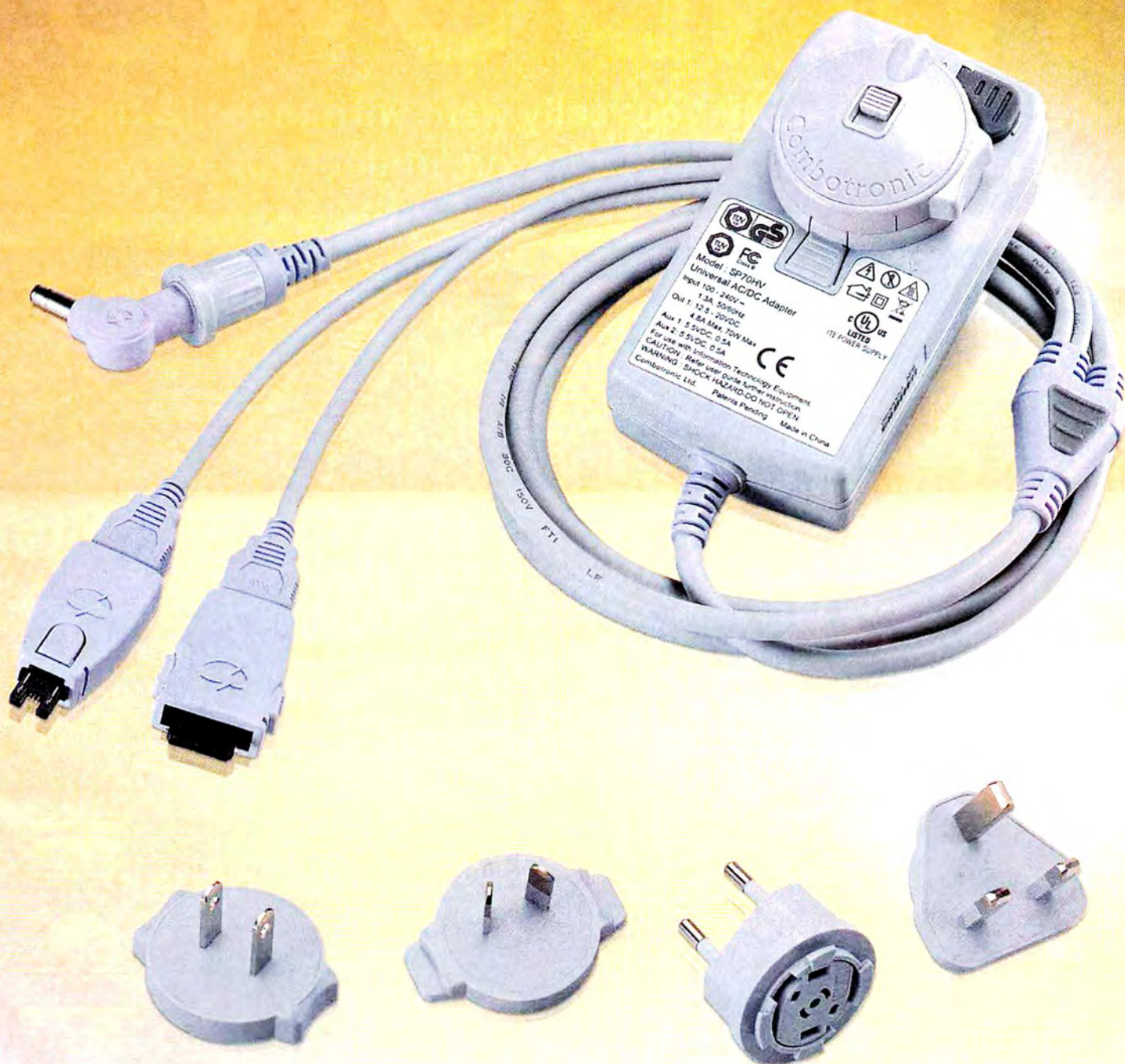
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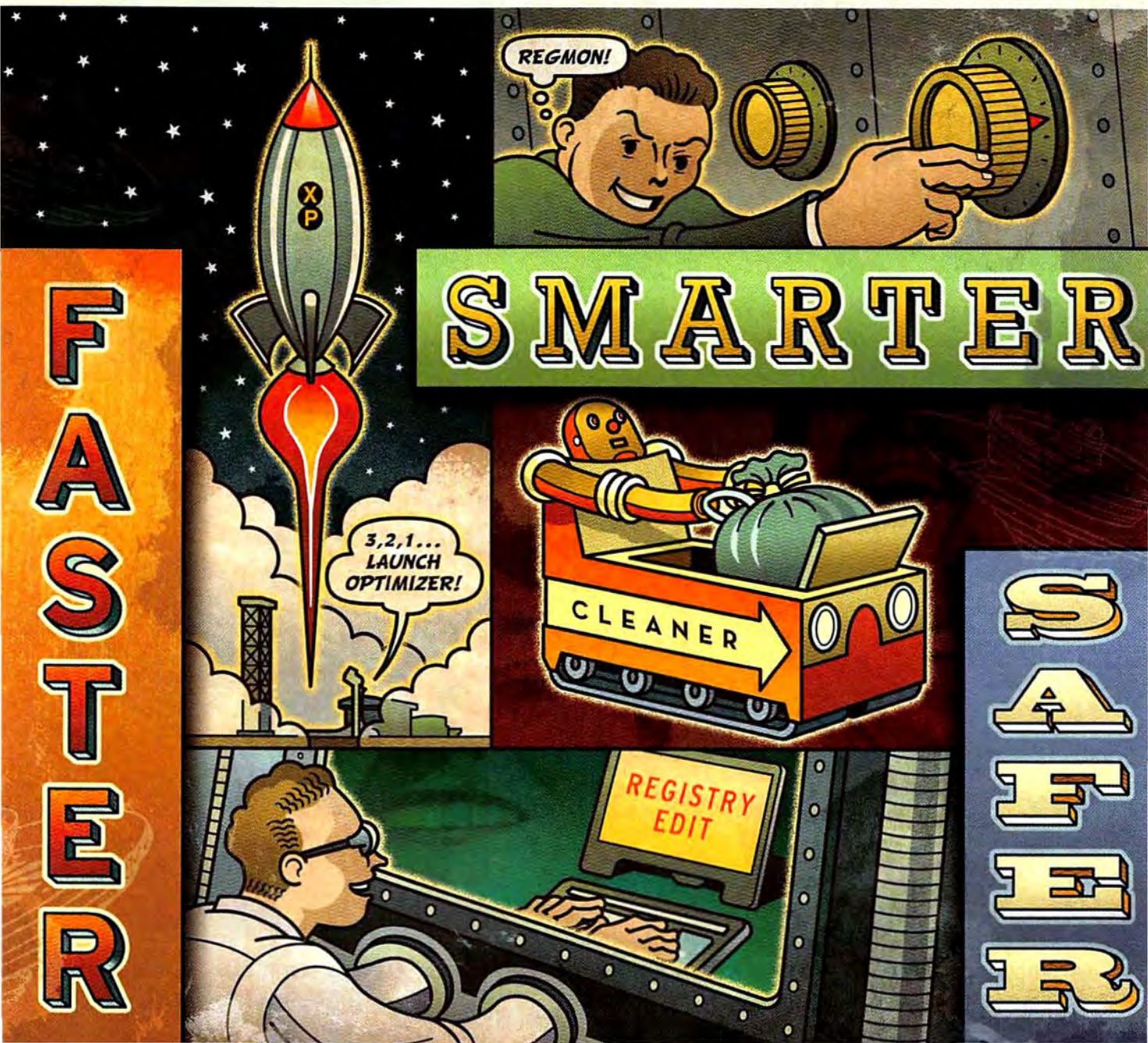
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WINDOWS

Get the Windows XP you really want with these 12 tips inner workings. Plus: our hands-on, in-depth preview of



HACKS

for mastering the operating system's
XP's successor, Windows Vista. ▶

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PETER AND MARIA HOEY





REGISTRY REMEDIES

BY SCOTT DUNN

WHETHER YOU'VE TWEAKED your Windows XP setup to the *n*th degree or have never even emptied your Recycle Bin, there are many ways for you to make Windows work faster, smarter, and safer. All it takes is a willingness to brave the OS's vast repository of settings: the Registry.

All Registry modifications must be done with extreme caution. Careless changes can cause Windows to behave strangely, or even make logging in to your account impossible. Before you do anything, back up your current Registry settings; Stan Miastkowski explains how in "Care and Feeding of the Windows Registry" (find.pcworld.com/51280).

Here's the quick version: Click **Start** → **Run**, type **regedit**, and press **<Enter>** to open the Registry Editor. Then choose **My Computer** in the folder pane on the left, click **File** → **Export**, give the file a name, and select a location to store it (preferably on a CD-RW or other type of removable media). The resulting text file may be huge, and restoring your Registry from it may take a while. If your computer is generally behaving itself, you may be protected well enough by the Registry backup that Windows creates automatically when you make a new System Restore point.

If something goes wrong, consult Lincoln Spector's September 2003 *Answer*

Line column, "How Do I Restore My Windows Registry?" (find.pcworld.com/51282).

In this story you'll also learn about some terrific third-party Registry tools. And for a list of our favorite Registry resources on the Web, visit find.pcworld.com/52004.

PUT START MENUS INTO OVERDRIVE

A SIMPLE Registry tweak can give your Start menu (and its submenus) more oomph. Open the Registry Editor as described above, and navigate to and select **HKEY_CURRENT_USER\Control Panel\Desktop** (the last word may appear as 'desktop'). Double-click the **MenuShowDelay** icon on the right, and change 'Value data' from its default of 400 (milliseconds) to something speedier, like **0**. Alternatively, you can slow the menu down to 4000 milliseconds (4 seconds) if the menu appears too quickly to suit you. (Windows may be too fast at something—that's a first.) When you have finished, press **<Enter>**.

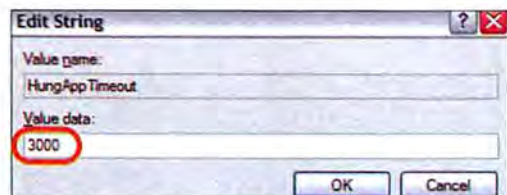


FIGURE 1: CLOSE STALLED APPS faster by entering a lower number of milliseconds in this Registry value.

CLOSE STUCK APPS FASTER

WE'VE ALL SEEN IT: You try to exit a program (or Windows itself), and you end up waiting for one or more apps to shut off. After a while—a long while in some cases—Windows gives up waiting too, and displays the End Program dialog box so you can force the programs to close.

Patience is a virtue, but if Windows is taking too long to shut down recalcitrant programs, you can tell it to show the End Program option sooner. In fact, you can make Windows close the hung application without bothering you with a dialog box at all. Keep in mind, however, that if you choose the promptless option, you may damage your system settings by squashing a hung Windows process too quickly. (There's a middle road: You can retain the prompt and use a shorter time-out interval, since the dialog box always gives you the option of waiting longer.)

To make Windows automatically end



FIGURE 2: IT'S JUST A STEP to the right: Separate your wallpaper from your icons with a simple Registry tweak.

hung processes, launch the Registry Editor as described previously, and navigate to and select **HKEY_CURRENT_USER\Control Panel\Desktop**. Double-click the **AutoEndTasks** icon in the right pane, change 'Value data' to **1**, and press **<Enter>**. (Change it back to **0** if you later decide to revert to manual shutdown control.)

Next, double-click the **HungAppTimeout** icon in the same pane, and edit the 'Value data' field to reflect the time (in millisec-

onds) you are willing to wait for an unresponsive application (see **FIGURE 1**). The default setting is '5000', or 5 seconds. To reset the wait time for a program that is slow to shut down when Windows exits, double-click the *WaitToKillAppTimeout* icon in the same Registry pane, change the default of '20000' (milliseconds, or 20 seconds) to the maximum wait time of your choice, and press **<Enter>**.

Applications aren't the only things that may keep you waiting for Windows to shut down. The operating system's many running processes (also known as "services") have their own timetable for shutting down. To designate a maximum wait time before Windows ends (or prompts you to end) services at shutdown, open the Registry Editor, and navigate to and select *HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control*. Double-click the *WaitToKillServiceTimeout* icon in the right pane. Adjust its 'Value data' (also 20000 milliseconds, or 20 seconds, by default) to the wait time of your choice, and press **<Enter>**. Note: Your new value may not stick, since some services automatically increase this number to build in more time to clean up their act.

RESIZE YOUR WALLPAPER

IF YOU JUST switched to a wide-screen monitor, your desktop wallpaper image may no longer look right, or maybe you just want to make a small adjustment to it. For more-granular control of your wall-

REGISTRY TOOLKIT WASH 'N' RINSE

MANY UTILITIES claim to remove obsolete Registry settings left by uninstalled programs: incorrect paths, unused file extensions, broken shortcuts, and other dead ends. The better Registry tools create backups ("cleaning" these system settings is risky). Even so, I avoid the commercial versions of such Registry utilities because all of my key-cleaning needs are met by a friendly freeware equivalent called CCleaner.

The program scans your PC's Registry for the usual unusual suspects and gives you the option to make a backup before cleaning out the gunk. While there isn't an option for restoring the deleted items, the backup is a simple .reg file; double-click it to bring back your deleted Registry keys.

CCleaner ventures way beyond Registry cleaning, however; the tool also finds



and clears all of your Windows temporary files, and it sweeps away your browser or Start menu Run histories, cookies, and more. The program also runs application uninstallers and deletes orphaned uninstall entries. And it lets you select which types of files to cleanse and/or shows you a list of the files that will be deleted, before the fact. find.pcworld.com/51396

paper's placement, highlight the *HKEY_CURRENT_USER\Control Panel\desktop* key in the Registry Editor, and double-click the *WallpaperOriginX* icon in the right pane. (If you don't see this icon, right-click in this pane, choose *New>String Value*, type *WallpaperOriginX* to name the value, and press **<Enter>**.) Type a number (in pixels) for the starting horizontal position of your wallpaper's left edge, and press **<Enter>**. Now double-click the *WallpaperOriginY* icon (create it if necessary as explained above) and enter a number for the starting vertical position of the image's top

edge. If your wallpaper image is larger than the screen, type a negative number (for example, **-200**) to push the picture's top or left edge off the screen.

To test the effect, first minimize the Registry Editor (and any other open window), right-click the desktop, choose *Properties*, and click *OK* or *Apply* to refresh the wallpaper placement. Repeat these steps as needed until the wallpaper is positioned correctly (see **FIGURE 2**). The settings work whether you've set your wallpaper to be centered, tiled, or stretched.

FIND EVERY FILE

WHEN YOU SEARCH for a file in Windows (choose *Start>Search>For Files or Folders*, or press **<F3>** in any Explorer or folder window to open the search pane), Windows searches only for file types it recognizes. Files that aren't listed in the 'Registered file types' list are ignored (to view this list, open Explorer, choose *Tools>Folder Options*, and click the *File Types* tab). So while 'Read_Me.xyz' may be a perfectly good file name to you, Windows pays it no mind because of the unrecognized '.xyz' file extension. Fortunately, a simple edit of the Registry will ►

REGISTRY TOOLKIT

A SMARTER FIXER-UPPER

IF YOU DO A LOT of Registry editing, you've probably discovered some of the weaknesses of Windows' own Registry Editor: For starters, it's slow, it can't search and replace, and it has no undo option. TorchSoft's Registry Workshop program takes up a mini-

mum of system resources and can perform blindingly fast searches. It also compares Registry files, and offers multiple undo and redo. Registry Workshop sports a toolbar, and it can open multiple local Registry files in a tabbed interface for drag-and-drop key editing.

Sure, it's priced at \$30 for a single computer, but for anyone who spends a lot of time futzing around with Registry settings, the program is well worth it. find.pcworld.com/51416





FIGURE 3: XP's BUILT-IN Administrator account is invisible on the log-in screen and elsewhere until you edit its Registry setting.

make Windows search for every file, regardless of its extension. Open the Registry Editor as described above, and then navigate to and select `HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\ContentIndex`. Double-click the `FilterFilesWithUnknownExtensions` icon in the right pane, change the 0 in the 'Value data' box to 1, and press **<Enter>**.

Bonus tip: To ensure that Windows XP searches for every possible file, select *All Files and Folders* under 'Type of file' in the Search Companion pane. (If you don't see this option, click *More Advanced Options*.) Check *Search system folders*, *Search hidden files and folders*, and *Search subfolders* (as desired). In Windows 2000, click *Search Options*, check *Type*, and make sure that (*All Files and Folders*) is selected in the resulting drop-down menu. Check *Advanced Options*, and make sure *Search Subfolders* is checked. Finally, to ensure that Windows 2000 finds system and hidden files, choose *Tools•Folder Options* and click the *View* tab. In the 'Advanced settings' list, select *Show hidden files and folders*. Uncheck *Hide protected operating system files (Recommended)*, click *Yes* to acknowledge the warning, and finish by clicking *OK*.

UNHIDE THE ADMINISTRATOR

FEW PEOPLE ARE AWARE of Windows XP's cloaked administrator account (called, appropriately enough, "Administrator"). This account is invisible unless either your system has no other accounts or you are booting in Safe Mode. To remove Administrator's camouflage and add it to XP's Welcome screen, navigate to and then select `HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon\SpecialAccounts\UserList` in the Registry Editor, and double-click the Ad-

ministrator icon in the right pane. (If you don't see this icon, right-click in the pane, choose *New•DWORD Value*, name it *Administrator*, and press **<Enter>**.) Type 1 in the 'Value data' box, and press **<Enter>**. From now on, when you open the User Accounts window via the Control Panel (choose *Start•Run*, type *Control userpasswords*, and press **<Enter>**), you'll see the Administrator account. You can easily change its picture or give it a password. In addition, the next time you see the Wel-

come screen, your Administrator account will be visible, along with all of the computer's other user accounts (see **FIGURE 3**).

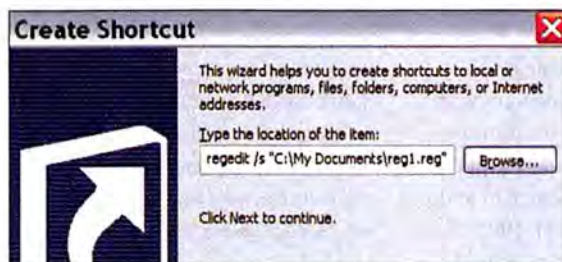


FIGURE 4: IT'S EASY TO CREATE a shortcut that lets you toggle between two different values in a single Registry key.

come screen, your Administrator account will be visible, along with all of the computer's other user accounts (see **FIGURE 3**).

SPEED YOUR SWITCHES

IF YOU EDIT certain Registry keys frequently in Windows 2000 and XP, you can save yourself the trouble of digging through the hierarchy by adding them to

the Registry Editor's Favorites menu. Select the key in the Registry Editor window, and choose *Favorites•Add to Favorites*. Type a name for the key shortcut and click *OK*. The next time you need to jump to that location, you simply open the Registry Editor and choose the entry you just added from the Favorites menu.

If you frequently switch between two settings for the same Registry key (such as the ones for showing or hiding your file extensions or system files), you can save yourself more time by exporting each version of the key to a Registry file and then creating a shortcut that loads it into the Registry.

Navigate to the key whose setting you want to toggle. Choose *File•Export*, make sure that *Selected Branch* is highlighted, specify a name and location, and click the *Save* button. Next, find and right-click the .reg file you just exported, and choose *Edit* to open the file in Notepad. Don't touch the first line, the blank line after it, or the third line (the heading in brackets), but look for the line that corresponds to the setting you want to change. Keep that line, and delete all the remaining lines below the bracketed



REGISTRY BACKUPS are insurance against a PC's going splat, and they give you protection from problems that may stem from alterations made to your system's Registry when you installed or even used other software.

Such backups in Windows 2000 and XP are easy to create with ERUNT (Emergency Recovery Utility NT). Just tell the tool where to put the backup and whether to back up more than the current user's settings. You can set the utility to create a backup each time you start Windows, so you don't have to remember to do this chore yourself. Ev-

ery backup folder includes an equally simple restore program. Last but not least, ERUNT comes with the NT Registry Optimizer, which improves your system's performance by removing fragmented sections that can develop as you install and uninstall applications over time. Both of the programs are absolutely free. find.pcworld.com/51392

REGISTRY TOOLKIT

FREE AND EASY BACKUPS

REGISTRY BACKUPS are insurance against a PC's going splat, and they give you protection from problems that may stem from alterations made to your system's Registry when you installed or even used other software.

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heading so your file doesn't alter the other settings. Choose **File•Save**. Now change the setting in question by editing the setting's value in the file (for example, you could change a '1' to a 0 or a 'no' to a yes). Click **File•Save As**, and then give the file a different name (be sure to add the extension **.reg** to the end of the name).

Next you'll need to make a shortcut that inserts the settings stored in the file into the Registry. Right-click the desktop or in a folder and choose **New•Shortcut**. In the field, type **regedit /s**, followed by a space and the path to the first .reg file. Use quotation marks if the file's path contains spaces or long names—for example, **regedit /s "C:\My Documents\reg1.reg"** (see **FIGURE 4**). Now click **Next**, type a name for your shortcut, and choose **Finish**. Repeat these steps for the second .reg file.

Now whenever you want to switch to the other setting, all you have to do is launch the shortcut you just made. To toggle back, launch the second setting's shortcut. You can put these shortcuts on your Start menu or, for one-click access, on your Quick Launch or other toolbar. To assign keyboard shortcuts to each of the files, right-click the icons (one at a time), choose **Properties**, type the desired keys in the 'Shortcut key' box under the Shortcut tab, and click **OK**.

For more details on creating convenient shortcuts like these, jump to find.pcworld.com/51284 to read my *Windows Tips* column from way back in October 2004, "Toggle Your Screen Saver With a Single Click."

RETITLE INTERNET EXPLORER

BY DEFAULT, Internet Explorer's title bar shows the name of the Web site you're viewing, followed by "Microsoft Internet Explorer"—or in some cases, your company's name or the name of the ISP that supplied the browser. To change the repeating text in IE's title bar (or to get rid of it altogether), navigate to and select **HKEY_CURRENT_USER\Software\Microsoft\Internet Explorer\Main** in the

REGISTRY TOOLKIT TRACK YOUR REGISTRY CHANGES

IF YOU'D LIKE to know about Registry changes that are happening behind the scenes, Sysinternals' Regmon has the answers, in terrifying detail. The free tool's main window identifies which Registry key has

changed, when it changed, the process (software) that changed it, and the text of the change (among other things). Only advanced users will understand all of the information Regmon provides, but others can set the filtering options to limit the program's reports to information they understand or need. For example, to monitor changes to the applications that start with Windows, choose **Options•Filter/Highlight**. In the

Include box, type **HKEY_Current_User\Software\Microsoft\Windows\CurrentVersion\Run**; **HKEY_Local_Machine\SOFTWARE\Microsoft\Windows\CurrentVersion\Run** (these are the two most common locations where apps hide their startup commands). Or in the tool's Exclude box, you can enter the paths to keys whose changes you'd rather ignore (for example, **HKEY_Current_User\Software\Microsoft\MediaPlayer**). find.pcworld.com/51394



Registry Editor, and double-click the **Window Title** icon in the right pane. (If you don't see this icon, right-click in the pane, choose **New•String Value**, type **Window Title**, and press **<Enter>**.) Type what you want to see on IE's title bar, or type nothing to show only the site name. Note that the hyphen that normally separates the

to accomplish this is simply to export one or more .reg files and, if necessary, edit them in Notepad, as described in the previous tip. Then you could put the .reg files on a common server, or e-mail them to the individuals who need the settings. The recipients would double-click the .reg files after downloading them from the server or detaching them from your e-mail (or they could right-click them one by one and choose **Merge**), and then they would click **Yes** when prompted to incorporate the settings, without editing the Registry themselves.

When distributing .reg files in this manner, make sure the settings are not unique to your computer. That is, Windows-related tweaks are a good bet to transfer smoothly, but

changes to the keys for specific hardware and applications will work properly only if the same products are on the receiving system. Be sure to instruct all the users who import your .reg files to back up their own Registry before doing so.

Browse to find.pcworld.com/52006 for more Registry tweaks. Contributing Editor Scott Dunn writes the *Windows Tips* column. ▶



FIGURE 5: ADD THE TEXT of your choice, or no text at all, to each page's title bar in Internet Explorer (or "Exploder").

site name from the page title will remain. When you relaunch Internet Explorer, you will see the change (see **FIGURE 5**).

SHARE YOUR TWEAKS

SENDING YOUR Registry tweaks to others lets you give all the machines on a network the same settings without having to use any of Windows' advanced administrative tools, among other uses. One way



VISTA COMES INTO VIEW

BY SCOTT SPANBAUER

A NEW LOOK is only the beginning. Security and performance improvements are the true highlights in the next Windows. Vista will be the safest, fastest, and most reliable version of Windows in a decade. When it's released later this year after four long years of development, the successor to Windows XP will offer tangible security and performance

improvements. Most of the elements planned for the final release are present (though often in very rough form) in the preview of Beta 2 released last December (we examined the first beta last October in "Windows Vista Looks Slicker, Safer," find.pcworld.com/51446). We like what Beta 2 shows of Vista (even without a two-way firewall), and such new and enhanced features as parental controls that hint at more than they deliver in this release.

Security is the principal reason most Windows users will jump at the chance to upgrade their OS. Vista beefs up Windows' defenses against 21st-century online dangers, many of which overwhelm XP. It streamlines startup and shutdown, and harnesses the copious RAM installed

in modern PCs to speed up application launching via the new Superfetch memory manager. The OS also promises new features, including systemwide speech recognition. And its Aero interface uses transparency, shading, and color to pack more information and control into every icon, window frame, and dialog box. (The striking similarity to Mac OS X is purely coincidental, we're sure.)

SAFER WINDOWS

RIGHT OUT OF the chute, Vista is more secure than its predecessor. If you install the initial version of Windows XP on an Internet-connected PC, the Blaster worm will bring your whole computer down in a matter of minutes. Microsoft started to take security more seriously in XP Service Packs 1 and 2, enabling the Windows Firewall and automatic updates by default.

Vista gets tougher on Internet-based attacks by including an antispyware tool, and by enhancing Internet Explorer's default security. The new Spyware Protection section in the Windows Security

Center reports whether Windows Defender, Vista's antispyware utility (formerly known as Microsoft AntiSpyware), is running. The new General Security section tracks whether the security settings in IE have been lowered to unsafe levels, opening the door to browser-borne attacks. Vista's version of IE won't even let you see the Web until you raise the Internet Zone's security back to 'Medium-High', a setting essentially the same as Windows XP Service Pack 2's 'Medium' setting.

Despite these improvements, Vista fails to close one gaping security hole, at least for ordinary computer users. Windows has long needed a firewall that blocks unauthorized traffic—both incoming and outgoing—to prevent viruses, spyware, worms, and other malware from delivering your private data to servers or from spreading themselves to other computers. Like the one in Windows XP, Vista's firewall does an excellent job of blocking the Blaster worm and other incoming attacks. When you install an application that ac-

Protect the selected disk volume

Use this wizard to encrypt the selected disk volume

You will also have options to:

- Create a recovery key. If Secure Startup blocks startup, a recovery key is the only way to regain access to your protected files. You can save this key as a password, or as a file to a removable USB device or folder. [Why would Secure Startup block startup?](#)
- Create a startup key. This prevents the computer from being started without first entering a personal identification number (PIN) or inserting a special USB memory device.

Note: If this computer is part of a domain, the domain administrator may require or eliminate these options.

FIGURE 2: CORPORATE VISTA PCs in particular will benefit from the OS's linked startup and disk-encryption controls.



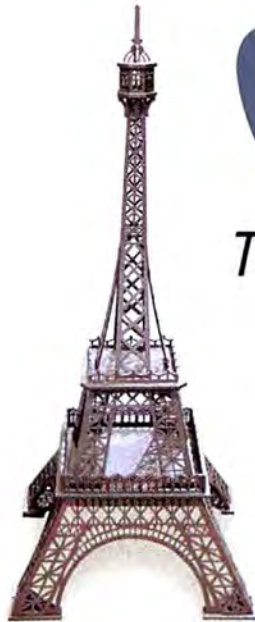
FIGURE 1: HIGHER PRIVILEGES are just a password away, which makes safer non-administrator accounts more convenient.

cepts incoming connections (such as a browser or an instant messenger), the firewall asks you to allow or block the connections. But don't mistake such requests for outgoing-connection security.

Vista's firewall can control whether individual programs initiate outgoing connections, but this feature isn't intended for mere mortals. (Microsoft claims that only IT departments will have reason to use this setting.) By delving deep into the Local Security Policy Settings in Control Panel's Administrative Tools, I was ►

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Go to find.pcworld.com/51882



able to block outgoing traffic and create exceptions for individual programs. But these settings are too obscure for most people. If Vista's firewall remains as is, you'll simply need to install a third-party bidirectional firewall such as ZoneLabs' free ZoneAlarm, which is what we recommend for Windows XP users today.

LOCKDOWN, VISTA STYLE

YOU CAN ALSO reduce the threat from malicious software by restricting access to key system settings and hardware. Linux, Mac OS X, Unix, and similar operating systems discourage the use of high-privilege accounts for day-to-day computing. That way, when a bad program does get loose, the damage it can do is minimized. When tasks requiring an administrator account's privileges pop up, you simply run that program as the administrator by entering a password.

Windows has offered lower-privilege accounts for quite a while, but they are painful to use, since performing tasks that require higher privileges (such as installing programs or changing security

settings) means logging out and then logging back in to an administrator account.

Vista's limited-rights accounts are easier to tolerate: Standard user accounts (which XP calls Limited accounts) and any rogue software running under them are still blocked from many sensitive tasks. But now, Windows pops up a dia-

encryption make life difficult for casual snoops, but determined data thieves can still decode the contents of a stolen laptop or hard disk, if they have sufficient time and the right tools. Vista's Secure Startup feature moves the drive encryption key off the disk itself and onto a motherboard-mounted Trusted Platform Module chip, a USB drive, or good old paper.

You can still encrypt volumes and folders as in Windows XP Professional, but Vista's Secure Startup walks you through the process of encrypting the entire drive and saving a 48-bit key to a file on another PC or on a USB drive,

or of printing the key on paper (see **FIGURE 2**). Afterward, no one can boot Vista on the PC without first accessing the TPM chip (impossible when the disk drive is separated from the system), inserting the USB device, or entering the 48-digit key by hand. Write down or save the key in a file—my USB drive failed to provide the key when I tried to boot a freshly encrypted Vista volume. According to Microsoft, Secure Startup will be included only in the OS's Enterprise Edition, limiting the feature to corporate Windows users.



FIGURE 3: PARENTS CAN CONTROL what their children see, the games they play, and when they can use the PC.

log box that allows you to enter an administrator password for the task (see **FIGURE 1**). Unfortunately, in Beta 2, when you are logged in under an administrator account, a similar dialog box pops up asking you to confirm every high-privilege task.

Windows XP's log-in security and disk



THE NEW Start menu in Vista places the Windows search box a click closer. The OS also features a new Lock option that will activate your password-protected screen saver. The menu's Power Off button in the bottom-right corner combines the power saving of Windows XP's hibernate mode with the safety of standby mode (which saves your current state to RAM so that you won't lose data if the power goes out).



KEEPING KIDS SAFE

PREVIOUS VERSIONS of Internet Explorer have parental controls for filtering out adult content, but Vista expands on them by giving administrators (presumably reasonable adults) control over what non-administrator accounts (presumably children in need of protection) can view on the computer, whether it's in a browser, an instant message window, or a game.

Vista's Web controls block content by topic—drugs, alcohol, firearms, and hate speech, for example—and they also filter browser-based e-mail and chat. You can thwart or allow games according to Entertainment Software Rating Board categories, including games that are already installed on the PC (see **FIGURE 3**). Even better, for parents who aren't always around to monitor their kids' comput- ▶

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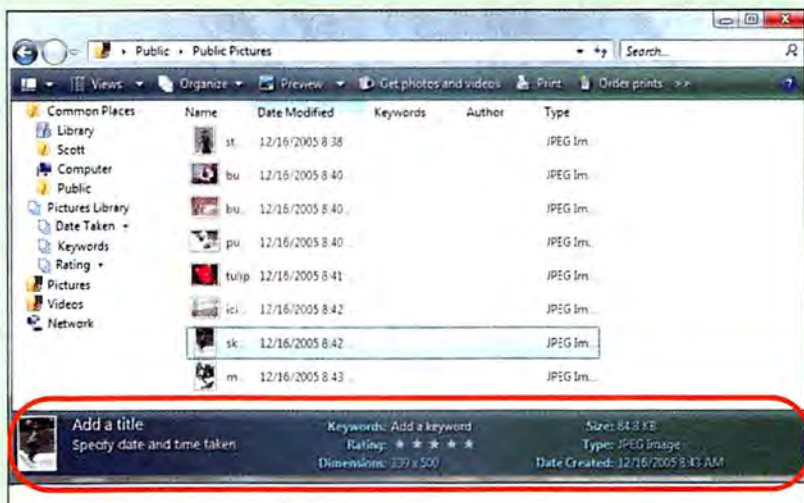
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AERO INTERFACE

EXPLORER REVEALS MORE

YOU'LL SEE MORE information about the files and folders you select in Vista's Explorer through the new horizontal Preview pane that appears at the bottom of each folder window. Along with the highlighted file's size, creation date, and other standard information, you'll see a list of the keywords that you have assigned to it, as well as the star rating you've designated for it. On music files you'll also see the album title, genre, and other metadata displayed in the pane.



er usage, Parental Controls let you specify times when the account can't be used. If you've always wished you could magically disable your child's computer every night at bedtime, now you can. Vista even monitors account activity and reports what the little darlings have been up to, such as the sites they've visited and the time they've spent using various programs.

Unfortunately, in the current beta version, Vista's Web filtering didn't prevent me from viewing adult content in Internet Explorer or Firefox, nor did the reports note my furtive online explorations—or any of my other activity, for that matter.

FASTER ON, FASTER OFF

THOUGH COMPUTERS continue to run faster, starting up and shutting down Windows seems to take a bit longer every day. Vista will speed up your machine's boot process only when your system has hardware that supports the Extensible Firmware Interface. Still, the new OS snaps more quickly out of energy-saving sleep modes on all systems. Microsoft claims that the faster reawakenings are due to Vista's ability to overrule any foot-dragging drivers and applications that take their time shutting down.

Vista's Start menu replaces XP's Turn Off Computer option (which opens a second dialog box of power-off choices) with a new power-off button that forces the OS to write the contents of memory to a file on the hard disk and then slip into low-power standby mode. (Unfortunately, when I tried this on my test system, a hardware incompatibility caused it to reboot instead of going into standby.) Another button lets you restart or shut down the PC as in XP, but the option to hibernate (putting the system in a zero-power mode) appears to be missing for now.

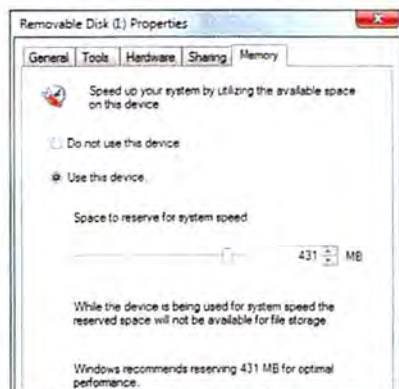


FIGURE 4: VISTA TAPS USB flash memory drives, in addition to using all available RAM, to speed up your application launching.

SPEEDIER APP LAUNCHES

PREVIOUS WINDOWS versions prefetch some application files to get them started more quickly, but Vista's Superfetch feature takes this to a new level. XP preloads files that an application has opened recently into available memory before the program calls for them, but Superfetch tracks all the programs you use over the course of months and keeps your most frequently used files in memory permanently (if you have sufficient RAM).

Since system memory is often tight, Vista's ability to use a USB flash or external hard drive as additional Superfetch storage space could be a true time-saver. Plug a mostly empty drive into a USB port, and Vista will ask whether you'd like to use some or all of it to speed up your computer (see **FIGURE 4**). The Superfetch partition Vista creates on the USB drive is encrypted, but USB drives are notoriously easy to lose, so people working with sensitive data may want to avoid using such drives for Superfetch caching.

When I plugged in a 512MB USB drive and reserved 431MB of it for Superfetch, programs launched much faster the second time I opened them; however, my ▶

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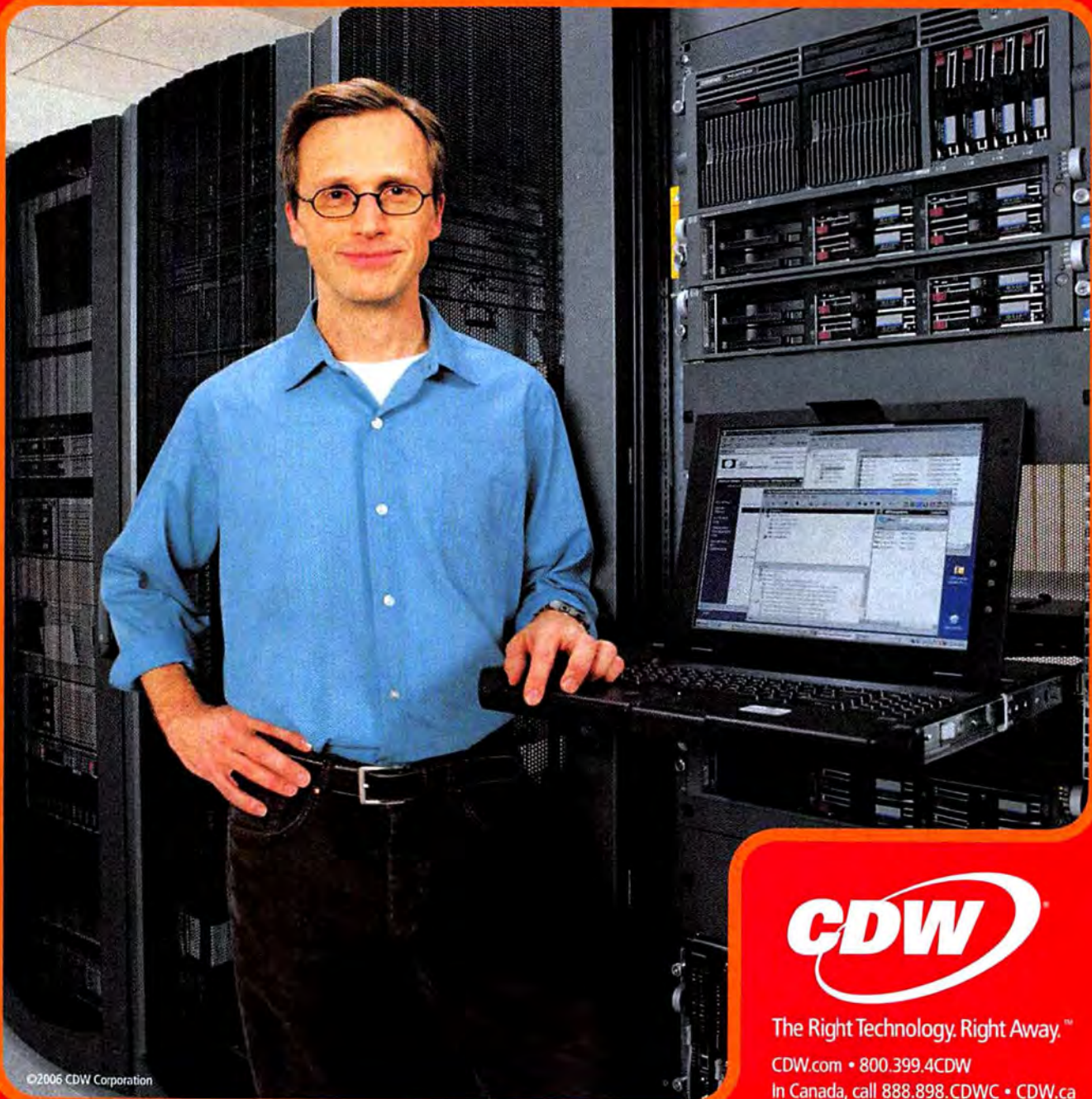
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test system had 1GB of RAM, and the applications appeared to launch just as quickly after I unplugged the drive. You'll probably get the best results when you use a fast USB drive (the latest have data-read speeds near 30MB per second).

AUTOMATIC MAINTENANCE

WHILE WINDOWS XP lets you refresh your device drivers via Windows Update, they're available only as optional downloads when you visit the Windows Update site. Vista automates new driver downloads and offers them for your installation approval. This could smooth the upgrade process for anyone whose hardware isn't supported in Vista's initial release—if a driver is available subsequently through Windows Update, Vista will bring it to you rather than making you find it.

Vista's error reporting is more automatic as well. When applications crash in XP, you're asked if you'd like to send a report to Microsoft—but it's not like Microsoft will reply with a fix. When Vista encounters a problem, and you elect to report it, you'll get an answer back with a solution, if there is one. Of course, if the response is useless, we'll all be racing to disable this link with the Redmond mother ship.

REFRESHED FOR SUCCESS

VISTA'S AERO interface looks slick, but more significant, it makes Windows and its applications easier to use by endowing screen elements with photorealistic depth, color, texture, and transparency. (Descriptions of Vista's Start menu, Explorer window, and other Aero features appear elsewhere in this article.) Along with the Aero look are several new and welcome utilities. We were shocked—shocked!—to find that many of these tools are eerily similar to programs bundled into Apple's Mac OS X.

Windows Media Player 11 receives a streamlined interface, with simplified music library navigation, bigger controls, and iTunes-like light colors (see **FIGURE 5**). The new image manager, Windows Photo Gallery, applies the same interface design to picture viewing, simplifying the process of printing images, burning them to DVD for television viewing, or viewing slide shows on the PC. And Windows Movie Maker can now burn your movies



FIGURE 5: WINDOWS MEDIA PLAYER 11 sports a clean, simple look that could keep users from switching to other players.

to DVD thanks to Vista's Windows DVD Maker program (as with Windows Media Player's DVD playback support, however, you'll have to pay extra to download the necessary codec). Vista also introduces a new Windows Calendar that supports the iCal standard, and it lets you publish and subscribe to calendars on the Web.

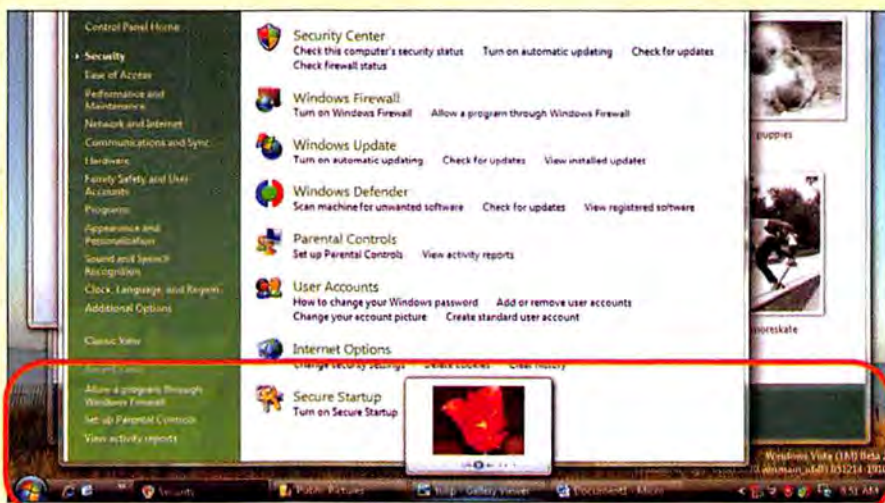
Living with Windows XP for so long without a significant update has made me realize that it's a pretty good operating system. Vista's improved security features and performance tweaks would make it a very good one, but the OS's sleek interface and useful new tools suggest something that's even better: coolness. ■

Contributing Editor Scott Spanbauer writes the Internet Tips column.

AERO INTERFACE

PREVIEW YOUR OPEN WINDOWS

SWITCHING BETWEEN open programs is easier in Vista than in previous Windows versions because you can see a thumbnail of each window's contents when you hover your mouse pointer above its taskbar shortcut. The dynamic nature of the thumbnails means that you can even view playing video and running processes in the mini-windows.





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Get **More** Out of Your **Wireless** Network

Wi-Fi: It's not just for laptops anymore. With these products and tips, you can cut the cord when making phone calls, streaming music or video, sharing files, and more.

IF YOU THINK YOUR WIRELESS network is good only for using a laptop in the living room, think again. A slew of new Wi-Fi peripherals promises to send your music, movies, pictures, and even phone calls flying from room to room, no cables required. These days, we're seeing products for just about any task that might benefit from going wireless.

Not surprisingly, some of the newcomers don't live up to the hype. We checked out 12 of the latest cordless creations in several categories to determine which products are good mates for Wi-Fi and which still need some work.

Traveling Tunes

TODAY'S WI-FI-ENABLED streaming music players let you access your entire digital music collection from any room in the house. The ones we tried were by far the most consumer-friendly, mature, and useful of the Wi-Fi peripherals we evaluated here. Each allows you to plug in your powered speakers or hook up to a tuner with standard cables, so you can play music on your existing stereo. The devices can also bypass your PC to play Internet radio stations, and you can set up multiple units to play tunes from one PC. ►

BY BECKY WARING ♦ ILLUSTRATION BY MICK WIGGINS



We took a look at three popular players: D-Link's DSM-120 MediaLounge Wireless Music Player (find.pcworld.com/51936), Roku's SoundBridge M1000 (find.pcworld.com/51934), and Slim Devices' Squeezebox version 3 (www.slimdevices.com). The SoundBridge and the Squeezebox have slick interfaces, great sound quality, and robust features. Though the Squeezebox's extras make it our favorite, the SoundBridge and the MediaLounge have the digital rights management (DRM) support required to play Napster and Rhapsody files.

D-Link DSM-120. This stylish, \$210 music streamer (all prices in this story are street) has a digital optical output jack for higher-quality audio with compatible receivers, as well as standard analog outputs and support for most unprotected music formats. It doesn't handle iTunes AAC files,

clock feature, which will play music on cue from an installed (not a flash) drive.

A few things left us less than tingly, though. The companion PC software for music-folder and playlist setup isn't very friendly, and the number-pad remote control makes entering song titles or other alphabetic information painful. Also, Live365 is your only Internet radio option.

Roku SoundBridge M1000. For \$200, we'd go with the SoundBridge, a sleek player with a big, bright fluorescent display. It has digital optical and coaxial outputs, and it supports Windows DRM, iTunes, and unprotected AAC music formats.

Interestingly, the SoundBridge has no

Play music from your PC with audio streamers from (clockwise from left) D-Link, Roku, and Slim Devices.



but it does support Windows DRM-10 audio playback, as well as protected Napster and Rhapsody music, via Windows Media Connect (available for Windows XP SP2 at find.pcworld.com/51622).

A USB port on top lets you play tunes from a flash drive, and you can install a 2.5-inch hard disk. You also get an alarm

clock feature, which will play music on cue from an installed (not a flash) drive. A few things left us less than tingly, though. The companion PC software for music-folder and playlist setup isn't very friendly, and the number-pad remote control makes entering song titles or other alphabetic information painful. Also, Live365 is your only Internet radio option. Interestingly, the SoundBridge has no

for FLAC and Ogg Vorbis playback.

We loved the SoundBridge's visual display, excellent Internet radio interface, and wide range of supported stations, including Rhapsody. But as with its MediaLounge counterpart, its remote control could use text-entry buttons.

By the time you read this, Roku plans to ship an alarm clock version of the SoundBridge—the R1000—with 18 Internet radio presets, for an expected \$399.

Slim Devices Squeezebox. The \$300 Squeezebox is our top pick. The elegant device uses 802.11g Wi-Fi (the SoundBridge uses 802.11b), and is the only one of the three to support WPA encryption, the more-secure successor to the WEP encryption in the other products. An alarm clock and a headphone jack make the Squeezebox a fine bedside companion.

Getting the SqueezeBox to work with the convenient remote (which has an alphanumeric keypad for easier navigation) took just a few minutes; on the PC side, the useful SlimServer software was simple to install and set up.

SlimServer can play pretty much every unprotected digital music format, including AAC, but not DRM-coded tracks. It can handle Live365, Radioio, and Shoutcast Internet radio streams, as well as MoodLogic mixing. The company says Rhapsody support is coming soon.

One last bonus: You can read RSS news feeds on the Squeezebox's display without going through your computer.

Liberate Your Movies and Photos

IF MUSIC ALONE isn't enough for you, some players can stream video and show pictures as well. These VCR-size boxes let you send almost any video or still images that are stored on your PC to your TV set without needing to run cables in between. The devices we examined include built-in, progressive-scan DVD players as well, so they can replace a regular DVD player in your home theater setup.

The \$275 Buffalo LinkTheater PC-

P3LWG/DVD (find.pcworld.com/51938) and the \$300 D-Link DSM-320RD Media-Lounge Wireless Media Player (find.pcworld.com/51940) are less-costly alternatives to a full-fledged Windows Media Center PC with a wireless extender, but the interfaces on these ambitious products are relatively limited and kludgy. The LinkTheater's high-definition output (both 720p and 1080i), remote control, and better interface give it the edge.

Both units have the usual AV outputs, including composite, S-Video, and component video, plus optical audio. Video and audio playback on each was relatively smooth on our 802.11g network. The two support Windows Media Connect and the UPnP (Universal Plug and Play) AV standard, which lets you stream media files from network-attached storage drives (see "Add More Hard Drive Space to Your Network" on page 98).

D-Link DSM-320RD. A step up from the audio-only DSM-120, the DSM-320RD has excellent audio quality and supports a broad range of music formats, including Live365 and Radio@AOL. It also has a 5-in-1 card reader. But the photo and video playback quality was mixed, mainly due to the inherent limitations of a TV screen versus a PC monitor. Unless you have an HDTV set and an HD-capable streamer like the Buffalo unit, your digital photos will be reduced in resolution to about 720 by 480, and their edges might be cropped. That said, navigating to our



Beyond music: These media players from D-Link (right) and Buffalo also stream videos from your PC.

photo folder and selecting pictures for display via the player was simple, and a slide show-creation feature lets you choose accompanying background music.

Video files don't share the transfer troubles of still images. Most standard-format videos that you might store on your PC are already in the right aspect ratio and resolution for your TV, and the D-Link's playback quality was similar to that on our system monitor. Its major drawback for video is its lack of high-definition output. (D-Link offers a less expensive version, the \$250 DSM-520, that has HD support and an HDMI connector but lacks the built-in DVD player and card reader.) Also, as with the DSM-120, we weren't happy with the remote control, which has small and overly sensitive buttons.

Buffalo LinkTheater. We preferred the LinkTheater for several reasons. Audio quality was excellent, and we liked the

product's ability to display album artwork embedded in MP3 files. On the video side, the player supports the popular DivX format. Finally, if you have an HDTV, the unit's high-def mode delivers higher-quality photo and video playback than the DSM-320RD, a big plus.

However, we were disappointed by the LinkTheater's lack of HDMI or DVI connectors, given that it supports HDTV. The model could benefit from WPA support as well, which the DSM-320RD has.

Slingbox and TiVoToGo. The Buffalo and D-Link products let you display PC media on your TV; if you want to watch TV on your PC in another room, check out Sling Media's Slingbox or TiVo's TiVoToGo. With the free TiVo Desktop software, the TiVoToGo feature lets Series 2 TiVo owners use a \$50 USB 802.11g adapter to pull shows from the TiVo to any PC on their network. You can also burn programs to DVD, or save them to your laptop to watch on the road.

The \$250 Slingbox goes even further, letting you send video from almost any source—including cable, satellite, DVD, VCR, and TiVo or another digital video recorder—directly to your computer. What's more, your PC can be in the next room, or anywhere it can access the ▶

WI-FI TIPS

Liven Up Dead Air

DEAD SPOTS IN YOUR WI-FI network are bad enough when you're checking e-mail on your laptop; they're seriously aggravating if you're on a Wi-Fi phone call or listening to streaming audio. Strengthening the signal may be as simple as relocating your router to a more central location, away from obstructing materials like brick, concrete, metal, and water. Just mounting the

router high on a wall may do the trick; see find.pcworld.com/51618 for more tips.

If you're ready to buy hardware, though, a new generation of stronger Wi-Fi equipment can give you whole-house coverage, while also increasing throughput, at a relatively low cost. Browse to find.pcworld.com/51620 for our latest look at several of these more powerful products.

Internet—say, in a Bangkok hotel room. You have to add a standard 802.11g Wi-Fi ethernet bridge to make the Slingbox wireless (see “Untether Games, Printers” on page 100), and image quality is less than what you’ll get on a TV. But you can view both live and recorded video from afar in real time.

VoIP Cuts the Cord

IF YOU LIKE saving big bucks on long-distance and international calls with a Voice-over-IP phone plan (typically around \$15 to \$30 per month for unlimited U.S. calling), you’d probably love being able to use it with a Wi-Fi handset that lets you enjoy wireless freedom. Since Wi-Fi is available all over the world, you could bring a Wi-Fi handset on your European grand tour, yet pay no more than your normal U.S. monthly fee for all the calls home you care to make. Others could call you, too, at your regular number, anywhere in the world, at domestic prices. Just try that trick with a cell phone.

The snag, of course, is that Wi-Fi is nowhere near as ubiquitous as cell network coverage—and the first-generation handsets we tried don’t yet support the log-in screens found at most public

hotspots. A Wi-Fi travel router will let you use the phone (and your Wi-Fi-enabled laptop) in hotel rooms with wired broadband access via ethernet, though.

It’s worth noting that if you expect to use the phone only at home, you’re probably better off using a less expensive, more feature-filled regular cordless phone

with your VoIP box or router. But even if you take a relatively bells-and-whistles-free Wi-Fi phone just to work, it could help trim your cell phone bill. Keep an eye out as well for new models with more features and functionality, such as UTStarcom’s upcoming hybrid phone that can make and receive calls over both Wi-Fi and cell networks. However, it can’t switch one call between the two networks (see find.pcworld.com/51612).

The phones we tried were the UTStarcom F1000 VoIP (find.pcworld.com/51942) and the ZyXel Prestige P2000W VoIP V2 Phone (find.pcworld.com/51944). An “unlocked” F1000 model that can operate with any VoIP service provider willing to divulge your normally hidden account connection details (not all providers will) costs \$195; an unlocked Prestige runs \$249.

UTStarcom F1000. The alternative is to get your phone from a VoIP service provider; doing so is cheaper and easier but ties you to that company. Our F1000 came from Vonage, which sells the model for \$80. (You can also buy the F1000 through BroadVoice and VoIPTalk.) We got the phone registered and running in a few minutes, and though it dropped the line on the first call we made, it worked perfectly during the rest of our testing.

Voice quality was comparable to that of a cellular or cordless phone, and we wandered more than a full city block from our Belkin Pre-N router with no noticeable degradation in the quality of the call.

ZyXel Prestige P2000W. By contrast, our unlocked ZyXel handset was harder to set up since it wasn’t tied to a specific VoIP provider. It also took longer to connect calls than the UTStarcom did, and it emitted three annoying dings before the phone on the other end started to ring. And unlike the UTStarcom, the ZyXel lacks WPA support and is too large and clunky to fit in your pocket. ▶



Wi-Fi Internet phones from ZyXel and UTStarcom let you make VoIP calls via a wireless network connection.

WI-FI TIPS

Improve Streaming Media

IF YOU WATCH a streaming video sent over a congested network, interference that might simply slow regular data transfers can ruin your movie experience with stutters or halts. Audio and VoIP calls are vulnerable too. Quality of Service networking technology tries to address this issue, primarily by prioritizing multimedia data. The IEEE standards body is creating a QoS standard for Wi-Fi, called 802.11e.

In the meantime, the Wi-Fi Alliance is

promoting an interim standard (with elements that will be part of 802.11e) called WMM (for Wi-Fi multimedia). Many VoIP-ready routers have some form of QoS technology as well. If you’re buying a new router or other Wi-Fi device, make sure it includes WMM or 802.11e QoS support, or comes with a vendor promise to do so via a firmware upgrade. Note, though, that both your router and your Wi-Fi adapters must use the same QoS technology.

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Send Your Pictures Soaring

DIGITAL CAMERAS are relatively new to the Wi-Fi scene, but the idea makes sense: You have to transfer pictures from your camera somehow, and using Wi-Fi eliminates worries about forgetting USB cables or flash memory adapters. We entertained visions of dropping by any Wi-Fi café in Moscow or Tokyo to send snapshots home, sans laptop.

Sadly, those dreams aren't yet a reality: Neither the 4-megapixel, 3X-optical-zoom Kodak EasyShare-one (find.pcworld.com/50246) nor the 5-megapixel Nikon Coolpix P2 (find.pcworld.com/51948) lives up to the full promise of a wireless camera. For now, choose your digital camera for its picture-taking features, rather than for its Wi-Fi support or lack thereof. That said, both models we looked at will appeal to Wi-Fi fans in several ways.

Kodak EasyShare-one. At \$500, the EasyShare-one is pricey, but it is the only Wi-Fi camera able to connect directly to the Internet. You can upload pictures



Kodak's EasyShare-one uses built-in Wi-Fi to upload pictures to your PC and to the EasyShare Gallery Web site.

straight to Kodak's EasyShare Gallery (www.kodakgallery.com) via 802.11b, and e-mail links to friends. You can also wirelessly transfer photos to your computer.

The EasyShare-one is not especially simple to use, though, and other limitations keep us from getting too excited. While it supports both WEP and WPA encryption, the device can't connect to a Wi-Fi network that has a log-in page (which rules out most public hotspots). T-Mobile, however, has a deal with Kodak that lets subscribers to T-Mobile's hotspot service use the camera with that service; customers who don't want a full-blown

hotspot subscription can set up a camera-only account for \$5 per month.

Another drawback is that Wi-Fi transfers to your computer require using the EasyShare Gallery album software. And you can't e-mail the actual photos from your camera, just thumbnails that link to the Gallery site. For more about the EasyShare-one, go to find.pcworld.com/51932 to read our January review. ▶

STORAGE

Add More Hard Drive Space to Your Network

A NETWORK STORAGE drive is one of the best investments you can make in your home network, wired or wireless. You need plenty of space to store all your streaming digital media, after all. Network-attached storage, or NAS, also brings many side benefits such as automatic backups of multiple PCs (with the right software) and password-protected folders for everyone in your home. If the drive supports Universal Plug and Play, devices such as the Buffalo LinkTheater, the D-Link MediaLounge, and the Roku SoundBridge M1000 can all play files stored on the network drive without having to go through your computer. Browse to find.pcworld.com/51616 to see a lengthy list of UPnP media devices.

Adding NAS to your network is simple:

Most NAS drives come with an ethernet connector that you can plug into a free port on your router (nearly all Wi-Fi routers also have ethernet ports). While wireless

You don't need to buy a special NAS drive to get the benefit of networked storage, however. If you already have an external USB drive, you can network it using a

A network drive is one of the best storage investments that you can make.

NAS drives exist, this is one area where you're usually better off going with wires because they afford faster transfers.

Popular choices in home and small-office NAS devices include the Buffalo LinkStation series, the Maxtor Shared Storage drive, and the Snap Appliance Snap Server. For more on such products, see "Net Drives" at find.pcworld.com/46468.

Wi-Fi router with USB ports, such as D-Link's DI-624S Wireless 108G USB Storage Router (find.pcworld.com/52010) or Netgear's WGT634U 108Mbps Wireless Storage Router (find.pcworld.com/52012). Or, if you don't want to replace your Wi-Fi router, the Linksys Network Storage Link (find.pcworld.com/51958) can give your USB drive an ethernet connection.

**No contract. No overages.
No monthly bills.**

No problem – just free!*

Free
Internet
calling that
just works

The whole world
can talk for free.
Skype.com

skype™



USR9601



USR9610



USR9620

**MAKING FREE CALLS OVER THE INTERNET JUST GOT EASIER!
IT'S AS SIMPLE AS 1-2-3!**

1. Load Skype software.
2. Install either the USR9601 USB Internet Phone, the USR9610 USB Internet Speakerphone or the USR9620 USB Telephone Adapter (which allows you to use your regular phone for making free Skype phone calls).
3. Dial and talk as long as you want anywhere in the world for free!

Find out how we do it at www.usr.com/talk

*No fees are required for making Skype to Skype phone calls. Phone/adapter must be purchased.
Free Skype to Skype phone calling requires a PC with high-speed Internet access.
Skype is a registered trademark of Skype.

USRobotics®

Go to find.pcworld.com/51318

Nikon Coolpix P2. In most ways, the \$300 Coolpix is even more limited than the EasyShare. It does let you use Wi-Fi for camera-to-computer transfer and printing, and it supports the faster 802.11g (as opposed to the Kodak model's 802.11b), along with WEP and WPA encryption. But Wi-Fi transfers, which require both camera setup and specific software on your computer, are needlessly complex; using a USB cable is much easier. And the model offers no support for hotspots, e-mail, or direct-to-Web uploads.

The P2's one cool Wi-Fi feature is a Wireless Live Transfer mode that bypasses the camera's memory card and sends pictures directly to your computer as you take them, a convenience that might be especially useful in some photo studios or labs. The 8-megapixel Nikon P1 (\$400) has the same Wi-Fi features as the P2.

D-Link, Linksys, and Panasonic (from left) all offer modern Wi-Fi Webcams for both consumers and professionals.



WI-FI TIPS

Untether Games, Printers

WHILE THE white-hot Nintendo DS and Sony PlayStation Portable handheld game players both have built-in Wi-Fi, a simple Wi-Fi ethernet bridge lets the older GameCube, PlayStation 2, and Xbox set-top game consoles handle wireless online game play. (The GameCube and the PlayStation 2 first need broadband ethernet adapters before they can go Wi-Fi.) Office printers and other networkable

devices can go wireless with a bridge, too. Products such as Belkin's F5D7330 Wireless G Ethernet Bridge & Game Adapter (www.belkin.com) usually cost from \$75 to \$100 and simply plug into the ethernet port on any network-capable device, with no driver or software required. You may need to connect the bridge to your computer first to enter your WPA or WEP encryption password, but that's it.

Hidden Wi-Fi Eye

WI-FI HAS ENABLED a mushrooming contingent of Webcams serving as nannycams, security cameras, and even chroniclers of growing plants. You can tuck a Wi-Fi Webcam into any nook in the house (or even outside) and watch the video feed over the Internet. Prices range from about \$130 to \$1000 and up.

We tested Webcams from D-Link,

Linksys, and Panasonic. All are 802.11g models with motion detectors that can trigger video recording and/or e-mail alerts; all can record snapshots and video on a live or scheduled basis, too. Though these units transmit video wirelessly, they aren't yet completely cordless: None of them run off batteries, so they still have power cords.

All three support dynamic DNS—Internet address translation—to let you access the firmware and video over the Web to keep tabs on the office equipment room, say, or the babysitter. But taking advantage of this feature requires some additional network setup. Also, be sure to restrict access with a strong password (see find.pcworld.com/51614).

Linksys WVC54GC. The palm-size \$125 Linksys WVC54GC Compact Wireless-G Internet Video Camera (find.pcworld.com/51950) captures basic 320-by-240-pixel video with no audio. It comes with well-designed software that supports multiple cameras in one window, and has WPA support. You perform the straightforward camera setup via a Web interface similar to that used with routers.

D-Link DCS-6620G. By contrast, D-Link's camera (find.pcworld.com/51952) is the Cadillac of consumer Webcams. It lists for a hefty \$1000 but is widely available for about \$825. It offers two-way audio, an impressive 10X optical zoom, and support for remote-control panning and tilting. Its video quality was by far the best of the three cameras we tried, and the unit supports WPA. The feature-filled software has multicamera support, but it is nowhere near as user-friendly as Linksys's. Still, technically inclined users should be happy with this model.

Panasonic BB-HCM371A. For \$775 street, the Panasonic's (find.pcworld.com/51954) two-way audio, outdoor mounting, and remote pan/tilt controls make it useful for front-door monitoring, though it lacks optical zoom and WPA support. Its sophisticated software seems intended for security professionals. ■

Becky Waring is a freelance writer and former editor of NewMedia magazine.

Acer recommends Windows® XP Professional.

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March/April 2006

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

NEW **Ferrari 4000** NOTEBOOK TECHNOLOGY **DRIVER**

- AMD Turion™ 64 Mobile Technology ML-40
 - AMD PowerNow!™ Technology
 - HyperTransport™ Technology
 - Enhanced Virus Protection Technology¹
- Genuine Windows® XP Professional x64 Edition
- 1GB DDR333 SDRAM
- 120GB² hard drive
- Integrated DVD-Super Multi double-layer drive
- 5-in-1 card reader for optional MultiMediaCard™, Secure Digital card, Memory Stick®, Memory Stick PRO™ or xD-Picture Card™
- 15.4" WSXGA+ (1680 x 1050) TFT display
- ATI® MOBILITY™ RADEON® X700 graphics, 128MB DDR
- 802.11b/g WLAN, Bluetooth®, gigabit LAN, V.92 modem
- One-year limited warranty³

Ferrari

OFFICIAL LICENSED PRODUCT



Ferrari 4006WLMi

\$2,199

(LX.FR40M.027)

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For the name of a reseller near you or further information, please call Acer or visit our Web site: **800-571-2237 | www.acer.com/us**

Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.



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Acer® Flat Panels: Displaying Quality & Value



24" WIDE-SCREEN

Acer AL2416Wd

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

Acer AL2416Wd

\$919

(ET.L6102.018)

F-20

- 20" wide-screen TFT LCD, Acer CrystalBrite Technology
- 1680 x 1050 native resolution
- 800:1 contrast ratio
- 176° horizontal viewing angle
- 176° vertical viewing angle
- Two 5.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 8ms gray-to-gray response time
- External power adapter
- Gloss black/red color



F-20

\$539

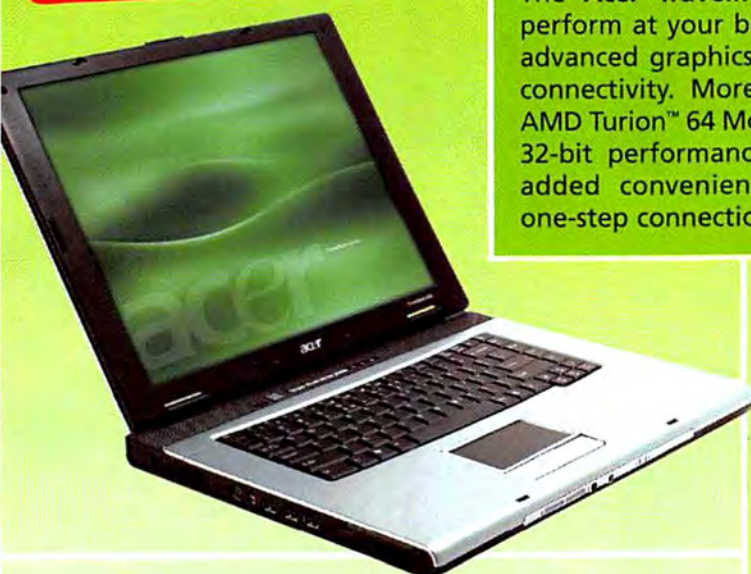
(ET.L380B.063)



Acer® TravelMate™ 4400

Powerful Business Asset

15.4" WIDE-SCREEN



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

Acer TravelMate 4404WLMi

\$1,199

AMD Turion™ 64 Mobile Technology ML-34
Genuine Windows® XP Professional
(LX.T7806.091)

- AMD Turion™ 64 Mobile Technology ML-34
 - AMD PowerNow!™ Technology
 - HyperTransport™ Technology
 - Enhanced Virus Protection Technology¹
- Genuine Windows® XP Professional
- 1GB DDR333 SDRAM
- 120GB² hard drive
- Integrated DVD-Dual drive (DVD+/-RW)
- 6-in-1 card reader for optional SmartMedia™ card, MultiMediaCard™, Secure Digital card, Memory Stick®, Memory Stick PRO™ or xD Picture Card™
- 15.4" WXGA (1280 x 800) TFT display
- ATI® MOBILITY™ RADEON® X700 graphics, 64MB DDR
- 802.11b/g WLAN, gigabit LAN, V.92 modem
- One-year limited warranty³

Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

Acer® ezDock

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



Acer ezDock Docking Station

\$299

(LC.D0103.004)

Compatible with the TravelMate 8200, 8100,
4650, 4400, 3000, C310, C200; Ferrari 4000

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



Acer AL2032W A
\$539
(ET.L380B.065)

Acer AL2032W A

- 20" wide-screen TFT LCD
- 1680 x 1050 native resolution
- 800:1 contrast ratio
- 176° horizontal viewing angle
- 176° vertical viewing angle
- Two 5.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 8ms response time
- External power adapter
- Gloss-black color

BUILT-IN SPEAKERS



Acer AL1951C
\$359
(ET.L4108.068)

Acer AL1951C

- 19" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- Two 1.5W integrated speakers
- VGA, DVI-D signal connectors
- 400 cd/m² brightness
- 4ms response time
- External power adapter
- Silver/black color

4MS RESPONSE TIME



Acer AL1916W
\$279
(ET.L5209.005)

Acer AL1916W

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

19" WIDE-SCREEN



Acer AL1717 Abm
\$239
(ET.1717B.M08)

Acer AL1717 Abm

- 17" TFT LCD
- 1280 x 1024 native resolution
- 500:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- Two 1.0W speakers
- VGA signal connector
- 300 cd/m² brightness
- 8ms response time
- Internal power adapter
- Black color

8ms RESPONSE TIME



Acer AL1717 Bbmd
\$249
(ET.1717B.MD8)

Acer AL1717 Bbmd

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

8MS RESPONSE TIME



Acer AL1716 b
\$219
(ET.1716B.012)

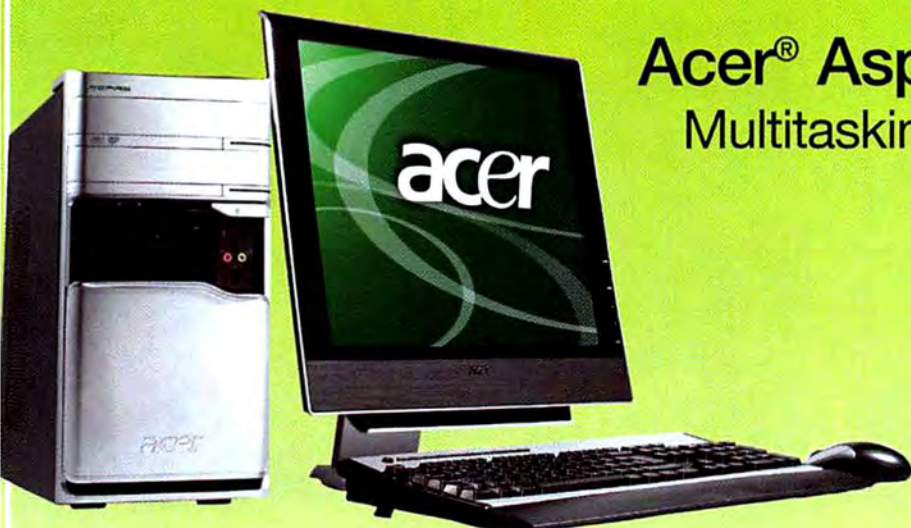
Acer AL1716 b

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

GREAT VALUE

Acer recommends Windows® XP Professional.

Multitasking takes on a whole new meaning with the **AcerPower E360**, just one of the new Acer desktops to feature AMD processors. You'll experience a performance boost of up to 80 percent thanks to the AMD Athlon™ 64 X2 Dual-Core Processor, even when running power-hungry digital media on the **AcerPower E360**. This is because dual-core technology is like having two processors, each one handling different applications. Moreover, this processor features simultaneous 32- and 64-bit computing capabilities, allowing you to get the most from your 32-bit applications and make a seamless transition to 64-bit software.



Acer® Aspire™ E360

Multitasking at a New Level



Monitor sold separately.

- AMD Athlon™ 64 X2 Dual-Core Processor
 - AMD64 Technology
 - Enhanced Virus Protection¹
 - Cool'n'Quiet™ Technology
 - HyperTransport™ Technology
- Genuine Windows® XP Media Center Edition
- 1GB DDR SDRAM
- 250GB² SATA hard drive
- DVD-Dual drive (DVD+/-RW) and DVD-ROM drive
- 9-in-1 card reader for optional MultiMediaCard™, Secure Digital card, SmartMedia™ card, Memory Stick®, Memory Stick PRO™, CompactFlash® I/II card, Microdrive® or xD-Picture Card™
- ATI® Radeon® X550 graphics
- Gigabit LAN, V.92 modem
- One-year limited warranty³



9-IN-1 CARD READER

Acer Aspire E360-U-A3801

\$799

AMD Athlon™ 64 X2 Dual-Core Processor 3800+
Genuine Windows® XP Media Center Edition

Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

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Acer® Projectors with DLP™ Technology

Digital Light Processing™ from Texas Instruments is an all-digital display technology for projectors and other products that delivers the best picture in terms of clarity, brilliance and color.



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



Acer PD120D

\$999

(EY.J2201.012)

PD120D

- 2000 ANSI lumens
- SVGA (800 x 600) native resolution
- 2000:1 contrast ratio
- 16.7 million displayable colors
- PC and Mac compatible



Acer PD100

\$779

(EY.J2101.006)

PD100

Projector Accessories

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

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

Replacement Lamp

\$299

(EC.J1001.001)

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

Replacement Lamp

\$199

(EC.J2101.001)

- Expected life in hours: 2,000 standard mode, 3,000 economy mode
- Designed for Acer PD120D and PD100

Ceiling Mount

\$79

(EZ.PCM03.007)

- 6.6 pounds
- Designed for Acer PD525, PD120D, PD116P and PD100

Acer® Aspire™ 5000

Power for Productivity



15.4" WIDE-SCREEN



**Made for mobility with
AMD64 performance**



Acer Aspire 5003WLMi

\$899

AMD Turion™ 64 Mobile Technology ML-32
Genuine Windows® XP Professional
(LX.A5106.020)

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

- AMD Turion™ 64 Mobile Technology
 - AMD PowerNow!™ Technology
 - HyperTransport™ Technology
 - Enhanced Virus Protection Technology¹
- Genuine Windows® XP Professional
- 512MB DDR333 SDRAM
- 80GB² hard drive
- Integrated DVD-Dual drive (DVD+/-RW)
- 15.4" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- SiSM760GX chipset with integrated Mirage™2 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty³

Acer Notebook Service Upgrades Protect Your Valuable Investment

Quality is built into every notebook Acer makes, and each comes with a one-year standard limited warranty.¹ It includes hardware technical support via toll-free phone plus a concurrent International Traveler's Warranty for travel outside the U.S. and Canada. Extra protection is available with one of these upgrades:

2-Year Extension of Limited Warranty (146.AB820.EX2)

\$99

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

It's a tough world out there, and accidents do happen—sticky spills, dangerous drops, nasty knocks—which is why you should consider the Total Protection Upgrade. It runs concurrently with the limited warranty¹ and limited warranty extension and covers the cost of a replacement unit if your covered notebook cannot be repaired.

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.

Prices shown are estimated street prices and do not include tax or shipping.
Retailer or reseller prices may vary.

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Acer® Aspire™ 3000 Entertainment Starts Here

- Mobile AMD Sempron™ Processor 3300+
 - AMD PowerNow!™ Technology
 - HyperTransport™ Technology
 - Enhanced Virus Protection Technology¹
- Genuine Windows® XP Professional
- 512MB DDR333 SDRAM
- 80GB² hard drive
- Integrated CD-RW/DVD-ROM combo drive
- 15.4" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- SiSM760GX chipset with integrated Mirage™ 2 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty³



\$100 PRICE CUT!

Acer Aspire 3005WLCi

\$799

Mobile AMD Sempron™ Processor 3300+
Genuine Windows® XP Professional
(LX.A5506.028)



Prices shown are estimated street prices and do not include tax or shipping. Retailer or reseller prices may vary.

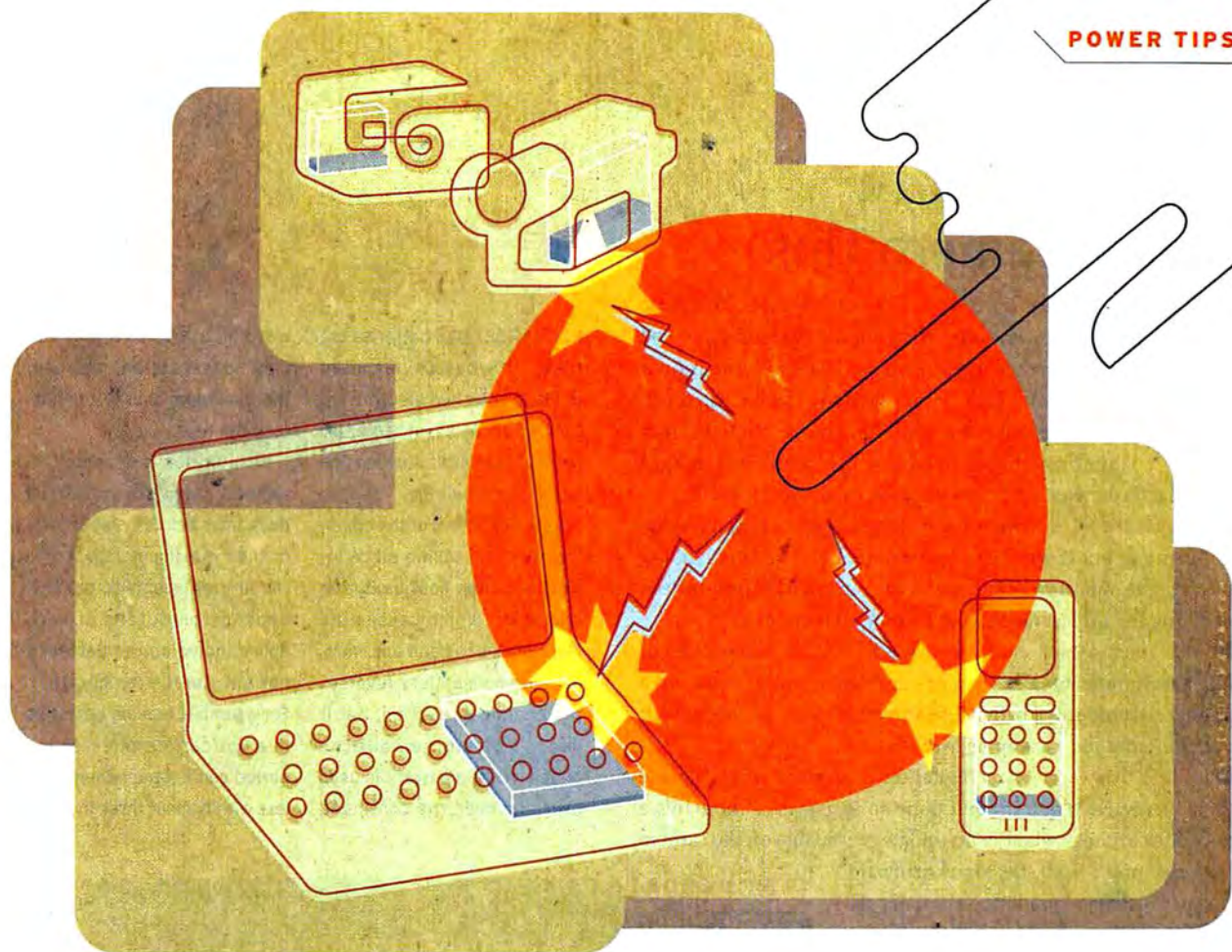
¹ Enhanced Virus Protection (EVP) is enabled by Microsoft® Windows® XP Service Pack 2. By default, EVP will protect the user's Windows operating system only. Users must enable the protection of their applications and associated files to be protected from memory buffer overrun attacks. AMD and Microsoft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

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

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

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BATTERY BOOSTERS

Sick of running out of juice at the worst possible moment? Here's how to squeeze every last drop out of your gadgets' batteries and charge them up quickly and conveniently. ►

BY CHRISTOPHER NULL ♦ ILLUSTRATIONS BY OTTO STEININGER

TESTING BY TONY K. LEUNG AND WILLIAM WANG

+ EXTEND BATTERY LIFE -

Digital Camera Tips



■ **Turn off the flash:** Those bright bulbs eat up power, and turning off the flash may give you dozens of extra shots. Bonus: Some indoor shots look better with the flash turned off, because the camera captures the ambient lighting instead of adding potentially harsh light from the flash, which can make a photo look overexposed.

■ **Turn off the LCD:** It may undercut the purpose of having a digital camera, but if you need to maximize battery life, looking through the optical viewfinder—if your camera has one—instead of ogling the LCD screen can save quite a bit of power.

■ **Play images back elsewhere:** We all tend to watch video or idly view photos on a camera or camcorder, but this eats up a substantial amount of battery life. Put off reminiscing about your vacation until the vacation is over.

■ **Update firmware:** Many digital cameras allow you to update their firmware. If you haven't done so in a year or more, it's a good idea to check whether an update is available on the camera manufacturer's Web site. Many firmware updates include upgraded power management options, which can extend your unit's battery life significantly.

■ **Buy a bigger camcorder battery:** Commonly you can get a bigger, longer-lasting battery than the one your camcorder came with—just be prepared to tote more weight, typically 5 or 6 extra ounces.



Voltac Messenger

YOU'RE CARRYING a bag or backpack anyway, so why not choose one with solar panels that charge your gear while you trek? When the next big blackout hits, you'll be prepared. (\$239; www.voltaicsystems.com)

WHY DON'T MY BATTERIES LAST LONG ANYMORE?

RECHARGEABLE batteries are tricky little beasts composed of electrodes and electrolytes formed from assorted compounds such as lithium ion and nickel metal hydride.

As a side effect of the chemical reaction taking place inside, batteries heat up during operation, which causes the electrolytes to bend and warp. Recharging a battery reverses the chemical reaction, but it doesn't straighten out the plates. When a battery is used over and over, the continued

warping starts to affect the chemical reaction, reducing the maximum charge the battery can hold.

Lithium ion batteries can typically survive up to 500 full discharges before losing enough of their maximum capacity to require replacement, but this depends on dozens of variables, including the battery's normal storage temperature. For example, leaving batteries in a hot car for an extended period could render them useless within about three months.

TEST REPORT

TEST Center Which AA Battery Lasts Longest?

WE LAB-TESTED FOUR TYPES of AA batteries to find out which could stand up best to the heavy demands of today's cameras. Energizer's e2 disposable lithium cells lasted longer than other AAs in our tests. Compared with Duracell's Ultra M3 Alkalines (which we used as the baseline), the lithium batteries delivered 3.3 times the number of shots in a point-and-shoot camera and 2.7 times the shots in an advanced camera for twice the cost. Overall, results were similar between the two-battery Canon and four-battery Fujifilm cameras.

BATTERY	Price for four	Camera type	Number of shots	Battery life
Energizer e2 Lithium (disposable) find.pcworld.com/51896	\$12	Point-and-shoot ¹	664 photos	365 minutes
		Advanced camera ²	785 photos	431 minutes
Energizer Rechargeable NiMH 2500 mAh (rechargeable) find.pcworld.com/51898	\$15 ³	Point-and-shoot ¹	476 photos	262 minutes
		Advanced camera ²	549 photos	301 minutes
Panasonic Oxyride ZR6XA (disposable) find.pcworld.com/51902	\$5	Point-and-shoot ¹	224 photos	123 minutes
		Advanced camera ²	331 photos	182 minutes
BASELINE BATTERY				
Duracell Ultra M3 Alkaline (disposable) find.pcworld.com/51904	\$6	Point-and-shoot ¹	198 photos	108 minutes
		Advanced camera ²	282 photos	155 minutes

FOOTNOTES: ¹ We tested two AA batteries using Canon's PowerShot A520. ² We tested four AA batteries using Fujifilm's FinePix S9000. ³ \$26 with battery charger.

Juice Up Your Laptop

IF YOU NEED 5, 8, or even 12 hours of computing time untethered to an electrical outlet, invest in a slim battery slice that rides beneath your notebook and greatly extends your laptop's running time.

These notebook battery extenders contain anywhere from 80 watt-hours to 300 watt-hours of additional juice, courtesy of lithium ion or lithium polymer cells. Depending on how much power your machine consumes, adding a battery slice to your notebook's internal battery could give you 3 to 10 hours of extra running time without a recharge. The slab plugs into your laptop's power port.

We tested Valence's \$250 N-Charge VNC-130 and Hi-Capacity's \$170 PowerPlus 60. The N-Charge weighs 3 pounds and provides 120 to 130 watt-hours of power. On a Dell Inspiron 710m, that translated into an extra 5 hours, 49 min-

BATTERY SLABS by Hi-Capacity (top) and Valence can extend your notebook's running time.

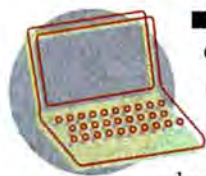


utes of running time; and on an ultralight model, the Sharp PC-M4000, we got an extension of 9 hours, 8 minutes. The PowerPlus 60 weighs 1.2 pounds and provides 60 watt-hours of juice. In our tests, it powered the Dell laptop for an extra 2 hours, 40 minutes,

and the Sharp model for an additional 4 hours, 33 minutes. The battery you select should depend on the running time you need and the extra weight you can carry.

★ EXTEND BATTERY LIFE ★

Notebook PC Tips



- **Tweak the power manager:** Check the Power Options control panel (or your laptop's power management utility) and configure the settings on the right side of the pane, under 'Running on batteries'. How aggressive you want to be about power savings is a matter of choice. In general,

the lower you set the intervals at which your monitor and hard disk turn off or go into standby, the more power you'll save. Don't set your hard-disk or standby time too low, however: Your PC expends power (and time) to spin up a hard drive, so make sure it shuts down only during periods of inactivity and not during brief pauses in your work. Turn-off times of 10 minutes for the monitor and 20 minutes for the hard disk should work well.

- **Go easy on the brightness:** Every laptop has controls for lowering the brightness level, usually via a function-key combination. If you're in a dark setting, such as on a red-eye flight, you'd be surprised at how legible your screen is at 50 percent brightness.

- **Nix Wi-Fi:** You can typically add at least half an hour of running time by turning off Wi-Fi—and Bluetooth if your laptop has it. Idle Wi-Fi can be a security risk, too: Any open directories on your PC could leave the door ajar for snooping types in the area.

- **Take out unused components:** Your removable optical drives,

RECYCLE OLD BATTERIES

BATTERIES: good for gadgets, bad for the environment. While most people avoid dumping their used motor oil into the sewer system, only about 5 percent of rechargeable batteries get recycled.

Dead rechargeable AAs are among the most recyclable products you can buy. Lithium and nickel batteries can be melted down, the metal recovered, and their materials reprocessed into new batteries, with virtually zero waste. But consigned to a landfill, the metals in recyclable batteries can contaminate the soil.

All rechargeables should be recycled. Many retail stores (including Radio Shack) accept them. Head to www.rbr.org or call 800/822-8837 for a drop-off location near you.

Note that standard alkaline batteries are no longer the mercury-laden monstrosities of 22 years ago. Today's alkalines contain no mercury at all. Because these batteries are less toxic, many battery recyclers do not accept alkalines, though your municipality may offer a way to recycle them. Check with your local government before tossing them in the trash.

PC Cards, and USB peripherals all consume power, even when they aren't in use. Simply disconnecting these components—even if you slide the PC Card out of its slot just partway—will improve your notebook's battery life.

- **Add RAM:** This is one component you don't want to disable: The more you have, the more headroom Windows has to work with, which will help your machine avoid excessive hard-drive reads and writes. This way, your hard disk can idle more often and reduce power consumption. More RAM also boosts your computer's performance considerably—a double win. ▶

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Cell Phone Tips



■ **Lock buttons down:** Mobile phones take a pounding when they ride around in pockets and at the bottom of purses and briefcases. Often the result is accidental button presses, which can run your backlight excessively and even initiate accidental calls. These scenarios not only consume battery power, but they could also hike up your phone bill. Save battery power by locking the keys on your phone. Most handsets have a lock feature that disables button presses until you enter a specific code. If you can't figure it out from the phone menus, consult the manual, look on the phone maker's Web site, or call customer support.

■ **Use airplane mode—it isn't just for airplanes:** Many handsets offer an "airplane mode" or "flight mode" that turns off the internal radio yet leaves the organizer and other features intact. It's great for flying, but it's also a good battery saver if you can't or don't want to answer calls but want to check the time—such

as when you're sitting through the last hour of *King Kong*.

■ **Go easy on extras:** Bluetooth, text messaging, games, music playing—all are nice features for your phone, but all are power hungry too. If your phone can't get through the day on a single charge, consider nixing Bluetooth or getting a separate device to handle your messaging, gaming, and music-listening needs. ►



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STUFF WE LOVE: BATTERY LIFE INDICATORS

Built-In Notebook Battery Tools

NOTEBOOKS HAVE meters detailing how much charge remains in their battery, but you have to boot up your system to see the power meter display. If you're fumbling around with a stack of cells, trying to find the one with the most juice, repeatedly shutting down and

rebooting your machine is terribly inefficient. That's why we appreciate the way some notebook vendors, including Dell and Gateway, have designed their batteries with a small battery meter right on the case. You simply eject the battery from the notebook and

press a button: A set of LEDs will then light up, roughly indicating the amount of charge remaining. This approach isn't perfect, but it's far better than the blank face most batteries present.

Sony's InfoLithium Battery

WHAT'S THE difference between one bar and two bars on the little battery icon found in many electronics? We haven't got a clue, and so we admire what Sony has done with its InfoLithium camera batteries: Turn on most Sony camera models, and you'll see an estimate



SONY DIGITAL CAMERAS estimate the time remaining in the battery.

of the amount of time remaining (in minutes) in the battery, instead of a cryptic icon. How does it work? InfoLithium batteries transmit information about the rate of consumption and other data to the camera, allowing the processor to calculate the amount of power left. However, Sony cameras may not function with third-party batteries, and older models sometimes mistakenly conclude that a fully charged battery is dead, possibly because the camera firmware isn't up-to-date.



SOME BATTERIES, such as this one from a Dell laptop, are designed with an exterior battery meter.



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Audio Player Tips



■ **Avoid skipping:** If you use an audio player with a hard drive, you can save quite a bit of its power by selecting a playlist and then letting the device play uninterrupted. Because hard-drive players buffer songs in memory, they don't have to read continuously from the disk. Reshuffling tracks, skipping ahead, rewinding, and pausing the music require more reading operations, all of which consume more power.

■ **Play smaller songs, get longer life:** Your player will last longer playing 1000 5-minute songs than five 1000-minute songs, because with shorter songs the device loads full tracks into memory, reducing the need to access the hard drive. Break long songs into multiple tracks, or compress them at a lower kbps rate.

■ **Do away with the backlight:** Disable the backlight or set it to turn off quickly. The less light you use, the more tunes you'll hear.

■ **Keep it cool:** Batteries work via chemical reactions (see "Why Don't My Batteries Last Long Anymore?" on page 110 for more), and extreme temperatures can make batteries work harder to generate the same amount of power. Thus, Apple recommends keeping your iPod running at between 32 and 95 degrees Fahrenheit, and specifies 72 degrees as the optimum temperature. Remember, a leather case



Cellboost

PLUG ONE of these disposable, pocket-size capsules into your handset's power port for an instant recharge that delivers about an hour of extra talk time. Adapters vary by phone model. (\$5 to \$13; www.cellboost.com)

can act as an insulator, increasing a device's risk of overheating.

■ **Ignore the equalizer:** Tweaking the bass or the highs makes a player's processor do extra work to alter the sound. Set the equalizer to off or to zero decibels to maximize the playing time. ■

Christopher Null is a San Francisco-based technology writer.

UP NEXT: ECO-FRIENDLY BATTERIES

FOR ALL THEIR compactness and convenience, batteries as we know them may soon become obsolete. Fuel cells in various shapes and sizes have been in the works for decades, but technological hurdles and regulatory issues have prevented products from coming to market. Now, researchers may be nearing a solution that works for mobile devices.

In simple terms, fuel cells convert molecular hydrogen (inside the cell) and oxygen (in the air) into water, which they release back into the air as vapor. The by-product of this reaction is electricity. The basic chemical reaction resembles the one in a battery—involving anodes, cathodes, and electrolytes—but with a few improvements. Instead of requiring recharging via electricity, which is inefficient, a fuel cell uses up its hydrogen store and can then be immediately refilled, much like a butane lighter, with no "recharging" required. Also, pound for pound, a fuel cell can outlast a fully charged battery. And theoretically a fuel cell causes no pollution.

Today most research on fuel cells has

focused on methanol as the source of the cells' hydrogen, and a number of large companies—including Hitachi, NEC, and Toshiba—have constructed prototype cells that are designed for mobile devices and use liquid methanol as fuel. But the companies involved have elected to delay launching the technology until 2007, in part due to government regulations about traveling with methanol.

Fuel Cells Coming Soon

THE FIRST FUEL CELLS to arrive in stores will likely be in Medis Technologies' Power Pack (find.pcworld.com/51928), which is designed to recharge cell phones and other portable devices and is beginning limited production this year. The pack uses a borohydride-alkaline solution combined with alcohol—which, unlike methanol, is approved for airplane use—but the cell is not refillable, and some financial naysayers assert that the Power Pack is not a true fuel cell because it isn't refillable.

Power Packs should be available at retail stores by this fall. For \$12 to \$20, a single Power Pack will provide about 80 hours of running time on an iPod or nine full charges of a cell phone, Medis promises.



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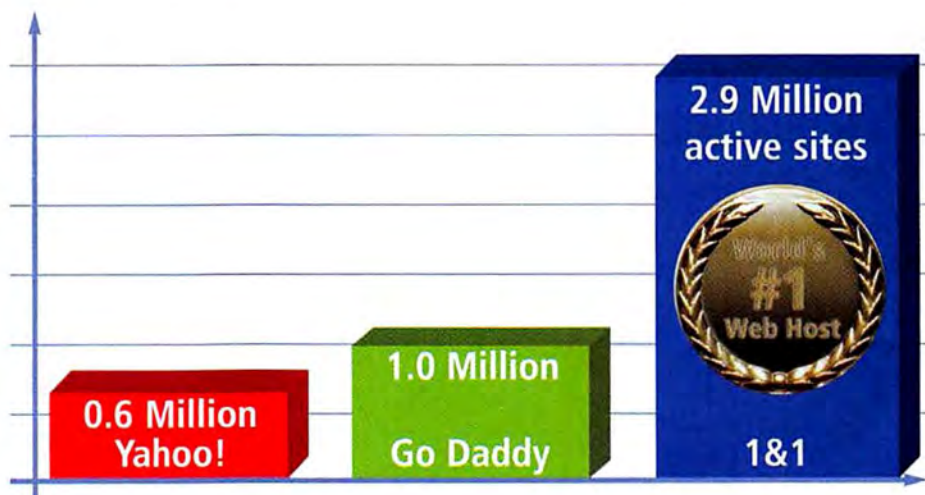
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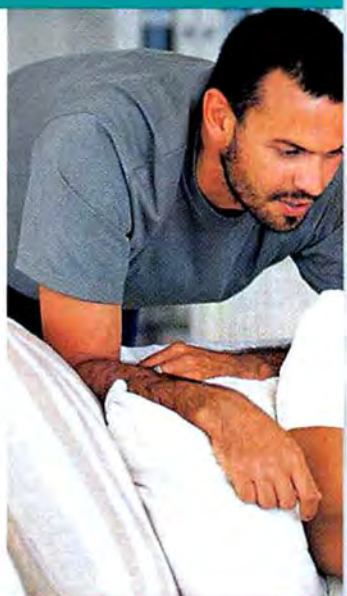
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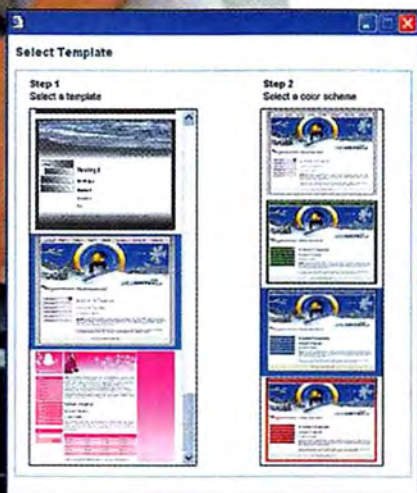
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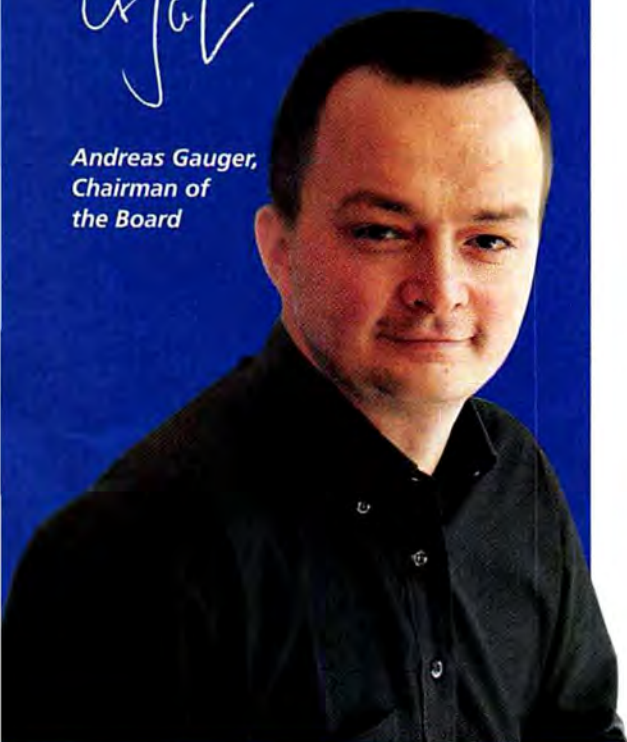
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**Best
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projector.

LT35

LAMP
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POWER

ON/STAND BY

SOURCE

AUTO ADJ.

FOCUS

MENU
SELECT
ENTER

If you give PowerPoint-style presentations, a digital projector can help your work look polished and professional. But in the past, a model matching the resolution of your laptop's screen and suitable for both work and play cost big bucks. Not anymore.

The first wave of sub-\$1000 units with native 1024 by 768 (XGA) resolution has arrived, a significant quality upgrade from the lower-resolution 800 by 600 (SVGA) products that dropped below that same price level last year. The Epson PowerLite 76c, the Microtek CX6, the Hitachi CP-RX60, and the Sharp Notevision XR-10X—all of which make our chart—are versatile portables that match up well against our top-rated projector, the NEC LT35, at less than half the price.

These lower-cost newcomers may not have all the extras you'd find on a high-end business model like the NEC, but they do offer a reasonable mix of power and performance, whether you want to deliver a presentation in a conference room or view DVD movies in the family room.

To find out how well these bargain-priced XGA projectors would perform when tested alongside other portable models, we rounded up a total of 16 business projectors from over a dozen manufacturers. The PC World Test Center examined units from Canon, Dell, Epson, Hewlett-Packard, Hitachi, NEC, Microtek, Mitsubishi, Optoma, Panasonic, Plus Vision, Sharp, and Sony, and rated how well they displayed various images. (Visit find.pcworld.com/51676 for complete test results and a review of each model tested.)

The 16 projectors we corralled for this roundup represent a range of shapes, sizes, and designs. The smallest we reviewed are two sub-3-pound models: HP's diminutive MP2210 (which finished in tenth place) and Plus Vision's slender, seventh-ranked V-339. The heftiest products, at 8.6 pounds each—Canon's Realis SX50 and Sharp's XR-10X—are over twice the size of the supercompact ones. Each supports native XGA (or higher) resolution and weighs less than 9 pounds. And while none of these models is intended strictly for home theater use (see "Home Theater Wonders" on page 136 for more), all of them may be used for at-home entertainment as well as for work.

PROJECTOR FACE-OFF

TO EVALUATE THE PERFORMANCE of these projectors, the PC World Test Center used a battery of tests that included text files (several Microsoft Word and Excel document screens) and an assortment of still images supplied by the ICIA's *InfoComm Projection Shoot-Out* DVD. We also conducted motion tests with

DVD movies and a video game to see how well the devices could display fast-moving images without creating artifacts.

The projectors in this roundup represent the three core front-projection display technologies: Texas Instruments' Digital Light Processing, liquid crystal display, and liquid crystal on silicon. Nine models used DLP, six LCD, and one LCoS. Though we saw some performance differences, our tests failed to establish any technology's superiority over the others for general use.

TI's DLP technology uses a multisegment color wheel that, advocates say, produces brighter, higher-contrast images than competing technologies do. Meanwhile, front-projection LCD technology employs three LCD glass panels to display the red, green, and blue components of a full-color (RGB) image simultaneously. Supporters claim that LCD projectors generate rich-



SUB-\$1000
models from
Epson (top) and
Microtek.

er, more natural color than do most DLP business models, which typically use a single-chip design with a four-segment color wheel to display red, green, blue, and white.

Unlike DLP and LCD projectors, which are commonplace, LCoS models remain a rarity. LCoS—a hybrid of DLP and LCD systems—is touted for its realistic color representation; however, it remains expensive (Canon's Realis SX50 sells for \$4999).

Besides coming from a range of technologies, the projectors we tested represent a wide range of brightness levels. At the low end is the Plus V-339, rated at 1300 ANSI lumens (an industry-standard measure); this model's lumens rating means that it should be bright enough for use in small conference rooms of up to about a dozen people, either in darkness or with low ambient light, or for use when playing movies. At the other end of the

TOP 10 PROJECTORS

TEST
Center

Business Projectors: All Shapes and Prices

VIBRANT IMAGES and a plethora of features propel NEC's LT35 to the top. For expanded specs, see find.pcworld.com/51598.

	BUSINESS PROJECTOR	PCW Rating	Features and specifications		Performance	Bottom line
1	NEC LT35 Best Buy \$2195 find.pcworld.com/51502	82 Very Good	<ul style="list-style-type: none"> • DLP • 4.4 pounds minimum weight • 10.2 by 8.2 by 3.5 inches 	<ul style="list-style-type: none"> • 3000 ANSI lumens • 2000-hour lamp life • Lamp price: \$399 	<ul style="list-style-type: none"> • Text: Very Good • Graphics: Very Good • Motion: Good 	This first-class projector has great automated features and delivers high-quality images bright enough for spacious rooms.
2	Epson PowerLite 76c \$999 find.pcworld.com/51490	81 Very Good	<ul style="list-style-type: none"> • LCD • 5.7 pounds minimum weight • 9.7 by 12.9 by 2.4 inches 	<ul style="list-style-type: none"> • 2000 ANSI lumens • 3000-hour lamp life • Lamp price: \$299 	<ul style="list-style-type: none"> • Text: Good • Graphics: Good • Motion: Good 	A low price and a healthy range of features help this unit rise; however, its images are not as crisp as those of competing models.
3	Hitachi CP-RX60 \$899 find.pcworld.com/51492	81 Very Good	<ul style="list-style-type: none"> • LCD • 4.8 pounds minimum weight • 11.8 by 8.0 by 2.7 inches 	<ul style="list-style-type: none"> • 2000 ANSI lumens • 3000-hour lamp life • Lamp price: \$299 	<ul style="list-style-type: none"> • Text: Good • Graphics: Good • Motion: Good 	Good image quality and a low price are this projector's strong suits, but you won't find many features beyond the basic ones.
4	Sharp Notevision XR-10X \$1000 find.pcworld.com/51510	80 Very Good	<ul style="list-style-type: none"> • DLP • 8.6 pounds minimum weight • 12.4 by 11.6 by 4.7 inches 	<ul style="list-style-type: none"> • 2000 ANSI lumens • 2000-hour lamp life • Lamp price: \$299 	<ul style="list-style-type: none"> • Text: Good • Graphics: Good • Motion: Good 	This bargain-priced projector produces good-quality text and graphics images, but it lacks any innovative extras.
5	Microtek CX6 \$999 find.pcworld.com/51496	79 Good	<ul style="list-style-type: none"> • DLP • 7.8 pounds minimum weight • 12.9 by 9.4 by 3.5 inches 	<ul style="list-style-type: none"> • 2000 ANSI lumens • 2000-hour lamp life • Lamp price: \$330 	<ul style="list-style-type: none"> • Text: Very Good • Graphics: Very Good • Motion: Good 	Crisp, high-quality text images and a great price make this projector a good selection for budget-minded business users.
6	Mitsubishi XD460U \$2895 find.pcworld.com/51498	78 Good	<ul style="list-style-type: none"> • DLP • 6.5 pounds minimum weight • 12.2 by 9.6 by 3.9 inches 	<ul style="list-style-type: none"> • 2600 ANSI lumens • 2000-hour lamp life • Lamp price: \$245 	<ul style="list-style-type: none"> • Text: Very Good • Graphics: Very Good • Motion: Good 	Superb, bright, high-quality images and enhanced color controls help justify this projector's premium price.
7	Plus Vision V-339 \$1495 find.pcworld.com/51508	78 Good	<ul style="list-style-type: none"> • DLP • 2.8 pounds minimum weight • 7.3 by 6.9 by 1.8 inches 	<ul style="list-style-type: none"> • 1300 ANSI lumens • 1500-hour lamp life • Lamp price: \$349 	<ul style="list-style-type: none"> • Text: Good • Graphics: Good • Motion: Fair 	This model's light weight makes it suitable for travel; its switchable dual color wheels are good for displaying graphics or movies.
8	Panasonic PT-LB30U \$2100 find.pcworld.com/51506	78 Good	<ul style="list-style-type: none"> • LCD • 5.5 pounds minimum weight • 12.9 by 9.2 by 3.0 inches 	<ul style="list-style-type: none"> • 3000 ANSI lumens • 2000-hour lamp life • Lamp price: \$575 	<ul style="list-style-type: none"> • Text: Very Good • Graphics: Very Good • Motion: Good 	Stylish-looking projector delivers bright, high-quality images at a reasonable price. This model works well in ambient light.
9	Sony VPL-CX20A \$1500 find.pcworld.com/51514	78 Good	<ul style="list-style-type: none"> • LCD • 4.2 pounds minimum weight • 10.7 by 8.3 by 2.0 inches 	<ul style="list-style-type: none"> • 2000 ANSI lumens • 2000-hour lamp life • Lamp price: \$399 	<ul style="list-style-type: none"> • Text: Fair • Graphics: Fair • Motion: Good 	Slick and sleek design includes impressive automated features; however, the projector's image quality is lackluster.
10	Hewlett-Packard MP2210 \$1500 find.pcworld.com/51494	77 Good	<ul style="list-style-type: none"> • DLP • 2.4 pounds minimum weight • 8.2 by 6.6 by 2.5 inches 	<ul style="list-style-type: none"> • 1500 ANSI lumens • 3000-hour lamp life • Lamp price: \$380 	<ul style="list-style-type: none"> • Text: Good • Graphics: Good • Motion: Good 	With its reasonably bright, good-quality images, this ultracompact portable is a solid choice for small-group presentations.

CHART NOTES: All projectors are 1024 by 768 (XGA) resolution. Street prices as of 1/18/2006.

spectrum are models like the NEC LT35 (our Best Buy) and the eighth-ranked Panasonic PT-LB30U, both rated at 3000 lumens. For larger rooms and environments with more ambient light, higher-lumens-rated models such as those are a better match.

We evaluated each projector at its native resolution and default factory settings. Most of the devices are rated at native 1024 by 768 resolution, as are most business notebooks we've seen recently. We also tested two models with a native 1400 by 1050

(SXGA+) resolution: the Canon Realis SX50 and the \$3599 Dell 5100MP. Both of these relatively expensive projectors missed our Top 10 chart—and not just because our scoring system rewards lower-priced products in this category.

Since the still images in our tests are native 1024 by 768 resolution, the Realis SX50 and 5100MP had to use interpolation to show them full frame. Interpolation typically results in less-than-perfect displays of text, and that's what we saw here: Both ►

SXGA+ models presented slightly fatter (blockier) text than the XGA models did, a result that underscores the importance of matching your computer's resolution with the native resolution of your projector. In informal tests that we conducted at their native SXGA+ resolution, the Realis SX50 and 5100MP did a much better job of displaying sharp text. The difference in resolution didn't seem to hurt the two projectors on our graphics tests, however; each earned above-average scores on those measures.

VIBRANT COLORS

AT THEIR DEFAULT SETTINGS, business-oriented projectors make bullet-point slides and flowcharts pop out as much as possible, since their brightness and contrast levels are optimized for use in a conference room. The trade-off is that such products often sacrifice color saturation, image depth, and accuracy to achieve their higher brightness and contrast. Fortunately, sever-

al manufacturers have taken steps to improve the color quality.

Our Best Buy, NEC's LT35, earned the top score overall on both our text tests and our graphics tests. In addition to displaying one of the brightest images (it's rated at 3000 ANSI lumens), the LT35 did the best job of rendering crisp lettering in spreadsheets and a multisize-fonts screen. It also excelled at reproducing vibrant, realistic colors in our test photos (including ones of fresh fruit and of a barn surrounded by amber waves of grain). The unit may have benefited from NEC's Vortex Technology Plus, a proprietary approach to image processing that the company says improves a projector's color accuracy and dynamic range.

The Mitsubishi XD460U came in a close second to the LT35 in our text and graphics tests; its higher price, however, pushed it down to sixth place overall on our chart. The XD460U displayed sharp fonts in a CAD drawing and realistic skin tones in a group portrait. This model's impressive ability to display ►

ENTERTAINMENT

Home Theater Wonders Target Your Living Room

WHEN IT COMES to entertainment, business projectors can't compare to home theater models that are optimized for movie playback.

Unlike the business models we reviewed for our roundup, home theater projectors favor color accuracy and proper saturation over bright white light. Some home models also have more-versatile connectivity options, making them perfect for playing back DVD movies and high-definition TV.

Until recently, home theater projectors cost even more than their business counterparts. But recent trends indicate that this is changing. Home theater projectors are more affordable than ever—especially when you compare their prices with the cost of large-screen TVs. A portable projector is easier to reposition than a stationary TV; and you can use it to show different-size images, either on a special screen or on a plain white wall.

One of the most interesting recent developments in home theater models is the emergence of all-in-one units that combine a highly capable projector with a built-in DVD player and an internal



HOME MODELS
from Mitsubishi
(top) and Benq.

sound system. We examined two plug-and-play combos—the 15-pound, \$1200 Epson MovieMate 25 (find.pcworld.com/50342) and the 7.8-pound, \$1300 Optoma MovieTime DV10 (find.pcworld.com/50400)—and found both of them easy to use, relatively quiet, and delightfully pro-

ficient at displaying colorful images.

For people who want more than an entry-level projector, two impressive higher-end products are the \$2675 BenQ PE7700 (find.pcworld.com/51462) and the \$2295 Mitsubishi HC3000U (find.pcworld.com/51464). Both DLP units provide a native resolution of 1280 by 768, so they're ideal for displaying wide-screen content (either DVD movies or HDTV) with a 16:9 aspect ratio.

What stands out most about these two home-oriented models, though, is the gorgeous quality of their color images. Using six-segment (red, green, blue, red, green, blue) color wheels rather than the four-segment (red, green, blue, white) wheel that most business projectors employ, both units displayed well-saturated color with excellent contrast enriched by deep blacks. The Mitsubishi unit's inclusion of TI's BrilliantColor feature (which increases color depth) likely contributed to its fine image quality.

Depending on your budget, any of these four products would be a fine addition to your entertainment center.

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subtle color shades—especially in nature scenes—is no doubt aided by its use of a five-segment DLP color wheel and its implementation of TI's BrilliantColor image processing, which brightens the highlights and midtones in images without increasing the blacks and shadow values.

Panasonic's LCD-based PT-LB30U finished in a statistical dead heat with the XD460U for second place in our text and graphics tests. This model displayed bright, colorful graphics and crisp text; its ambient-light sensor, dubbed Daylight View, is designed to boost image color in well-lit rooms.

Another notable performer was the DLP-based Microtek CX6, which matched the PT-LB30U's performance on our text screens. Among projectors whose prices hover near \$1000, the CX6 landed in a statistical tie with the Hitachi CP-RX60 and the Sharp Notevision XR-10X on our performance tests. The Epson PowerLite 76c and the nonranking Optoma EP719, by comparison, earned only average scores for their image quality, and neither distinguished itself on our graphics tests. Both the Canon LV-X5 and the Mitsubishi XD205U, though, were lackluster across all of our tests, and missed our chart.

Though the Plus Vision V-339 failed to wow us at its default settings, its innovative Dual Color Mode feature caught our attention. Unlike most DLP projectors that use a single moving color wheel, the V-339 has two color wheel positions. One is a four-segment (red, blue, green, white) wheel optimized for projecting at high brightness and contrast, such as for presentations; the other combines six segments (red, blue, green, red, blue, green) from two color wheels to produce better color saturation and accuracy, such as for movies. In our informal tests of DCM, the color wheel designated for vivid color and video did a great job of improving the quality of moving images, to a level that handily surpassed most of the V-339's DLP-based competition.

NICETIES AND EXTRAS

ALL OF THE PROJECTORS include a remote control and provide security protection (such as user password options), economy modes for running at lower brightness (to increase lamp life and reduce fan noise), and manual keystone adjustment to correct image distortion caused by an improper projector-to-screen angle. A number of units—including the Canon LV-X5, the Dell 5100MP, the NEC LT35, and the Plus V-339—also support automatic keystone. Out of the box, 7 of the 16 models we looked at—Canon's Realis SX50, Dell's 5100MP, Epson's 76c, HP's MP2210, Microtek's CX6, Mitsubishi's XD460U, and Sony's VPL-CX76—permit you to control your computer's mouse pointer via the projector's remote.

The two Sony models—the ninth-place VPL-CX20A and the nonranking VPL-CX76—came with the most impressive array of automated features. Not only do



ULTRAPORTABLE,
light models from HP
(top) and Plus Vision.

they provide an automatic keystone feature, but they also include powered zoom, powered focus, and powered tilt (for raising the projector at an angle). Better yet, you can access all of these features through remote control.

The Sony VPL-CX76 is the only model we reviewed that can support a wireless presentation right out of the box (via the bundled wireless LAN card for the projector and the included USB wireless LAN module for a PC). The Hitachi CP-RX60 and Mitsubishi XD460U can deliver wireless presentations, too, but only if you obtain additional, extra-cost equipment. The Dell 5100MP comes with an RJ-45 input for use in a wired-network environment; the Sharp Notevision XR-10X has an option to add RJ-45.

SEEING IS STILL BELIEVING

WHEN YOU SET OUT to buy a projector, a range of factors come into play: price, weight, portability, connectivity, brightness, and (most important of all) image quality. While any of the models

we tested will do the job, our Best Buy nod goes to the projector, NEC's LT35, that provides the best balance of performance and value. In a close contest for second place, Epson's PowerLite 76c wins out by offering a satisfying combination of features, image quality, and portability, for about half the cost of the NEC. ■

Richard Jantz is a freelance writer who frequently covers projectors for PC World.

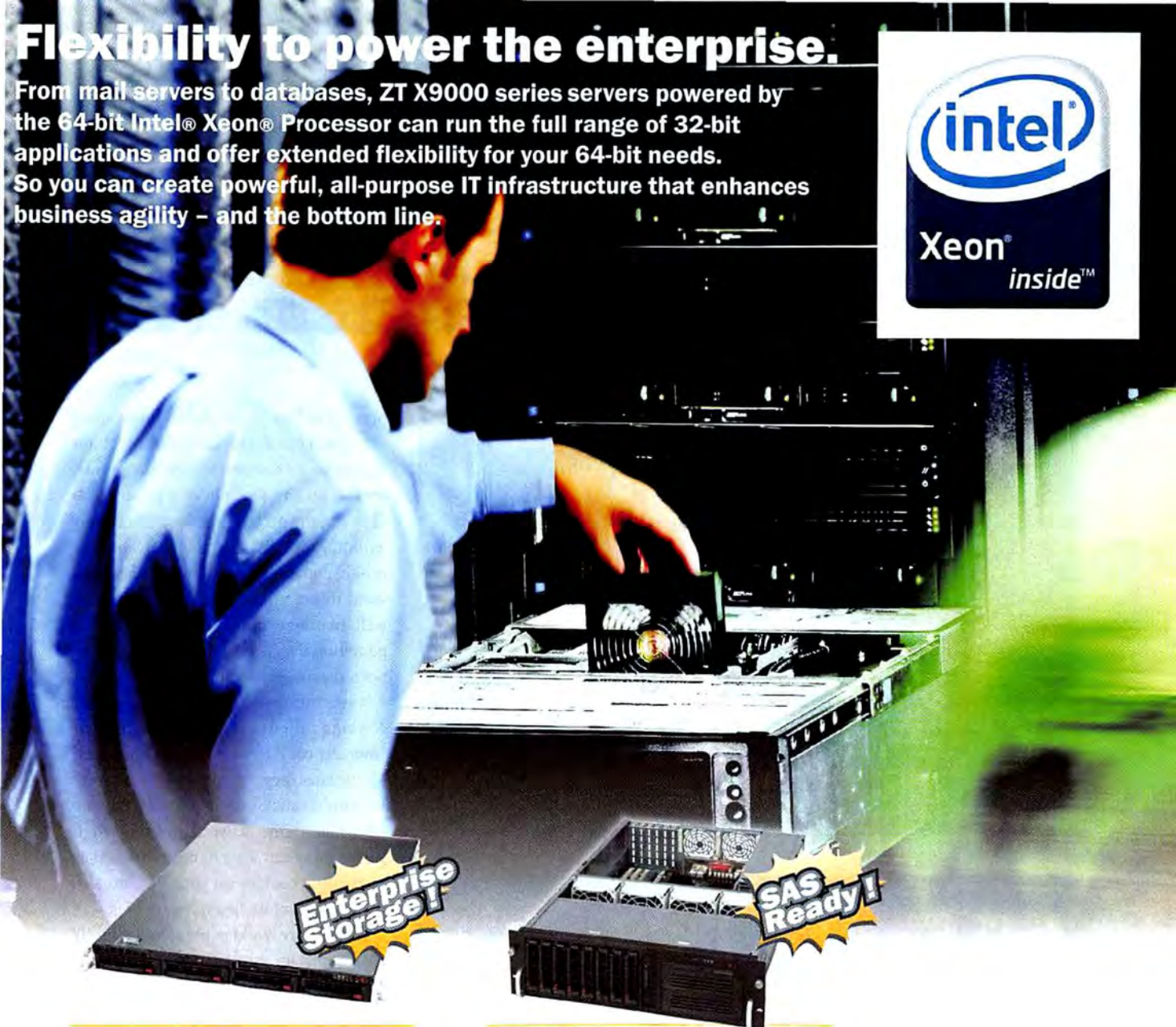
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FULL REVIEWS, photos, and more-detailed specifications of all 16 digital projectors are available online at PCWorld.com. You can find them at find.pcworld.com/51676.

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HERE'S HOW

EDITED BY ERIC DAHL AND DENNIS O'REILLY



INTERNET TIPS

SCOTT SPANBAUER

Take Charge of What Web Sites Know About You

INTERNET EXPLORER, Firefox, Opera, and other browsers keep surprisingly accurate records of your online activities, and not just in their history windows. Clearing out the virtual breadcrumbs in your Internet cache and browser histories not only helps preserve your privacy, it also can improve your PC's performance by letting you regain some disk space. Emptying the cache may even help a balky Web site load correctly. The following tips will help you find out what other

people can discover about your browsing habits in IE 6 (with Windows XP Service Pack 2), Firefox 1.5, and Opera 8.51.

MANAGE YOUR COOKIES

HOW DOES AMAZON.COM know that it's you, Joe Schmoe, when you browse for books? Why does the site for the *New York Times* ask you to log in with a user name and password when you browse from the public library, but log you in automatically when you visit from your home com-

puter? Cookies. Sites embed these small text files containing information about you on your PC when you visit. As a rule, cookies aren't a threat to your privacy. The files usually exchange information only with the sites that placed them. Sensitive cookie content (such as log-in and password information) is often encrypted as well. In other words, Amazon.com won't go telling the *New York Times* that you've been reading trashy novels.

Nevertheless, the mere presence of cookies called, say, "hooters.com" or "monster.com" (cookies are usually named for the sites they connect to) on your work PC could cause problems. And anyone who has access to your system when you're away can see not only which sites are storing cookies on your PC, but also the contents of unencrypted cookies.

Third-party cookies present a slightly greater privacy threat. These files usually come from banner ad services, which may use them to track your browsing at sites served by the ad network and subsequently present ads that target your interests. Antispyware programs often flag and remove third-party cookies, but you can set your Web browser to bar them from your computer altogether.

Internet Explorer: Choose *Tools•Internet Options*. Under the General tab, click *Settings* in the 'Temporary Internet files' area. In the Settings dialog box, choose *View Files* to open a folder window that displays your browser cookies and cached Web sites. To see just the cookies, click the *Name* column, and then scroll down to the files starting with 'Cookie:'. To delete a cookie, simply right-click it and choose *Delete*. When you're done, close the folder window. To remove all your cookies, click *Tools•Internet Options*, select

140 INTERNET TIPS

Track what IE, Firefox, and Opera tell others about you; clear personal data with one click in Firefox and Opera.

144 ANSWER LINE

Keep your notebook computer safe on the road and at home; a free utility for taking your PC's temperature.

148 WINDOWS TIPS

Give several files the same annotation; identify the programs that are squandering Windows' system resources.

150 HARDWARE TIPS

Choose the right storage medium for the type of files you're saving; an adjustable-weight optical mouse.

152 POWER-SAVING TIPS

Reduce your energy bills by using your PC's power-saving features; use a power strip that turns off peripherals automatically when not in use.



144

the *General* tab, and choose the *Delete Cookies* button. To block only third-party cookies, choose the *Privacy* tab and move the slider to the level that suits you. The *Medium High* setting lets me browse the Web normally without endless IE interruptions that

whose cookies you want to allow or block, click *Exceptions*, enter their URLs in the *Address of web site* field, and click either *Block* or *Allow*. When finished, click *Close*.

Firefox's convenient cookie view lets you browse, search, and delete individual

from tracking your movements online.

To delete cookies individually, click *Manage cookies* under the *Advanced* tab in the *Preferences* dialog box, and either use the search field at the top of the window to find a specific cookie or browse the folders by Web site. As in Firefox, you must click each site's folder icon to display its cookies, which you can edit or delete by clicking the appropriate button.

You can block all cookies for a specific site, too (the default is to accept them): Select the site's folder (rather than the cookies under it), click *Edit*, and uncheck *Use defaults for normal cookies*, *Accept cookies for server/domain*, and/or *Accept third party cookies for server/domain* (see **FIGURE 2**). When you're done, click *OK*•*Close*•*OK*.

DOWNLOADS ARE HISTORY

FIREFOX AND OPERA keep track of your file downloads as well as your Web browsing history (which IE also logs). Follow these steps to wipe the slate clean.

Internet Explorer: Press <Ctrl>-H to ▶

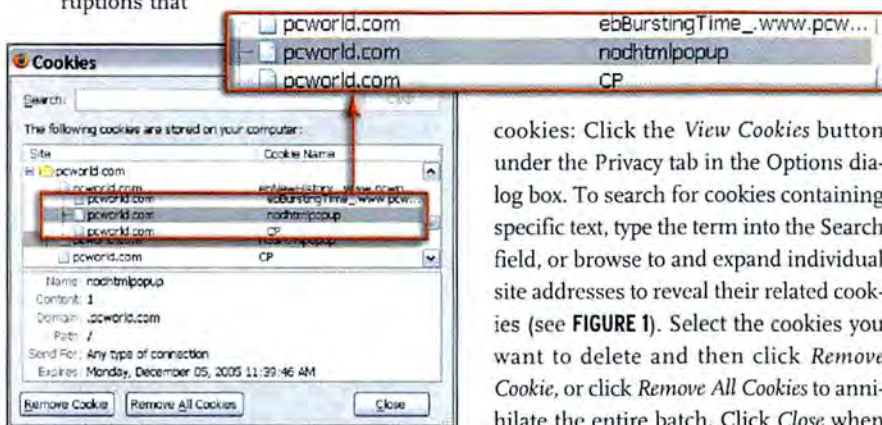


FIGURE 1: CRUSH COOKIES in Firefox to keep your browsing habits from prying eyes.

ask if I want to accept a particular site's cookie. Click *Sites* to add the addresses of the sites whose cookies you want to block (or allow) always. When you finish, click *OK* twice. Note that the cookies set by sites on your "Always allow cookies from" list will also get the boot when you delete all in IE, Firefox, and Opera.

Firefox: The Mozilla Foundation's browser comes with a handy self-destruct button labeled *Clear Private Data* that erases all your personal info at once (see "Cover Your Firefox and Opera Tracks in One Click" on page 142). But the program also gives you finer-grained control over cookie behavior: Choose *Tools*•*Options*, select *Privacy* in the topmost panel, and click *Cookies*. To block third-party cookies used by ad networks, check the box next to *for the originating site only*. To specify sites

cookies: Click the *View Cookies* button under the *Privacy* tab in the *Options* dialog box. To search for cookies containing specific text, type the term into the *Search* field, or browse to and expand individual site addresses to reveal their related cookies (see **FIGURE 1**). Select the cookies you want to delete and then click *Remove Cookie*, or click *Remove All Cookies* to annihilate the entire batch. Click *Close* when your cookie cleanup is complete.

Opera: This browser makes it easy to remove your Web surfing traces. Like Firefox and IE, however, Opera also allows you to control cookies one at a time: Choose *Tools*•*Preferences*, select *Advanced*, and click *Cookies* in the left pane. To block third-

party cookies, choose *Refuse all cookies* in the drop-down menu under 'Third party cookies'. Check *Delete new cookies when exiting Opera* to prevent the browser from saving new cookies that sites create during that session. This transforms all new cookies into session cookies, so it prevents ad networks

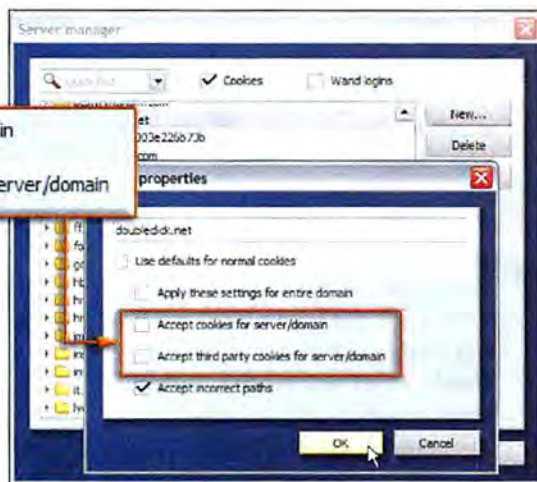
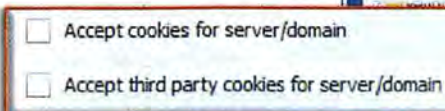


FIGURE 2: SEND COOKIES FROM entire domains into exile using Opera's convoluted but powerful controls.

display the browser's History pane, which lists visited sites chronologically and by domain. Right-click a day, week, or domain and choose *Delete* to remove all of the pages, or choose *Expand* to display all pages listed for the site. Right-click a page and choose *Delete* to clear it from IE's history (see **FIGURE 3**). Erase all History entries by choosing *Tools•Internet Options* and clicking *Clear History* under the General tab.

Firefox: Press **<Ctrl>-H** to view the History list. To

delete individual history entries, choose a chronological or alphabetical hierarchy in the View menu (the default is chronological, from most recent to oldest). Now browse to the domain, date, or page you want to expunge, right-click it, and choose *Delete*. Click the red X in the top-left corner to close the History pane.

To wipe out Firefox's entire record of your browsing activity, choose *Tools•Options•Privacy•History•Clear Browsing History Now* (this dialog box also lets you set the number of days your history is recorded). Click *OK* when you're finished. To clear the browser's history of your file downloads, press **<Ctrl>-J** to open the Downloads window and click *Clean Up*. Firefox clears the download history automatically if you choose *Tools•Options•Privacy•Download History* and select either *Upon successful download* or *When Firefox exits* in the drop-down menu next to 'Remove files from the Download Manager'.

Opera: To view Opera's browsing history, press **<Ctrl>-<Alt>-H**; or if you have the browser's Panels showing (View•Toolbars•Panels), click the History icon on the left side of the Opera window. To delete a history item, right-click it and choose *Delete*.

To erase all entries from the History list, choose *Tools•Preferences•Advanced•History*, and click *Clear* next to 'Visited addresses'. To wipe out the browser's



FIGURE 3: DELETE IE'S record of your recent browsing activity in the History pane.

download history, press **<Ctrl>-<Alt>-T**, right-click a downloaded file, and click either *Remove transfer* or *Remove all finished* (to clear all completed downloads from the list).

PASSWORDS AND FORM FILLERS

ANY BROWSER can store and automatically enter personal data required by Web forms. Here's how you can modify, retrieve, or delete that data.

Internet Explorer: IE's AutoComplete feature fills in the blanks for you,

and it also logs you in to Web sites automatically, remembering what you type as you type it. To activate AutoComplete, choose *Tools•Internet Options•Content•AutoComplete*. Check the tasks you want AutoComplete to handle, or click *Clear Forms* or *Clear Passwords* to erase previ-

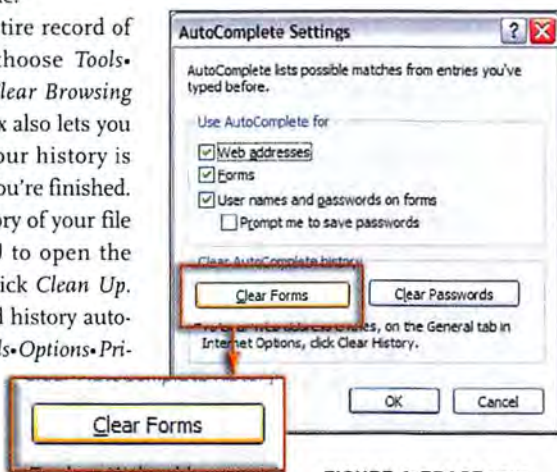


FIGURE 4: ERASE your stored log-in and Web-form data via these options in IE's AutoComplete Settings.

ously saved form and log-in information (see **FIGURE 4**). Click *OK* once at the warnings and then twice more to return to IE.

Firefox: Choose *Tools•Options•Privacy•Saved Forms•Clear Saved Form Data Now* to wipe information from Firefox's form filler. To erase saved passwords, click *Passwords•View Saved Passwords•Remove All* (select *Show Passwords* and click *Yes* at

BROWSER TIP

Cover Your Firefox and Opera Tracks in One Click

BOTH FIREFOX 1.5 and Opera 8.51 offer menu commands and settings that automate the process of removing the personal data they store; version 7 of Internet Explorer will offer a similar feature when it debuts later this year.

Firefox: To delete your personal data in Firefox at once, choose *Tools•Clear Private Data*, select the types of data you want to remove, and click *Clear Private Data Now*. By default, Firefox deletes your browsing history, form data (which may include credit card numbers), download history and cache, and authenticated sessions (which may include passwords), sensibly leaving saved passwords and cookies intact. To configure Firefox to clear your personal information automatically, choose *Tools•Options•Privacy•Settings*, check *Clear private data when closing Firefox*, and click *OK* twice.

Opera: When it comes to privacy, the browser from the balmy shores of Norway doesn't mess around. To wipe out your browsing traces, choose *Tools•Delete private data*, and click *Delete* to clean out everything except your saved passwords. To choose which items to clear, click *Advanced*; check or uncheck the available history, cache, cookie, and other options; and then click *Delete*.

the warning if you need to jot any down). Click *Close* and *OK* when you're done.

Opera: Site passwords are hidden away with the cookies in this browser. To delete stored passwords, choose *Tools•Preferences•Advanced*, click *Cookies* in the left pane, and select *Manage cookies*. Uncheck *Cookies*, and then check *Wand logins* to view only your stored passwords. To delete a password, select the site or log-in item and click *Delete*. Choose *Close* and *OK* to return to Opera.

Send your questions and tips to nettips@spanbauer.com. We pay \$50 for published items. Go to find.pcworld.com/31523 for more Internet Tips. Scott Spanbauer is a contributing editor for PC World.

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CISCO SYSTEMS

ANSWER LINE

BY LINCOLN SPECTOR

Stop Would-Be Notebook Thieves in Their Tracks



I SPEND LOTS OF time on the road with my notebook. How can I protect it from being stolen?

Alex Guzman, Bell Gardens, California

THE HIGH PRICE and small size of notebooks make them attractive targets for thieves. And that's not to mention the value of the information they contain.

Most notebook thefts are crimes of opportunity: Someone spies something valuable that's been left unguarded, and snatches it in a split second. Keep your machine under wraps and close at hand when it's not in use. Never leave the system visible in your car; put it in the trunk or elsewhere out of sight.

In airports and other transit terminals, keep it in your lap, between your legs, or over your shoulder. If you need to get a cup of coffee, take your notebook with you. (Now aren't you glad you paid a little extra for that ultralight?) To avoid advertising its presence to light-fingered

bystanders, tote it in a padded bag that doesn't look like a notebook case.

Remember that airport security is designed to protect you from terrorists, not from thieves. If your bag passes through the X-ray machine while someone ahead of you holds up the metal-detector line with a silver belt buckle, your property will sit unprotected for seconds or even minutes. If possible, don't place your possessions on the conveyor belt until the person in front of you has passed through the detector. Keep an eye on your things as they move through the X-ray machine.

After you arrive at your destination, don't leave the notebook in your hotel room when you step out. If you can't take it with you, hand it to the front desk clerk to check securely.

SAFE AT HOME

YOU DON'T HAVE to be on the road to lose your notebook. At your home or office, lock it with a security cable. Securitykit.com's \$20 Notebook Security Kit uses the security slot on your portable and comes with a mounting barrel for anchoring it to a wall, desktop, or other flat surface (find.pcworld.com/50912; see **FIGURE 1**). PC Guardian's \$60 Notebook Guardian uses a one-piece lock and cable with a tamper-resistant stainless-steel lock (find.pcworld.com/50916).

If your notebook is stolen despite your precautions, the loss of the machine may

be the least of your problems. Even a new, high-end notebook is worth far less than the data that's likely to be on it. You don't want to lose that data, and you don't want a dishonest person to find it.

The data on a lost or stolen machine is easy to replace if you have backed it up. Online backup services such as IBackup (ibackup.com) are great for on-the-road data security. The backup is safe on the company's secured server, and you don't have to lug backup media around with you. Browse to find.pcworld.com/50918 to read James A. Martin's description of IBackup and similar services.

Online backup services charge by the



FIGURE 1: LOCK DOWN your laptop with the \$20 Notebook Security Kit lock and cable from Securitykit.com.

month, making them expensive over time, and they aren't much use if you're working somewhere that doesn't offer a broadband connection. A pocket-size USB hard drive may be a better approach to traveling backups—if you really carry it in your pocket. In a pinch, you can use a hard drive-based MP3 player for file backups. Apple's iPod Nano stores 4GB, and other flash players reach 8GB, so they're sensible backup options, too.

HIDE SENSITIVE INFO

KEEP YOUR PC's secrets by encrypting your private files. Scroll to "Protect Files and Folders" in my December column (find.pcworld.com/50920) to read encryption software recommendations. ►

A BETTER TEMP TAKER

LAST OCTOBER I recommended the free Motherboard Monitor program for tracking your PC's temperature (find.pcworld.com/50929). Clyde White of Newport News, Virginia, endorses Alfredo Milani Comparetti's free SpeedFan utility, which monitors your CPU and hard-drive temperatures, and also controls fan speed. It even changes your clock speed, in case you enjoy living dangerously. SpeedFan is newer than Motherboard Monitor, so it likely supports more motherboards. Go to find.pcworld.com/50930 to download your copy.



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Tracking software increases your odds of recovering a stolen notebook. Such programs hide on your PC; even reformatting won't remove them. At regular intervals, the software reports your IP address to the service company, using whatever Internet connection it finds. When the crooks log on, the service records their IP address. Once you know the address, you can identify the ISP, and police can subpoena the ISP to ascertain the physical location of the Internet connection, use that information to obtain a warrant, and retrieve the stolen goods.

How effective are these services? One of them, Computrace (www.absolute.com), claims a success rate of 90 percent, although its statistics have not been independently confirmed. Lojack for Laptops, which is Computrace's cheapest service, costs \$50 per year per computer. LaptopLocate charges only \$20 a year, and WinLocate costs \$18 annually. The latter two services just provide you with

the IP address that your notebook reported from; Computrace works with the police to help you recover the machine.

MIGRATE SCHEDULED TASKS

 I'VE SET UP SCHEDULED tasks on my system, some based on your July 2005 column ["Let Windows Handle PC Maintenance for You," find.pcworld.com/50922]. I'd like to share these tasks with other people. How do I copy them to another PC?

Scott Klein, Green Bay, Wisconsin
A SCHEDULED TASK is simply a file with the extension .job that's stored in the C:\Windows\Tasks folder. You could copy the files from your Tasks folder to the same folder on someone else's system.

Since people seldom share Scheduled Tasks folders over a network (and they shouldn't), "sneakernet" the files instead, by copying them to a floppy, CD, or USB drive and then loading them manually onto the other PC. Alternatively, you

could copy the .job files to a shared folder and grab them on the other computer.

Now right-click the task on the new machine and select *Run*. If it doesn't work, double-click the task to open its properties. Make sure the program that the task runs is installed on the second PC. Also verify that the path to that program is listed correctly next to Run under the Task tab. To find the program's path, select its .exe or .cmd file in Windows Explorer and look in the Address bar. XP tasks require a user's log-in password. For instructions on adding a password to a task, visit: find.pcworld.com/50924 and scroll to the last paragraph of the tip from my July 2003 column. ■

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 and other writings at www.thelinkinspector.com.

NOTICE TO PERSONS WHO PURCHASED SYMANTEC'S NORTON ANTI VIRUS 2004™ SOFTWARE PACKAGE OR SYMANTEC'S NORTON INTERNET SECURITY 2004™ SOFTWARE PACKAGE AND EXPERIENCED ONE OR MORE OF THE FOLLOWING: (A) INABILITY TO ACCESS THE INTERNET, (B) MATERIAL SLOWDOWN IN PERFORMANCE OF INTERNET BROWSING SPEED, OR (C) DIFFICULTY UNINSTALLING THE PRODUCTS

This notice is to inform you about a proposed settlement of a class action lawsuit entitled *Health and Sport, LLC v. Symantec Corporation*, Santa Clara Superior Court, Case No. 1-04-CV-15205 (the "Action"), the Court's certification of a settlement class in that Action, and of a hearing to consider the settlement. The Action concerns Plaintiff's allegation that Symantec's Norton AntiVirus 2004™ software package ("NAV 2004") and Symantec's Norton Internet Security 2004™ software package ("NIS 2004") may be defective for a variety of reasons, including that their use sometimes results in the following conditions: (a) inability to access the internet, (b) a material slowdown in the performance of internet browsing speed, and/or (c) difficulty in uninstalling the product ("Conditions"). Symantec denies the claims made in this Action, and denies that anyone has been harmed or deserves compensation in relation to the claims. The Court has not made a decision on the merits.

If you (a) purchased, not for resale, NAV 2004 and/or NIS 2004 between January 1, 2003 and January 3, 2006, and in connection with your use of NAV 2004 or NIS 2004 experienced one or more of the following: (i) inability to access the internet, (ii) a material slowdown in the performance browsing speed, or (iii) difficulty in uninstalling the products after installing the same, and (b) (i) paid Symantec for customer support with regard to one or more of the foregoing conditions or (ii) contacted Symantec Customer Support with respect to one or more of those conditions and were unable to receive a satisfactory solution, you are a member of the settlement class the Court has certified. Under the terms of the settlement, Settlement Class Members who paid for Symantec Customer Support or contacted Symantec about one or more of the Conditions, may be eligible to make claims for relief, including a fifteen dollar (\$15.00) rebate certificate, redeemable for one (1) year towards products available at Symantec's on-line store and reimbursement of charges, up to a maximum of ten dollars (\$10.00), paid to third parties to attempt to remedy the Conditions. Which claim(s) you can make depends, among other things, on your individual situation and your ability to document your claim. Please see the complete notice and Claim Form at www.softwaresettlement.com for details regarding the settlement, the requirements for different kinds of claims, and how to submit a claim. If you wish to submit a claim, you must do so by June 12, 2006 (subject to change by the Court).

If the settlement is approved, the settlement class representative will apply for an incentive award of \$8,000 and Plaintiff's counsel will apply for an award of fees and expenses in the sum of \$262,500. Neither award will affect the relief available to Settlement Class Members. All claims of the Settlement Class Members which were or could have been asserted in the Action that relate to the alleged Conditions for which relief is available under the settlement, will be released.

If you wish to remain in the settlement class you need not do anything. However, if you wish to receive any of the remedies afforded class members, you must submit a claim. If you do not wish to remain in the class, you must exclude yourself by mailing a written exclusion request, stating your name and address, to: James C. Shah, Shepherd, Finkelman, Miller & Shah, LLC, 35 E. State Street, Media, PA 19063, and Robert B. Hawk, Heller Ehrman LLP, 275 Middlefield Road, Menlo Park, CA 94025. You may also exclude yourself by completing and mailing the Request for Exclusion form attached as Exhibit "A" to the Long Form Notice which may be found at the website referenced below. If you exclude yourself, you may pursue an individual claim, but you will not receive any of the benefits of the class settlement, and cannot object, intervene or participate in the settlement. If you wish to object to the settlement, you must file your objection with the Court and serve it on the parties' counsel. If you wish to intervene, you must file a request to intervene and serve it on the parties' counsel. To properly exclude yourself, object or request to intervene, you must follow all of the detailed instructions set forth in the Long Form Notice and the Settlement Agreement available at www.softwaresettlement.com.

All objections, requests to intervene and requests for exclusion must be received by June 12, 2006. The Court has scheduled a hearing to consider the settlement to be held on July 18, 2006 at 9:00 a.m., before Judge Jack Komar, Department 17 of the Superior Court of the State of California, Santa Clara County.

DO NOT CONTACT THE COURT OR SYMANTEC CONCERNING THIS NOTICE OR THE LAWSUIT. If you would like more information about this notice or this case, you may view this notice, the complete Long Form Notice, the Settlement Agreement, The Court's Order Granting Preliminary Approval and the Claim Form at www.softwaresettlement.com. If you do not have internet access and you desire printed copies, contact James C. Shah by writing to Shepherd, Finkelman, Miller & Shah, LLC, 35 E. State Street, Media, PA 19063 or by calling the following toll-free number: 1-877-891-9880.

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WINDOWS TIPS

SCOTT DUNN

Let Windows Annotate Your Files a Bunch at a Time

Windows LAST DECEMBER'S column (find.pcworld.com/50648) on annotating files struck a chord with readers who want to make their files easier to locate. Unfortunately, though, the more files you have, the longer it takes to annotate them one by one. To the rescue is reader Richard Arey of Marysville, Washington, who points to the Properties dialog box for a solution.

Start by opening Windows Explorer and selecting the files to which you want to assign common keywords or descriptions. Right-click the selection and choose *Properties* (or press **<Alt>+<Enter>**). Click the *Summary* tab. If all fields appear to be disabled (grayed out and not editable), you're viewing the simple summary; click the *Advanced >>* button to expand your file-annotation options. (If your Summary tab already has a '<< Simple' button, it means

that you already have the options in view.) You'll see icons labeled Title or Comments for most file types; JPEG files will have a Keywords icon as well. For some file types, you have to scroll a bit to see all the available fields. To add annotations to any of these categories, click in the empty area to the right of the category name. A text box will appear with a blinking cursor, ready for you to type (see **FIGURE 1**). If no such box appears, click farther to the right. Now type your keywords or descriptions, and then click **OK**.

MP3 files are a special case: Their ID3 tags show up in the Summary tab, and many media players and other applications will help you retag your MP3s and organize them based on these tags. Yahoo Music Engine, for example, is great at automatically retagging files.

If the area to the right of a category reads '(multiple values)', this signals that at least one file in your selection already has an annotation. You can still edit that

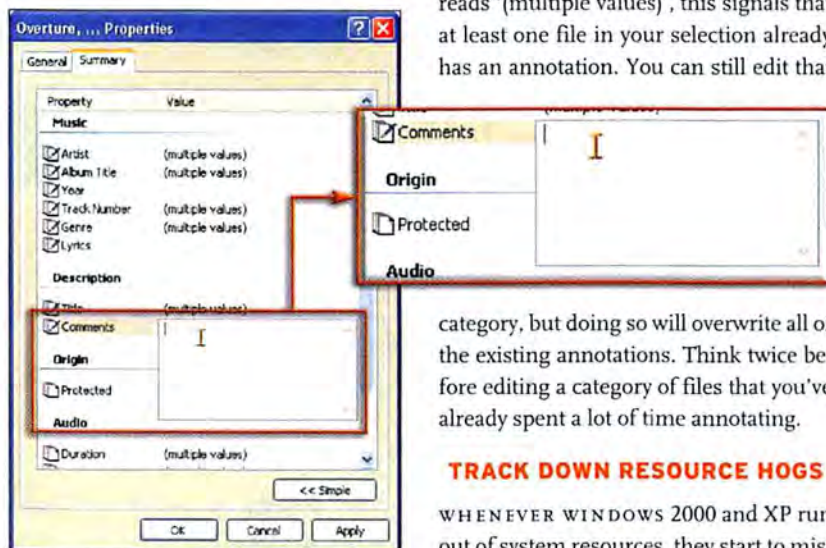


FIGURE 1: ANNOTATE SEVERAL files at once by adding terms to the Comments field.

menus to display. To find the resource hogs, right-click the taskbar and choose *Task Manager*. Click the *Processes* tab to see the programs and services that Windows is running. To get more information on each process, choose *View>Select Columns* to customize the Processes display (see **FIGURE 2**). Check the items you think will help you track down the process gobblers. For example, you'll certainly want to keep *Memory Usage* checked (it should be selected by default). Another useful item is *Handle Count*. Handles are values Windows assigns to identify various resources that applications use; the Handle Count

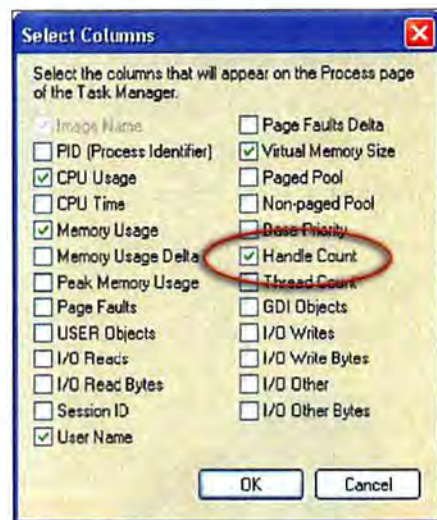


FIGURE 2: CUSTOMIZE Task Manager to help you spot your resource-hogging apps.

gives you a sense of how many resources each process is using. Once you've made your category selections, click **OK**. Monitor the processes that are using the most memory, handles, and such hardware resources as CPU usage. However, you'll rarely if ever need to end an *SVCHOST*, *Services*, or other Windows process, most of which the OS needs to run properly. For more information, go to find.pcworld.com/51968 to read about and download the free Process Explorer utility. ■

Send your Windows-related questions and tips to scott_dunn@pcworld.com. Windows Tips pays \$50 for each published item. Visit find.pcworld.com/31607 to read additional Windows Tips columns. Scott Dunn is a contributing editor for PC World.

TRACK DOWN RESOURCE HOGS

WHENEVER WINDOWS 2000 and XP run out of system resources, they start to misbehave. Symptoms include the inability to open new windows, and the failure of

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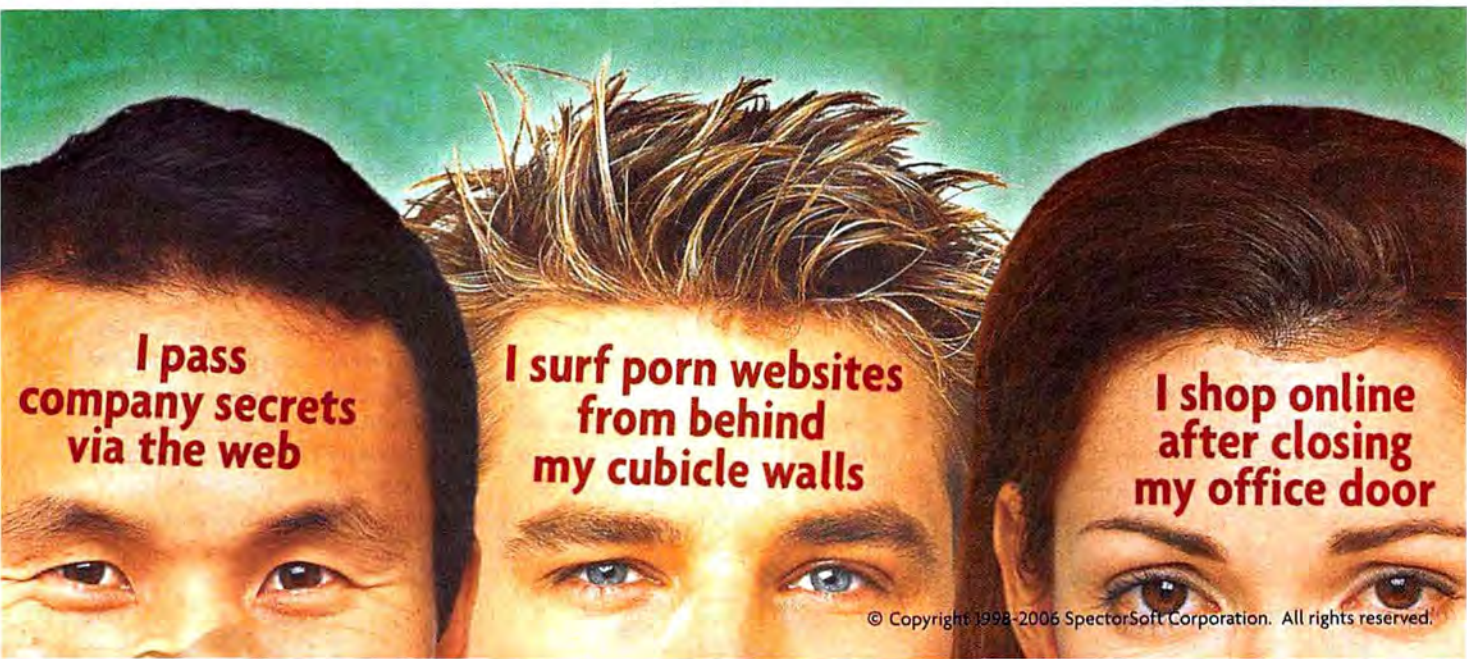
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HARDWARE TIPS

KIRK STEERS

Get More, Spend Less on Your PC Storage Upgrades

IF YOU KEEP MUSIC, photos, videos, or other large files on your PC, chances are you're ready to expand your storage. Fortunately, adding extra space for your files and apps is both easier and less expensive than ever. Here's what to consider before you add to your system's storage.

Choose the right medium: As drive and media prices fall, DVDs become more viable for PC storage. If stored properly, DVD discs and other optical media are more reliable than their magnetic counterparts, including USB thumb drives and external hard drives. Placing your large data archives on DVDs can also be cheaper than keeping them on an internal or external hard drive. A 4.7GB, single-layer DVD-R disc costs less than 10 cents per gigabyte, much lower than the price of an internal hard drive, which can be 35 cents or more per gigabyte. However, 8.5GB, dual-layer DVDs—which cost about 25 cents to 30 cents per gigabyte—aren't as

good a deal. Browse to find.pcworld.com/50842 for a list of DVD media prices, and to find.pcworld.com/50844 for a comparison of hard-drive prices.

If your PC doesn't have a recordable/rewritable DVD drive already, though, you must add the cost of the drive itself. Paying \$50 to \$100 for a DVD±RW drive postpones the savings advantage over a hard drive until you store from 250GB to 500GB of data. A greater disadvantage of DVDs over hard drives for many people is their file-access times; DVDs are best for archival storage of large amounts of data that you'll need to access only now and then.

Think ahead: The old Parallel ATA (or IDE) interface's days are numbered: While new motherboards will continue to include at least one PATA connector for optical drives in the immediate future, support for PATA/IDE will eventually wither away. If your current PC doesn't support the Serial ATA interface, you can buy an adapter that lets you run a SATA drive over a PATA connection, such as Addonics' \$25 SATA to IDE Converter (find.pcworld.com/50864).

Using a converter enables you to hold a SATA drive's data transfer rates to the PATA maximum of 133 mbps. To take full advantage of your SATA drive's capabilities, install a SATA adapter card. The \$70 SATA300 TX4 adapter from Promise Technology (find.pcworld.com/50866) supports up to four SATA devices.

Adding a SATA drive to a non-SATA

motherboard requires a special SATA power adapter to connect the drive to the PC's power supply. You'll find one at any computer store for less than \$5.

If you value your time (who doesn't?), you can avoid the hassle of opening your PC's case by spending a little extra for an external hard drive. These devices cost roughly twice as much per gigabyte as their internal counterparts, but they're incredibly easy to install, and sharing files with other PCs—including those you'll be using in the future—is a snap.

AUDIO IDENTITY CRISIS

? THE S/PDIF DIGITAL audio port on the back of my new HP Media Center PC isn't the same as the optical S/PDIF port on my new amplifier. Is there more than one type of S/PDIF port, and is it possible to connect the two?

Lisa Dyer, Las Vegas

THE SONY/PHILIPS Digital Interface specification describes only the transmission of digital audio signals, not the connector and



FIGURE 1: SIIG'S COAXIAL-TO-TOSLINK Converter (left) connects S/PDIF digital audio on PCs and audio amplifiers.

cable that do the actual linking. Many PCs have rectangular Toslink ports that work with a fiber-optic cable. Other systems employ RCA jacks and coaxial cables. Use an adapter such as SIIG's \$25 Coaxial-to-Toslink Converter (find.pcworld.com/50898; see FIGURE 1) to connect the two. ■

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 and the author of PC Upgrading and Troubleshooting QuickSteps from McGraw-Hill/Osborne Media.

A WEIGHTIER MOUSE

YOUR MOUSE IS a lot like your mattress; you use it so often that you should buy the most comfortable one you can find. If you think your current mouse is too light or too heavy, one new model will let you decide how much weight to move around. Logitech's G5 Laser Mouse (find.pcworld.com/50902) is an optical device designed for gaming. In addition to its supersmooth action, the G5 mouse features a removable panel with adjustable weights. At about \$60 online, the mouse is expensive, but it might be preferable to achy wrists. Browse to find.pcworld.com/50904 for the latest prices.

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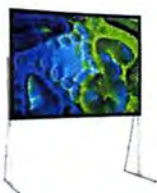


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WATCH YOUR WATTS

A TYPICAL 150-WATT PC consumes about 876 kilowatt hours per year. At an electric rate of 10 cents per kWh, that's \$87.60 a year, before taxes and fees!

Your system draws almost as much power when it's in standby mode with a screen saver active as it does when you're using it. By turning off your PC and peripherals when they're idle, and by employing power management while they're on, you can cut energy consumption dramatically. If you use your computer 6 hours a day, you could save 75 percent or more. (And even if you keep your PC on as a server, you'll save energy by turning off the monitor when you don't need it.)

Laser printers and fax machines in particular are energy spendthrifts. A typical multifunction laser printer and fax machine uses 300 watts when printing, 85 watts when on standby, and 10 watts when idle. To reduce your electric bill, plug your peripherals into a power strip and turn off the strip when you shut down your PC. (It's safest to keep the PC and monitor plugged into an uninterruptible power supply; visit find.pcworld.com/50736 for more on UPS devices.) By turning off your broadband modems and routers when not in use, you also make your network

more secure. Some power strips have timers that automate this task—but don't use such a strip for your computer, external storage device, or anything else that could lose data if turned off inadvertently.

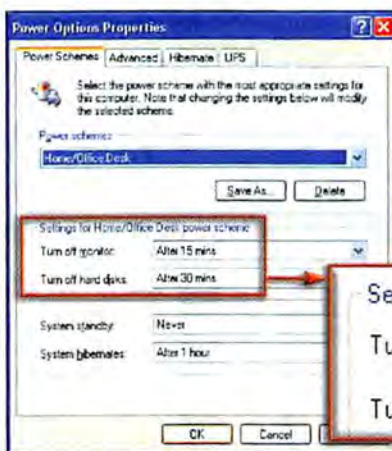


FIGURE 1: SET WINDOWS' Power Options to turn off your monitor and drives after a fixed period of idleness, to reduce your energy bill.

Finally, unplug all the wall chargers for PDAs, music players, digital cameras, and other gadgets when you're not actually charging, or use the power-strip trick mentioned above to shut them off. They can draw up to 5 watts per hour apiece, even when nothing's plugged into them.

BECOME AN ENERGY STAR

TO GET TO YOUR computer's power-management settings in Windows XP or 2000, right-click the Desktop and choose *Properties*•*Screen Saver*. Click the *Power* button to the right of the Energy Star icon, and select the *Power Schemes* tab of the Power Options Properties dialog box (see **FIGURE 1**). For desktop PCs, choose the

Home/Office Desk power scheme (it's likely on by default). Under 'Turn off monitor' and 'Turn off hard disks', pick times you feel comfortable with: 'After 15 mins' for the monitor and 'After 30 mins' for the hard drive strike a nice balance between saving power and being a nuisance.

The Standby and Hibernate options under the Power Schemes tab are useful for cutting your system's energy use, too. Browse to find.pcworld.com/50748 to read Scott Dunn's *Windows Tips* column from last July on the pros and cons of the standby and hibernate modes. And for notebook power-saving tips, visit find.pcworld.com/50750 to read "Optimize Your Notebook" in Woody Leonhard's "Gunk Busters!" feature from January.

Now that you've cut the fat from your energy diet, it's time to reduce your base metabolism by switching to lower-wattage Energy Star-rated equipment. To qualify for the Energy Star label, a PC must use 70 percent less electricity than a model without power management features, and must draw 15 watts or fewer in its inactive

Settings for Home/Office Desk power scheme
Turn off monitor: After 15 mins
Turn off hard disks: After 30 mins

modes. An Energy Star monitor uses up to 60 percent less electricity than a standard model, and draws a maximum of 2 or 4 watts in its off and sleep modes.

An LCD monitor uses about one-third the power of a CRT display with the same screen area, according to monitor vendor ViewSonic. Visit find.pcworld.com/50734 for more on the benefits of LCDs over CRTs. You'll also save energy by switching from a desktop PC to a laptop, and from a laser printer to an inkjet. A typical laptop uses about one-quarter the power of a similarly equipped desktop.

For tips on maximizing the battery life of your notebook, cell phone, PDA, music player, digital camera, or other device, see "Battery Boosters" on page 109. ■

Becky Waring is a freelance writer based in Berkeley, California.

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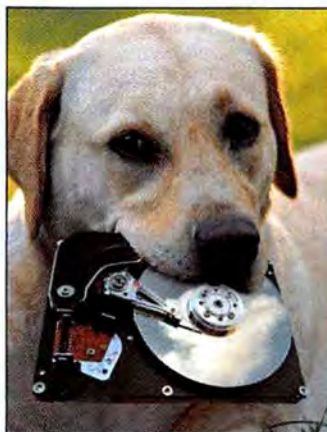
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Is It Software or Is It Spam? It's Both!

PARADOX: As software increasingly becomes available for free, developers keep trying to foist more of it on us—along with lots of extras (call it, oh, say, spam) we don't need. In the days when we paid real dollars for software, all we got in the box was what we paid for. Now that the stuff is

increasingly backed by advertising and by co-marketing deals (but not by technical support), we hapless users have to spend our time fending off vendors' constant offers to become our new best friends.

Take what I've come to think of as checks without balances. Getting free software downloads from major developers who should have better business ethics often involves navigating Web pages with prefilled check boxes designed to get you on corporate junk-mail lists unless you notice and say nay. Worse, the boxes are sometimes obscured unless you scroll around carefully.

Rule: If a box is checked before you get there, it's for something you don't want.

And now check marks apply to the latest annoyance, the unwanted bundle. You're urged to download a new or upgraded program, but you also get stuck with some piece of fluff that's trying to boost its market share by tagging along for the ride. True, you can generally uninstall the junk when you're done, but why should you have to waste your precious time on the download, the installation, and the undo—not to mention the diagnosis and repair if something goes wrong? It's software as spam.

Bundling is particularly egregious when it occurs in conjunction with products like Adobe Reader, Apple QuickTime, and

Macromedia Flash Player, all of which amount to essential system-level software in the Web era. Flash and Reader have been coupled with the Yahoo Toolbar, which I don't happen to need; QuickTime has been paired with iTunes, which I will not allow on my machine after one version crashed the computer severely.

Usually you can obtain the software you want without all the excess baggage, but you have to be careful. On the QuickTime download page, you must ignore the giant "Free Download Now" button and instead

click the subtle hidden-in-plain-sight "QuickTime Standalone Installer" link. With the Adobe and Macromedia products, you go to the respective download pages and uncheck unwanted items. With some upgrades, even experienced hands may believe that you have to take the bundled stuff too. And depending on the product, sometimes you really do.

Google Pack, Google's collection of its own software offerings (such as Google Earth and Picasa) and assorted others (such as Ad-Aware and Norton Antivirus) is far from perfect—there are plenty of reasons why at this writing it's still called a beta—but at least it lets you pick precisely which programs you want to download. Even after you click on the enormous "Download Google Pack" button, you

gain access to a link that's prominently labeled "Add or remove software" and a page that allows you to uncheck every item all at once so that you can go back and check the ones (or even one) you want. That's a refreshing approach in an age when everybody else seems to want to ram their entire multi-meal deals down users' throats.

What's next? Bet that it won't be based on Google's good-citizen approach. Expect check boxes that you can't uncheck. Or installations that happen without your knowledge or approval. Oh, wait a minute—we have those already. They're called spyware. ■

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Contributing Editor Stephen Manes is cohost of PC World's Digital Duo (www.pcworld.com/digitalduo) on public TV. Visit find.pcworld.com/31595 for more Full Disclosure columns.



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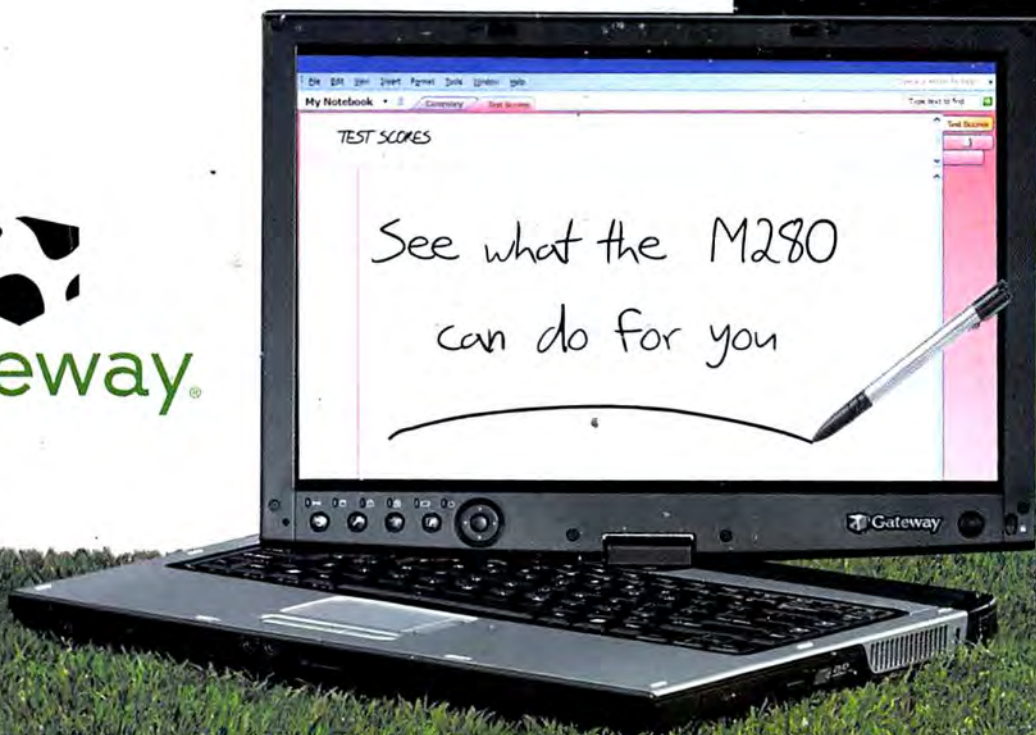
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