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### 92 Top 100 Products of the Year

In assembling our 2007 list of the best in tech, we consulted some experts: our readers. Find out which products, services, and Web sites drew raves from our editors and from the PCW community.

VIDEO CAMERAS

### 123 Convenient Camcorders

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Cover photo-illustration by Marc Simon.

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COMMUNITY

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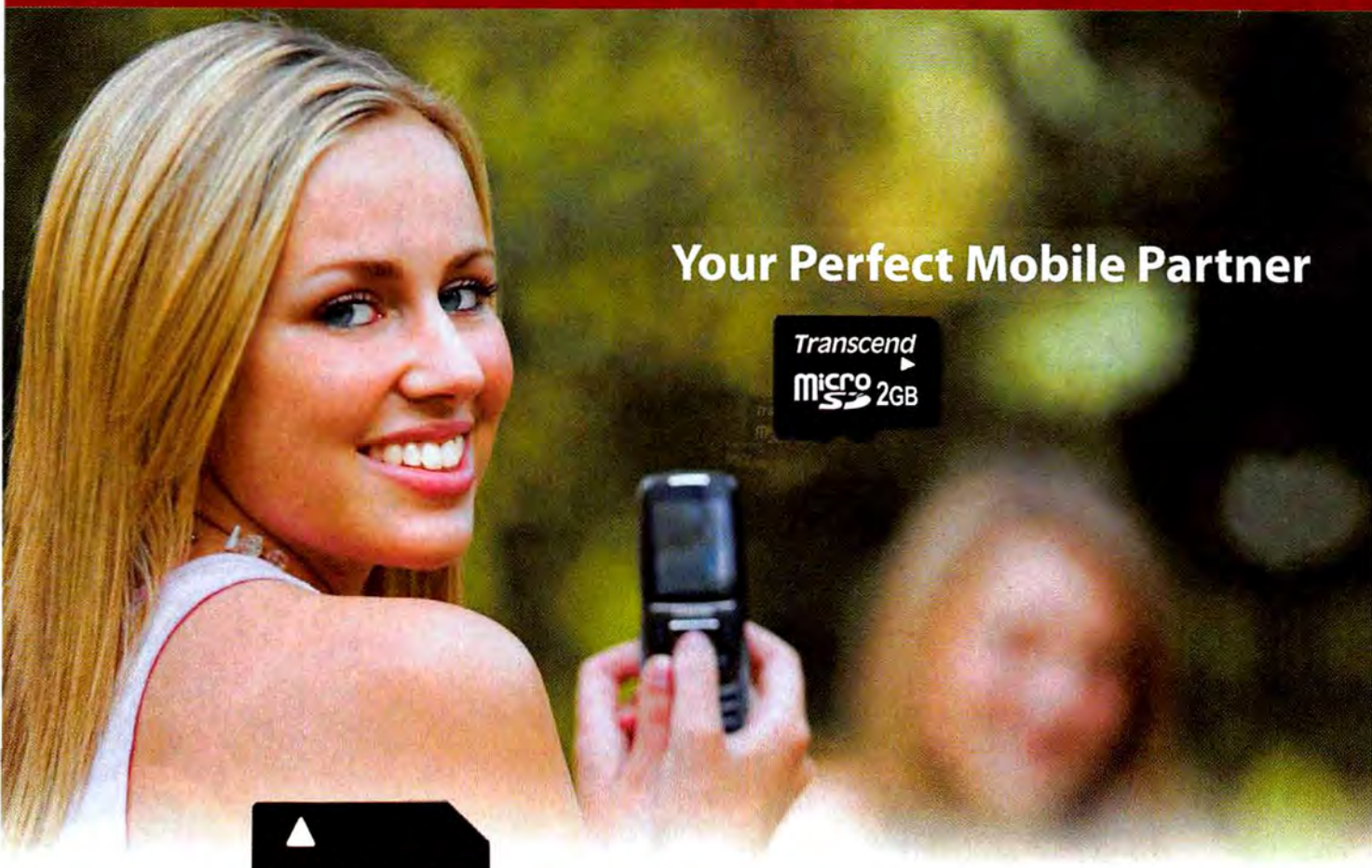


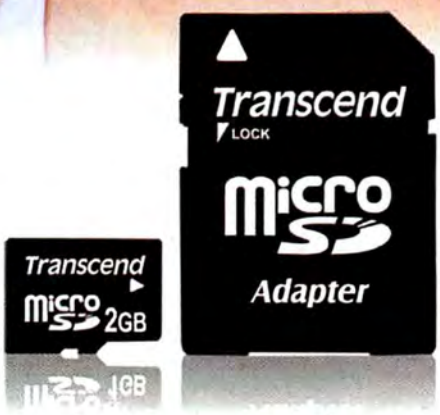


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# TECHLOG

HARRY McCRACKEN

# How to Avoid Being a PC Disaster

## Oh, the mistakes I've made when it comes to working with tech products.

TECHNOLOGY MELTDOWNS? OVER the years, I've lived through plenty of world-class ones. I'd love to blame 'em all on the products in question. But as we were brainstorming this issue's cover story, "How to Survive the Worst PC Disasters" (page 78), I was grappling with a truly inconvenient truth: Many of the worst fates that have befallen me and that have involved computers or other gadgets were utterly avoidable. And the majority of these disasters were mostly or entirely my own damn fault.

I'm not the only one who's been known to create PC disasters from scratch—or to take minor incidents and turn them into full-tilt fiascos. "The general advice I give people is, don't panic and don't jump to the nuclear option as your first move," says Christopher Null, author of "Disasters" and a frequent PCW contributor. "People tell me, 'I had this problem, I reformatted my hard drive, now what do I do?' By that time, it's too late. Stop and think about the problem before you take any action."

Good advice—and a mantra I will do my best to follow going forward. Herewith, a few other sensible steps that can help make your life as a tech user at least slightly less disastrous than mine has often been....

**Don't act like a know-it-all.** I tend to bristle at the notion that it might be logical to read instructions before performing a PC task. That's partly a reaction to all the lousy documentation I've encountered over the years, but there's probably a Freudian component, as well: It feels like stopping to ask for driving directions. (Yep, I have a problem with that, too.) Note to self: Checking out the manual can't hurt, and it might even help.

**Treat delicate electronic equipment like...delicate electronic equipment.** Sure, we all have tales of gadgets that turn out to be miraculously sturdy, like thumb drives that survive trips through the washing machine. But that doesn't mean you shouldn't err on the side of handling stuff gingerly. (I once blithely leaned over a running bath with a Sony Clié PDA in my shirt pocket; you know what happened next.)

**Remember: Upgrades are a form of surgery.** Once you crack open a PC's case, your machine is a patient in your care. Goal one should be to do no harm, which means proceeding slowly and carefully. Not that you'd know it from things I've done, like trying to force RAM cards into their slots backwards. Did I mention the time I set fire to a motherboard while attempting to install a sound card?

**Be prepared.** When I find myself needing to swap out a drive, reinstall software, or rescue data, I usually waste time rustling through all the detritus in my office to find the required tools, be they original software disks or something like a TORX screwdriver. It's my own fault for not keeping vital items neatly stored away for use in case of emergency. (Okay, I do blame software companies for the fact that license codes are so often printed on CD-ROM cases or registration cards that don't mention the name of the product in question—separate the disc from its packaging, and you may have trouble reinstalling an application you paid for.)

**Always be pessimistic.** When tech disasters strike, I often turn sunny optimist and assume that a backup I *think* I made or Windows' notoriously unreliable System Restore feature will save my bacon. Sometimes they do. But it's smarter to gird yourself for worst-case scenarios. And even before anything goes wrong, it's worth giving some thought to how you'd recover from common glitches.

Which is why how-to articles like "How to Survive the Worst PC Disasters" are so central to our mission. Got any stories of tech calamities—self-inflicted or otherwise—and how you bounced back? Drop me a line at harry_mccracken@pcworld.com, or head to our forums at forums.pcworld.com to share your hard-earned wisdom with the PCW community. ■

**TROUBLESHOOTER extraordinaire Christopher Null.**

PHOTOGRAPH: ROBERT CARDIN

*Harry McCracken is editor in chief of PC World. Read his blog at blogs.pcworld.com/techlog.*

# The antivirus *one-two* punch

## Forget multiple point solutions

or mashups, the future's in single-engine software.

As security vendors try to backfill their products with the latest technology, experts say users are best served by a comprehensive, single-engine solution.

"Malware has become so virulent and so nasty, you can't just use one treatment for it. You need a cocktail approach," says Andrew Jaquith, program manager for Yankee Group's Enabling Technologies Enterprise group.

He says vendors must mix a combination of antivirus, antispyware and antirootkit code into a single engine to ensure that Trojans, viruses and other malicious code are dealt with.

To answer this call, vendors are moving past signature-based antivirus to include whitelisting, behavior blocking and personal firewalls in their arsenal of weapons. However, many software makers have gone astray by creating unruly megasuites that can be a nightmare for companies and individuals. With multiple processes running simultaneously, PCs can be slowed to a crawl. Frustrated users often turn off their security tools, leaving them wide open to attacks.

"It makes more sense to consolidate security functions into a single agent," Jaquith says. He contends the best strategy is to go with a vendor that has built all critical features, including antispyware, antirootkit and antivirus, into their programs as a single process.

He says there are tremendous benefits to a single-agent solution, where there is one process that controls everything running on the client. "It's better for CPU consumption because there are fewer programs competing for time. You inherently make the resource load lighter," he says. As a result, users are less likely to switch the program off and are more protected.

In addition, a single agent provides easier, less complex management because everything is condensed. You can even lock down the computer so users can't tamper with configurations. Centralized management also allows for timely updates to software and signature detection.

With intelligence built in, companies can use heuristics to protect networks better than signature-based systems alone can. "You can monitor running applications to determine if they are being naughty," Jaquith says. For instance, single-agent programs make sure that Active X Controls downloaded from Web sites aren't able to pop open a command shell and corrupt a user's machine.

For companies trying to tackle the mission-critical challenge of securing business and personal data from breaches, attacks and other threats, a single-engine solution is the key to success.

## ESET: Single-agent efficiency in a flexible solution

Megasuites can be megapainful to manage and update. ESET's NOD32 streamlines the antimalware process to make sure that end users stay productive and protected at the same time.

With all functionality, including antirootkit, antivirus and antispyware, built in, NOD32 is the most efficient approach to detecting and preventing malware outbreaks. The ThreatSense® engine at the core of the security tool provides a well-balanced approach to managing threats with advanced heuristics and malware signatures.

NOD32, which works with Windows, Linux, Novell and other major platforms, offers companies and individuals maximum protection at maximum speed, with an unparalleled ease of management.

It combats all threats to an organization at the desktop, file server and gateway layers and consumes only 23 megabytes of workstation memory during active scanning.

"There's no need to install a bunch of different programs to do what a single well-written program can do quite effectively," says Randy Abrams, ESET's director of technical education.

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# NEWS & TRENDS

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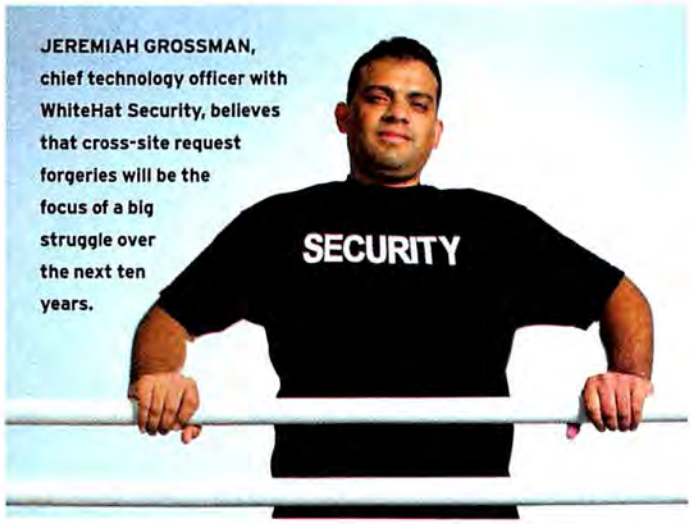
# Is Web 2.0 Safe?

**AS USERS STORE MORE DATA ONLINE, HACKERS ARE FINDING WAYS TO BREAK INTO THE NEW SERVICE SITES. EXPERTS SAY THE PROBLEMS ARE DEEP-SEATED.** BY ROBERT MCMILLAN




**JEREMIAH GROSSMAN, chief technology officer with WhiteHat Security, believes that cross-site request forgeries will be the focus of a big struggle over the next ten years.**

SAMY KAMKAR WAS really just trying to impress girls. Instead, he made Web hacking history.

Kamkar created what is considered the first Web 2.0 worm—a virulent bug that no firewall could block, and which ultimately forced MySpace.com to temporarily shut down. The Samy worm (named after Kamkar) was among the more prominent of a new generation of Web attacks that some security experts fear may slow the fast-evolving collaborative model of Internet development known as Web 2.0.

Kamkar was looking for a way to circumvent MySpace's content-posting restrictions to jazz up his profile when he found a bug that essentially allowed him to control the browser of anyone who visited his MySpace page. "A Chipotle burrito and a few clicks" later, Kamkar says, he created the fastest-spreading Web-based worm of all time.

Within 20 hours, the worm had spread to approximately 1 million MySpace users, forcing them to select Kamkar as their "hero" in their profile page. News Corporation, the site's owner, had to pull down MySpace to fix the problem, and Kamkar later received three years' probation in Los Angeles Superior Court.

As a Web 2.0 worm, Samy signaled the start of a shift in Web security concerns. Past worms such as MyDoom and Sobig clobbered systems and caused days of technical problems for system administrators to contend with. Kamkar's worm didn't do anything to harm MySpace users' computers, but it threatened their data online. And though the affected MySpace users couldn't apply a patch or update their antivirus software to handle the problem, once MySpace fixed the issue on its servers, it was fixed globally.

## UNEXPECTED CONSEQUENCES

TO SECURITY EXPERTS like Robert Hansen, the CEO of Web security consultancy firm Sectheory.com, the Samy

PHOTOGRAPH: ROBERT CARDIN

worm is an example of the kind of unexpected consequences that can arise when Web site operators let users become contributors to their Web properties. Hansen and other like-minded researchers believe that we have only begun to see what can go wrong when the security of Web 2.0 programs gets tested.

Without a radical change in the way that browsers interact with the Web, these experts say, the Web 2.0 security problem will only get worse. And with more and more of our critical data stored by Web 2.0 applications like Google Calendar and Zoho Office Suite, such security holes could do a lot of damage.

Currently, two major types of Web attacks have security researchers concerned: Cross-site scripting attacks, and cross-site request forgeries.

Cross-site scripting attacks come in different varieties, but the result remains the same: The attacker finds a way to make unauthorized code run within a victim's browser.

Web sites that allow visitors to post their own content use filtering software to keep the users from posting unsafe code to their MySpace profiles or eBay auctions, for example. But in the case of the Samy worm, Kamkar found a way to sneak his JavaScript past the MySpace.com filters.

In another type of cross-site scripting attack, the Web site is tricked into running JavaScript code that's included in a Web page's URL. Normally Web designers make it impossible for these attacks to work, but programming errors can open the door to an attack.

As Web sites integrate new partner- and user-generated components, administrators must worry about the security of those interconnected pieces as well as the security of their own sites, says Seth Bromberger, information security manager with Pacific Gas & Electric in San Francisco.

"Now you've got multiple gates to defend," he explains.

Bromberger is concerned that many Web-based services are being built before their security risks are fully understood. The full risks of cross-site request forgery attacks on local networks are only just now being examined, he says.

> 'If you allow a site to access your drive, you're relying on that site to be secure.'

In a cross-site request forgery attack, the criminal tricks a Web site into thinking that it's sending data to and receiving it from a user who has been logged on to the site. These kinds of attacks could be used to give an attacker unfettered access to any Web site that has not yet logged the victim off.

Many sites protect against this type of attack by automatically logging visitors off after a few minutes of inactivity; but if the attacker could trick a victim into visiting a malicious site just minutes after logging on to, say, Bank of America's Web site, the bad guy could theoretically clean out the victim's bank account.

Cross-site request forgery attacks are hard to pull off in any widespread fashion, but in a targeted hit, they are effective against a remarkably large number of Web sites, according to Jeremiah Grossman, chief technology officer with WhiteHat Security. "Cross-site request forgeries are going to be the biggest struggle over the next ten years," he says.

## FUNDAMENTAL FLAWS

PERSONAL COMPUTERS AND Web servers were simply not designed to work together in a secure fashion. And as Web 2.0 pushes these machines to do increasingly innovative things, the strain is beginning to show, according to Sectheory.com's Hansen, who also maintains a Web site with a discussion forum on the latest Web attacks.

"This is really just fundamentally about how browsers work," he says.

Google Desktop, in particular, concerns Hansen, because with this type of service, vulnerabilities in the Web can ultimately affect the desktop. "If you allow a Web site to have access to your drive—to modify, to change things, to integrate, or whatever—you're relying on that Web site to be secure."

Sites like MySpace and eBay face this problem every day, but if Google's vision of rich desktop and Web integration becomes a reality, the security of Web 2.0 will matter for corporate users as well. "Historically, Google has not been very good at understanding these issues," Hansen says.

And though some researchers disagree with Hansen and say that Google has done ▶

IN BRIEF

## Product Pipeline

**DAWN OF THE SUPER-LAPTOP:** You'd better have a wheelie bag if you want to take HP's Pavilion HDX Entertainment Notebook anywhere. With a 20.1-inch wide-screen display, a nine-cell battery, and even its own pop-out remote, the HDX weighs in at 15.5 pounds. This kind of laptop luxury doesn't come cheap, either. The HDX starts at $2999, with a fully equipped model costing as much as $4500. For a slide show of the supersize luggable, go to find.pcworld.com/57361.

**MOTOROLA UPDATES THE RAZR:** The Razr2, due to hit stores in July, is 2mm thinner than the original phone and has enough memory to store up to 1000 songs. The handset, which eventually will appear in GSM, HSDPA, and EVDO versions, also has a feature that Motorola calls Crystal Talk, which is supposed to adjust audio levels so that calls remain clear even in noisy environments. The company announced updates to several of its other phones as well. For details, browse to find.pcworld.com/57362.

PHOTOGRAPH: CHRIS MANNERS (TOP)

an admirable job of keeping its site free of flaws, to a large extent the real Web security problem lies outside the control of sites like Google.

"There is no browser security model," says Alex Stamos, a founding partner of security consultancy Information Security Partners. "The problem is that Google is playing by the rules that Netscape laid down a decade ago."

Stamos calls the Web 2.0 model of sharing small user-generated programs, called widgets, "completely insane" from a security perspective.

### STAYING SAFE

WEB-CODING BUGS ARE still extremely common, but Web site operators have only just recently started to root them out in a concerted way.

"Oddly, there isn't that much research in terms of 'How do you build a Web site in practice, and what are the best practices that would allow a company to protect themselves?'" says Michael Barrett, chief information security officer for eBay's PayPal division. "If there is an emerging set of best practices, I'd argue that not many practitioners know what they are."

And the nature of Web 2.0 security bugs limits what individual users can do to avoid them. You can keep some cross-site request forgery attacks at bay by using a different browser to access Web 2.0 sites that house your sensitive information. If you're browsing with Firefox, for example, you could log on to your banking site in Opera. Any sites you browse in Firefox won't have access to the Opera cookie that keeps you logged in.

Cross-site scripting attacks can be more difficult to avoid. As always, it helps to be careful which links you click, but that doesn't protect you from a threat like the Samy worm, which could affect a site that you do trust. As Web 2.0 security continues to evolve, you may want to rethink how much of your sensitive personal information you're willing to store online.

Ultimately, Barrett thinks that Web security standards like the WS* specifications go some distance toward solving the Web security problem, but he agrees that many of the basic Web standards, such as JavaScript and HTTP, must be rethought. "We need to reevaluate those standards and potentially rewrite some of them to make this stuff safer," he says. "If enough companies stand up and say there's a problem here, then the industry will start to move."

ON THE DESKTOP

# WEB APPS THAT WORK OFFLINE

IF YOU'VE SPENT time using Google Docs & Spreadsheets, you're familiar with the service's great features. You are also familiar with a semiregular 'Disconnected' error that forces you to toss out your recent changes or switch to a read-only version of your document when your browser loses touch with the Google service. That's the Achilles' heel of today's rich and promising desktop-like Web apps: They require a hiccup-free Internet connection. If anything interrupts that link, you can lose sync—and your data. At the very least, your info is out of reach.

But developers are working to get around that drawback, using intelligent caching to build offline functionality into their Web applications and browsers.

A new desktop version of Zimbra's browser-based productivity suite (zimbra.com) can cache your e-mail and calendar data, untethering Zimbra's app from an Internet connection. And a still-in-the-works offering from Scrybe (iscrybe.com) promises a Web app with calendaring and other features that will continue to function even when you activate your browser's "work offline" mode.

FINETUNE'S BROWSER-FREE MUSIC player is one of the first Apollo apps.

Mozilla.org is taking an even broader approach, building offline caching into Firefox 3 (see find.pcworld.com/57345), due out in beta this summer. Any Web site will be able to take advantage of the feature, though online apps will need to be updated to make use of it.

While caching can free Web apps from the need for a Web connection, another emerging technology aims to free them from the browser. With promises reminiscent of Sun's Java, Adobe says that its new Apollo platform, available as an alpha release at find.pcworld.com/57346, allows Web developers to write applications using online programming tools like Flash and Ajax that run on the desktop without a browser. According to the company, Apollo programs will run the same on Linux, Mac OS, and Windows, just like the Web apps they're based on.

The Finetune music player (finetune.com) is one early example of this kind of browser-independent Web app. You can embed its playlist-based music program in your blog or Web site—or you can download an Apollo version and run the player by itself.

*–Erik Larkin*

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# Net Radio Stations: New Fees Will Kill Us

## WEBCASTERS SAY THAT RECORD-LABEL ROYALTY HIKES WILL SAP ALREADY-MEAGER PROFITS.

THE UNIVERSE OF Net radio stations may get a lot smaller if an aggressive increase in the royalty fees Webcasters pay to record labels takes effect July 15.

Under new rates approved in March by the U.S. Copyright Office's Copyright Royalty Board (CRB), Webcasters will pay $0.0008 per song retroactively to the beginning of 2006, an increase of 5 percent over 2005. That rate climbs 37 percent to $0.0011 per song for 2007, and then will jump another 73 percent to $0.0019 per song in 2010.

For the first time, royalty rates will be based solely on the number of times a song is played for a listener, not on the revenue the Webcaster makes from playing it.

In addition, because the board removed a previous $2500 annual cap on channel fees, Webcasters will also pay $500 per year for every channel, or station, that they operate. This could prove particularly harmful to "interactive" stations like Mercora and Pandora, whose users build custom channels based on their musical tastes.

The Net radio stations believe that the CRB's new rates will increase their total royalty payments by between 300 percent and 1200 percent, depending on the station's size. "It makes our business financially unviable," says Pandora founder Tim Westergren. Westergren estimates that his company will be paying about 60 percent of its revenues in royalty fees when the new rates kick in.

Because the increases are retroactive to 2006, many small stations could find themselves immediately in debt—and sinking further every day that they remain on the air.

### STATIONS MOBILIZE

IN RESPONSE, A Webcasters' industry coalition, SaveNetRadio, has begun a grassroots campaign to roll back the new rates. "The CRB's ill informed decision to increase royalty fees to this unjustifiable level will quite simply bankrupt most webcasters and destroy Internet radio," the group says in a statement on its Web site, SaveNetRadio.org.

The group has been encouraging members, listeners, and artists to ask their congressional representatives to intervene. And with some success: Bills blocking the new fees (and creating a lower fee structure) have been introduced in both the Senate and the House of Representatives.

But there's no telling whether any legislation will be passed in time to prevent the new rates from kicking in on July 15.

Some in the Net radio crowd believe that the CRB may not have understood the consequences of its action. Pandora's Westergren, for one, says the Royalty Board has "no understanding" of the Net radio business.

"The ruling was a flat per-song rate, and it's set at a level that makes recouping that and building a business on it impossible," he says.

Another Net radio broadcaster, KCRW in Santa Monica, California, estimates that, with the new rates, it will pay $140,000 in copyright royalties for 2006 and $190,000 for 2007 (based on the station's January 2007 traffic levels).

Since KCRW offers both traditional and Internet radio broadcasts, the royalty increase isn't likely to kill it. But it will hurt. "It's going to cost us money that we didn't plan for," says KCRW station manager Ruth Seymour.

Srivats Sampath, CEO of Mercora, says the new fees will force his station to either set up shop in Canada or radically decrease the number of individualized radio channels its members can build.

"The advantage of Web radio goes away when you put something as onerous as a $500 charge on each channel," Sampath says. Mercora now hosts about 800,000 user channels. "The very nature of the Web that allows you to create this discovery capability that commercial radio cannot offer basically all of a sudden just shuts down," he adds.

### THE LABELS' SIDE

SOUNDEXCHANGE, the group formed by the Recording Industry Association of America to collect Internet royalties, believes a rollback of the new rates would mainly benefit big Webcasters like AOL, Yahoo, and Clear Channel, not the small ones SaveNetRadio claims to be fighting for.

"I think there are a lot of stories being told under one banner here," SoundExchange executive director John Simson says of SaveNetRadio's member stations. "I think there are services that can easily afford the rates, and then there are some services that will struggle with those new rates." Simson says that the new rates represent the first increase since 1998.

Simson said in mid-April that his side was willing to negotiate with the Webcasters. But with two fee-limiting bills now moving through Congress, hopes for a friendly resolution seem dim.

For the latest updates on this fluid situation, go to find.pcworld.com/57318.

*—Mark Sullivan*

ILLUSTRATION: JASON SCHNEIDER

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HOME ENTERTAINMENT

# New Choices Coming for Cable TV Users

## YOU'LL BE ABLE TO BUY MORE-POWERFUL SET-TOP BOXES, BUT THERE WILL BE DRAWBACKS.

DIGEO'S MOXI MULTI-ROOM HD Digital Media Recorder will be one of the new, more feature-rich set-top options for CableCard users.

FOR YEARS YOU'VE probably paid about $6 per month to your cable company for a set-top box that lets you surf between *Cops* on Fox and *Weeds* on Showtime. You may hate the remote and the interactive program guide, but to get the shows you've had to take whatever box the cable company has given you. Thanks to a Federal Communications Commission order, that may soon change.

Starting July 1, cable companies will offer new boxes equipped with CableCards—PC Card–like security devices that give you access to the cable package you've paid for. You'll see new CableCard-ready set-tops in stores, too. But you may not want to trade in your old box just yet.

The new cable-company set-top boxes will look and act much like the ones you

CABLECARDS AUTHENTICATE your box so you get your shows.

lease now; you will have an interactive channel guide and will be able to select pay-per-view and video-on-demand programming. In contrast, retail devices available this year will communicate in one direction only: Your high-def HBO shows will come in fine, but you won't be able to order PPV or VOD programming with the press of a button. Also, many CableCard devices support only a single tuner, so you give up picture-in-picture and the ability to record one show while watching another. And setting up any CableCard box still requires an in-home service call by the cable technician.

New third-party boxes, however, should be more user-friendly and feature-rich than cable-company set-tops. For example, TiVo's Series 3 HD recorder, out now, offers dual CableCard slots, so you can watch one program while recording another, and it holds up to 32 hours of HD shows. Dell's Dimension XPS 410, outfitted with an ATI TV tuner and a CableCard reader, soon will bring similar features to a Vista Media Center PC. And Digeo's Moxi Multi-Room HD Digital Media Recorder, due out this fall, offers a snazzy interface and the ability to record at least 16 hours of HD shows on a central unit and access them from TVs in three rooms. One other advantage to owning a box: When you move, you just return the card to your old cable company and pop in the card from your new one, so you don't have to master a whole new set-top interface.

### ONE-WAY BLUES

CABLECARD DEVICES AREN'T new: Such TVs and digital video recorders have been available since 2004, and renting a card from your cable provider typically costs about $1.50 a month. But though 8 million devices have been sold, fewer than 260,000 homes with cable used CableCards as of March 2007, according to the National Cable & Telecommunications Association.

The technical limitations mentioned above—and cable industry intransigence—are likely to blame for the low adoption rates. Without the lucrative PPV and VOD revenue streams, cable companies have little incentive to promote CableCard devices, says Harry Wang, a research analyst for Parks Associates.

Two-way CableCard devices are coming. Panasonic and Comcast are testing a two-way TV set, which should be in retail stores in 2008. Samsung is preparing a two-way DVR that it will distribute via Cox Cable. But no retail versions of two-way set-tops had been announced at this writing.

The reason? Two-way boxes depend on a software standard called the Open Cable Application Platform, which is tied to the set-top box's interface. All two-way devices must support OCAP, so third-party providers such as TiVo and Digeo can't incorporate two-way capability without losing a big advantage: their cool interfaces. For now you'll have to choose between a user-friendly third-party box (with no PPV or VOD) and a possibly less-interesting two-way box from your cable provider. (Or you can pay for both.)

### ALREADY OBSOLETE?

THIS MAY ALL be moot soon. The cable industry is adopting Downloadable Conditional Access Security technology, in which authentication is performed by software on the set-top or even the TV. That could both eliminate an ugly box and make the TV a more integral part of your network.

In two years you'll see DCAS-enabled set-tops that can interact with other devices on your home network, says Dave Clark, director of product strategy and management for Cisco-owned set-top maker Scientific Atlanta. And via a coaxial home network, you'll be able to move HD content around your house and to portable devices, he says.

If you don't care about interactivity or cost, you can buy a better box than the cable company offers. But the safe bet is to wait—and watch.

*—Dan Tynan*

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* Based on reports by Volt.com and MSNBC

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GPS

# Cell Phones That Tell You Where to Go

## SERVICES ON HANDSETS ADD TRAFFIC UPDATES, LOCATION-BASED SEARCH, AND MORE.

NEED HELP FINDING your way? You don't have to spend several hundred dollars on an in-car GPS system to get it. Cell phone navigation services are becoming more widely available—and increasingly useful. But your options will vary widely depending on your carrier.

Most mobile-phone navigation services require a handset with GPS—either built into the chip set (as with devices that are based on Qualcomm's CDMA technology), or through an external GPS transceiver (typically about $100) that links to the phone via Bluetooth or some other method. Beyond that, it's up to the carrier to decide whether and how it will activate GPS on the phones it supports.

**TELMAP'S GPS navigation service shows and announces your next turn.**

The primary difference between navigation services on mobile phones and dedicated GPS devices designed for use in automobiles, such as the Garmin StreetPilot or the TomTom One, is that phones must pull maps and other data from servers over the carrier's network, while GPS devices store this information locally on a drive or a flash memory card.

Among other things, this means that you must maintain a cell connection in order to use the navigation services (though if you lose your connection once you've downloaded a route, you'll still have the maps and voice directions for that specific trip).

### PAY BY THE DAY

PRICE IS ANOTHER differentiator: The least-expensive dedicated GPS devices cost about $200, with midrange models going for $350 to $400. Cell phone navigation services typically cost about $10 a month; some are available on a daily basis. You can get Verizon's VZ Navigator for $3 a day, for example.

Many mobile phones use what is called assisted GPS, which combines cell-signal triangulation and GPS to establish your location when you first turn them on, thereby speeding startup. By contrast, phones that use autonomous GPS must acquire at least three separate GPS signals to determine your bearings, which can take several minutes. Of the major carriers offering GPS services, only Sprint and Verizon have assisted GPS; Cingular, which has been relatively slow to adopt GPS, uses only autonomous service.

Navigation services on handsets aren't new, but they have acquired new features. TeleNav, for example, now lets you check traffic on your route every 5 minutes via automatic calls to the Inrix.com traffic service. When the service detects a snarl, it generates both voice and on-screen alerts. You can then calculate a different route or continue on your current one; in either case, TeleNav adjusts your estimated arrival time accordingly.

TeleNav and the latest release of competitor Telmap offer both pedestrian and driving directions. Telmap Navigator 3 also lets you search for businesses near your current location, around other locations, or near address book entries. The Telmap service is currently available in the United States only through Sprint/Nextel (under the AOL/MapQuest Navigator brand). TeleNav offers its navigation services directly (for supported devices) for $10 a month or $199 for two years.

### AAA GOES MOBILE

SOON YOUR GPS phone may help you get roadside assistance even if you're not sure where you are. Networks in Motion, a provider of location-based services, and the Automobile Association of America have developed a new service that will let you call AAA operators with a single click and relay your exact position so that they can determine the closest source of help. The service, due this fall as a carrier offering, will also help subscribers find AAA-rated restaurants, hotels, and other establishments.

**YOU GET A 3D view of your route with TeleNav's GPS application.**

Some other new navigation-related phone services don't require GPS or specific applications. MapQuest's Send to Cell service (find.pcworld.com/57315, registration required) enables you to access details of a trip you've planned using the company's Web service from any phone with a WAP-compatible browser: Simply click on a link that arrives in a text message. You can even pan and zoom the downloaded map.

Conversely, some new GPS phone services don't involve navigation: Boost's Loopt, for example, lets you keep track of buddies who also use the service (and vice versa). That's something no car-navigation system you can find will do.

*—Dennis O'Reilly*

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## PLUS: CELL PHONES GET SILLY AND DIRECTX 10 GETS AFFORDABLE.

### GOOGLE KNOWS ALL

**The Buzz:** If search engines could talk, what would they say? Now that it's acquiring giant advertising network DoubleClick, Google could potentially say a lot more about you. For the most part, the company is making the right kinds of noises about building walls between its different collections of data, but... Remember when everyone was worried about Eschelon, the secret intelligence project that would monitor phone calls, e-mail, and other data? Well, let's run down all the Google services most people use: You have Gmail, Docs & Spreadsheets, Calendar, text and voice chat through the still-in-beta Google Talk, shopping at Google Product Search—and of course everything begins with Web search. Throw all of that together, and Google could probably do a good Eschelon impression. And while the company's motto is "Don't be evil," giant data repositories always attract attention—from hackers, governments, and corporations.

**Bottom Line:** That's cool, though. Governments and corporations always have everyone's best interests at heart. Where's my anonymizing service again?

### NEW CELLS ALL FLASH

**The Buzz:** If you can't get something as useful as an iPhone, why not go for a cell phone that's as weird as the iPod is cool? Actually, I can think of several reasons, but none of them will stop phone vendors from releasing their latest crop of wild and wacky phone features. LG is working on a phone in Korea that borrows from Philips's Ambilight TV concept, flashing colors that match the video you play; it rumbles at preset moments, too. Why? I have no idea. Then there's NTT DoCoMo's Wii-like, motion-sensing phone, which could be neat if I could figure out what to use that for.

**Bottom Line:** Up next, a phone that automatically asks for a refund when it senses me throwing it across a room after I've realized how silly it is.

### $79 DIRECTX 10

**The Buzz:** Microsoft's DirectX 10—the Vista-specific graphics API that will power drool-inducing games like Crysis and Alan Wake—is still just getting off the ground. Available around the time you read this, ATI's Radeon HD 2000 series graphics boards should assist the takeoff, as they join previously released nVidia boards in bringing that capability to users for as little as $79—and ATI extends affordable DX10 support to the mobile market, as well. Plus, all of the new value-priced nVidia and ATI boards also include full video encode and

decode acceleration, so even low-end systems can handle high-definition movies without dragging down the CPU.

**Bottom Line:** Before gamers see sweeping benefits from Microsoft's DX10, developers need to know that a critical mass of PCs can actually run DX10 games. That both major graphics vendors have a top-to-bottom line of DX10 cards can only help matters. ■

*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.*

### HERE\NOW

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2. **JOOST:** Promising online-TV application is now in its invitation-only beta stage. joost.com
3. **HOTMAIL REV:** Microsoft finally updates its Web mail with a useful, more desktop-like feel. find.pcworld.com/57331
4. **CURVE:** At last, a cool-looking BlackBerry with a full-on keyboard. find.pcworld.com/57332
5. **VMWARE:** Vista-friendly Workstation 6 lets you run virtual Windows for $189. vmware.com

### FUTURE TECH

## HOLOGRAPHIC VIEWS

NOBODY'S CALLING OBI-WAN just yet, but as holographic-display research continues, scientists at MIT are getting closer to an affordable approach to real 3D imaging. Previous attempts at holographic displays were loud, large, and expensive, but MIT's third-generation prototype makes use of a standard PC graphics card and new acoustico-optic modulators to shrink things down to a device that could cost mere hundreds of dollars and fit in an entertainment center. While this Mark III prototype can display only monochromatic images the size of a Rubik's Cube, MIT is already planning a fourth generation that will add color and boost the display size to near that of a PC monitor.

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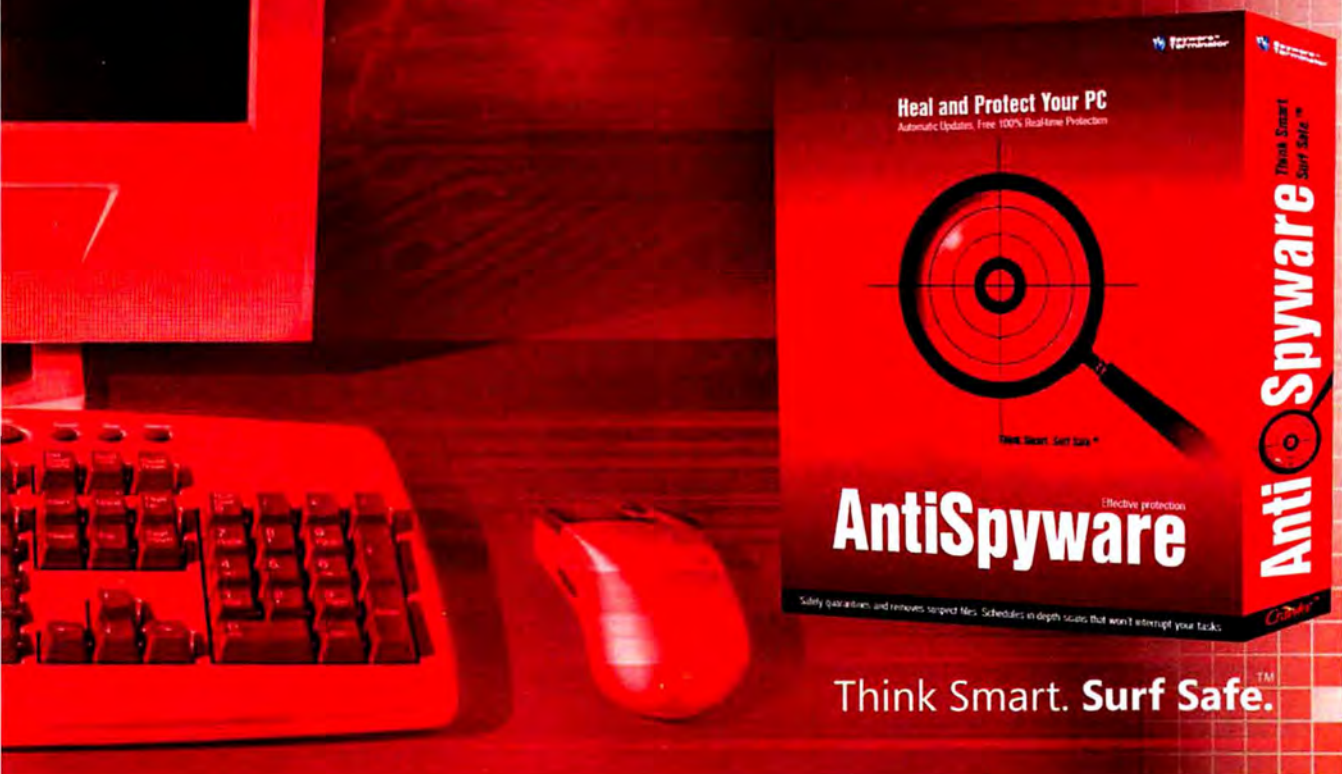


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# LETTERS

LETTERS@PCWORLD.COM

## TECHNOLOGY IN DISASTERS

## ADDRESSES THAT FIGHT SPAM

## DO YOU WANT TO HEAR YOUR APPS?

### LIFE-SAVING FREEBIES

REGARDING MAY'S "Freebies That Saved Lives" [a section of "101 Fantastic Freebies" that reported how U.S. Air Force personnel used Craigslist and Google Earth to rescue Hurricane Katrina victims]: I have to say this is the only time an article in *PC World* made me cry.

Now I understand why, when I was out of state desperately watching every newscast for information and trying to catch any info on street names and locations, they were not providing any. Those reporters probably didn't have a clue where in the city they were. I sincerely hope the military branches and all other emergency responders have incorporated this idea into their planning for future disasters. I am sending a letter to our city planners about this article, as in the wake of the storm they were definitely caught unprepared with regard to technology.

As we here in Louisiana now know, with the unexpected loss of cellular towers and the inability to use cell phones to call out at a critical time, and with the loss of electricity that is normally expected after an event such as Katrina, technology is not 100 percent reliable in times of emergency—but when it does work, as in this case, there is nothing better.

*Patricia Maroney, Kenner, Louisiana*

### MORE GREAT FREEBIES

I ENJOYED "101 Fantastic Freebies" [May], but I think you missed one of the best Web sites out there: Doodle (www.doodle.ch). It is great for scheduling meetings. You create a meeting poll with a list of possible dates and times, and then you send a meeting invitation to colleagues or friends through e-mail. The recipients follow the link and select which days and times work for them, so you see which dates work for the most people.

*Ari Shaw-Faber*
*Albuquerque, New Mexico*

THE ARTICLE OMITTED a software RSS reader that over 1 million users already have installed on their machines. Firefox has great built-in support for RSS feeds. You add these feeds as you would any other bookmark, and after that they are simple and easy to use.

*Ryan Stalets, Riverton, Illinois*

I WAS DISAPPOINTED that Yahoo's My Yahoo (beta) was not included. In a recent beta upgrade of its service, Yahoo added enhanced RSS integration, made everything more Ajax-y, and updated the user interface to resemble Yahoo.com more.

*Trevor Huxham, Plano, Texas*

### RFID CREDIT CARDS

REGARDING "NEW CREDIT Cards Leak Personal Info" [*News and Trends*, May]: Even though I have an American Express card like the one pictured in the article, I never knew what that chip in the card did. Since the article raised my concern about it, I called American Express. It turns out that the chip can be deactivated with a phone call to the customer service department. Mine is now deactivated.

*Bob Scalcione, via e-mail*

**Editor's response:** To clarify, American Express says it can turn off ExpressPay processing for an account so that your "Blue" card can no longer be used for contactless purchases—but that procedure doesn't actually disable the chip in the card, leaving it theoretically readable (though it ▶

HOT TOPICS IN FORUMS

## A PC Calamity, Better Dial-Up, Opera

HERE ARE SOME of the hot topics going on now in our forums. You can take part in our community discussions by heading to find.pcworld.com/55165.

**PC DISASTERS:** I was trying to install an ethernet adapter; somehow I cut a wire, and when I turned the computer on, it pretty much caught on fire. *–zboner*
**Editor's note:** See "How to Survive the Worst PC Disasters" on page 78.

**STICKING WITH DIAL-UP:** It is a lot easier these days to configure a dial-up connection than it used to be. If you have a dial-up modem, chances are its driver is already in XP. Also, most ISPs that are still in the dial-up business have software that speeds up the connection by one method or another, which can give you a nice boost.

*–Keeter*

**OPERA VS. FIREFOX:** You should probably spend a little more time discovering what Opera can do. There is definitely no way it can be described as 'bare-bones'. I am pretty confident that almost any feature Firefox has, Opera had first, and does it better, without [your] having to download and manage additional plug-ins. *–MoonDogg*

PHOTOGRAPH: ROBERT CARDIN

won't send out your name). If you don't want contactless technology in your card, you must ask the company for a new one.

*–Erik Larkin*

### ANTISPAM ADDRESSES

[THE MAY ISSUE'S] *Privacy Watch* discusses disposable e-mail addresses to shut down spammers and mentions services costing $20 per year. However, I have used Spamex (www.spamex.com) for about $10 per year. I can have 500 disposable addresses that I can turn on and off.

*Jack L. Underwood*
*Schenectady, New York*

### TELL US WHAT YOU THINK

RATE THIS ISSUE by going to www.pcworld.com/pcwinput—you could win a $500 Amazon.com gift certificate. The site explains the official rules and offers an alternate method of entry into the prize drawing.

GREAT TIPS ON disposable e-mail addresses. I have a fourth to recommend: a harvest-proof e-mail link that costs nothing and that you use on your Web site (if you have one). Will Bontrager, known for his excellent WillMaster Web development software (much of which is free), came up with a nifty idea. Go to flow-to.com to read about it and to give it a try. It's especially useful if you have a special e-mail address with your ISP.

*Judy Vorfeld, Peoria, Arizona*

### NOISY SOFTWARE

TO ANY SOFTWARE developers who may base their product features on Stephen Manes's May column ["Software That Just Won't Shut Up," *Full Disclosure*]: Don't listen to him! Thank you.

Stephen, turn off your speakers, or use the options in your software to make it quiet. As for me, I like the audible notifications, and we could use more—except once (for real), my wife told me that she thought there was a strange man in the house while I was gone, and it turned out to be the Avast antivirus software saying the virus database had been updated. (Okay, that one's kind of loud.)

Software developers, please put sounds (soft, quiet ones) in your software, and we'll turn off the ones we don't like.

*Marvin Biver, Okeechobee, Florida*

*PC World welcomes your feedback. We reserve the right to edit for length and clarity. Share your thoughts in the Comments area under each story on our Web site, or visit our Forums (find.pcworld.com/55165). Send e-mail to letters@pcworld.com.* ■

### CORRECTIONS

IN MAY'S "101 Fantastic Freebies," we should have listed the name of a setup and tweaking tool for Windows Vista (and other OSs) as EasyBCD.

*PC World* regrets the error.

acer

Acer recommends Windows Vista™ Ultimate.

AMD Turion 64 X2 MOBILE TECHNOLOGY

June/July 2007

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# Acer Ferrari LCD monitor

## Acer® 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

**$399**
**(ET.L380B.063)**

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Acer recommends Windows Vista™ Ultimate.

AMD Turion 64 X2 MOBILE TECHNOLOGY

# Ferrari 1000
## Exclusive innovation

- AMD Turion™ 64 X2 Dual-Core Mobile Technology TL-56
- Genuine Windows Vista™ Ultimate
- 2GB DDR2 667 SDRAM
- 160GB[3] hard drive
- External Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader
- 12.1" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- ATI Radeon™ Xpress 1150 graphics
- Integrated Acer OrbiCam camera
- 802.11n WLAN, Bluetooth®, Bluetooth® VoIP phone, gigabit LAN, V.92 modem
- Optical mouse
- One-year limited warranty[4]

**Ferrari 1000-5123**
**$2,299**
**(LX.FR60U.051)**

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# Acer® LCDs

**Acer AL2616Wd**

- 25.5" wide-screen TFT LCD
- 1920 x 1200 native resolution
- 800:1 contrast ratio
- 178° horizontal viewing angle
- 178° vertical viewing angle
- VGA, DVI-D (HDCP) signal connectors
- 500 cd/m² brightness
- 5ms gray-to-gray response time
- Internal power adapter
- Silver color

**$699**

(ET.G16WP.001)

**Acer AL2416WBsd**

- 24" wide-screen TFT LCD
- 1920 x 1200 native resolution
- 1000:1 contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- VGA, DVI-D (HDCP) signal connectors
- 400 cd/m² brightness
- 5ms gray-to-gray response time
- Internal power adapter
- Silver color

**$549**

(ET.F16WP.B02)

**Acer AL2216Wbd**

- 22" wide-screen TFT LCD
- 1680 x 1050 native resolution
- 700:1 contrast ratio
- 170° horizontal viewing angle
- 160° vertical viewing angle
- VGA, DVI-D (HDCP) signal connectors
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

**$259**

(ET.2216B.0D0)

**Acer AL1917 Cbmd**

- 19" 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
- 5ms response time
- Internal power adapter
- Black color

**$205**

(ET.1917B.0DC)

**Acer AL1916W Abd**

- 19" wide-screen TFT LCD
- 1440 x 900 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

**$189**

(ET.1916B.WDA)

**Acer AL1717 Fbd**

- 17" TFT LCD
- 1280 x 1024 native resolution
- 800:1 contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- Two 1.0W integrated speakers
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

**$169**

(ET.B17RP.F04)

## Acer® Projectors with DLP® Technology

**Acer PD726W**
**Wireless Projector**

- 3700 ANSI lumens
- XGA (1024 x 768) native resolution
- UXGA (1600 x 1200) maximum resolution
- 2500:1 contrast ratio
- 7.7 lb. (3.5kg)

**$1,669**

(EY.J2901.012)

**Acer PH530**
**Home Theater Projector**

- 1000 ANSI lumens
- 720p (1280 x 720) native resolution
- SXGA (1280 x 1024) maximum resolution
- 2500:1 contrast ratio
- 6.0 lb. (2.7kg)

**$799**

(EY.J4401.007)

Acer recommends Windows Vista™ Home Premium.

AMD Mobile Sempron™

# Acer® Aspire™ 3100

ATI Radeon GRAPHICS

- Mobile AMD Sempron™ Processor 3500+
- Genuine Windows Vista™ Home Basic
- 512MB DDR2 SDRAM
- 80GB[3] hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader
- 15.4" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- Integrated ATI Radeon™ Xpress 1100 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty[4]

**Acer SignalUp**
This technology strategically positions two PIFA antennas on the notebook's top panel to generate an omni-directional signal sphere for superior wireless reception.

**Acer GridVista**
Easy-to-use software designed to automatically split the screen in up to four separate windows and make the most of available screen space.

**Acer DASP**
DiskAnti-Shock Protection is a technology that safeguards the hard disk against knocks and provides an unmatched level of protection.

**Acer QuickCharge**
Found on select models, Acer QuickCharge technology enables the notebook's battery to be 80 percent fully charged in just one hour.

**Acer Aspire 3100-1405**

**$599**

Mobile AMD Sempron™ Processor 3500+
Genuine Windows Vista™ Home Basic
(LX.AX60Y.084)

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

**Acer PD311**
**Portable Projector**
- 2000 ANSI lumens
- SVGA (800 x 600) native resolution
- SXGA (1280 x 1024) maximum resolution
- 2000:1 contrast ratio
- 2.9 lb. (1.3kg)

**$739**
(EY.J3401.006)

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# Acer® Aspire™ T180

- Up to AMD Athlon™ 64 X2 Dual-Core Processor
- Genuine Windows Vista™ Home Premium or - Genuine Windows Vista™ Home Basic
- DVD-Dual drive (DVD+/-RW)
- 9-in-1 card reader
- Integrated NVIDIA® GeForce® 6100 and NVIDIA® nForce® 430 graphics
- Gigabit LAN, V.92 modem
- PS/2®-style keyboard and mouse
- One-year limited warranty[4]

Display sold separately.

### Acer Aspire T180-UD381A
**$489**

AMD Athlon™ 64 X2 Dual-Core Processor 3800+
Genuine Windows Vista™ Home Premium
1GB DDR2 SDRAM and 250GB[3] SATA hard drive

### Acer Aspire AST180-UA380A
**$429**

AMD Athlon™ 64 Processor 3800+
Genuine Windows Vista™ Home Premium
1GB DDR2 SDRAM and 160GB[3] SATA hard drive

### Acer Aspire AST180-US340B
**$359**

AMD Sempron™ Processor 3400+
Genuine Windows Vista™ Home Basic
512MB DDR2 SDRAM and 160GB[3] SATA hard drive

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

### Acer AL2016WBbd
- 20" wide-screen TFT LCD
- 1680 x 1050 native resolution
- 800:1 contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- VGA, DVI-D signal connectors
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

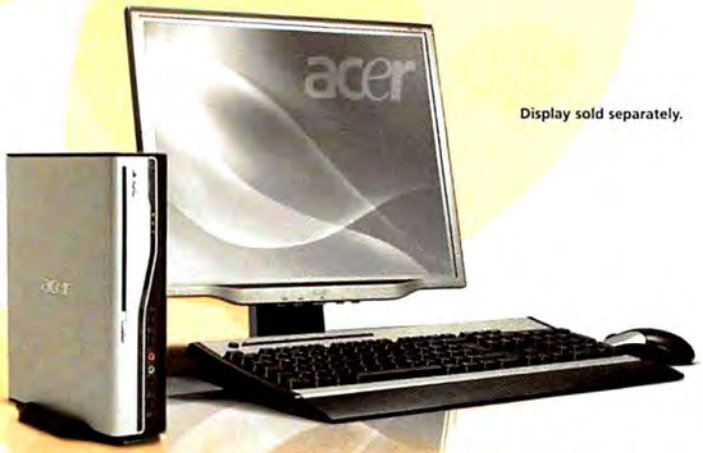
**$199**
(ET.D16WP.B04)

### Acer AL1916 Cb
- 19" TFT LCD
- 1280 x 1024 native resolution
- 700:1 contrast ratio
- 150° horizontal viewing angle
- 135° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

**$195**
(ET.1916B.00C)

Acer recommends Windows Vista™ Business.

# Acer® AcerPower™ 1000




Display sold separately.

- Up to AMD Athlon™ 64 X2 Dual-Core Processor
- Genuine Windows® XP Professional
- Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- Integrated NVIDIA® GeForce® 6150 graphics
- Gigabit LAN
- USB keyboard and mouse
- 2.4" W x 9.8" D x 7.9" H
- One-year limited warranty[4]

**Acer AcerPower 1000-UD400P**

## $599

AMD Athlon™ 64 X2 Dual-Core Processor 4000+
Genuine Windows® XP Professional
1GB DDR2 SDRAM, 160GB[3] SATA hard drive and 802.11b/g WLAN

**Acer AcerPower 1000-UA381P**

## $479

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Genuine Windows® XP Professional
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**Acer eSettings Management**
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**Acer eDataSecurity Management**
Conveniently integrated into the Windows® environment, Acer eDataSecurity Management provides one-click encryption and decryption of your files.

**Acer AL1716 Fb**
- 17" TFT LCD
- 1280 x 1024 native resolution
- 800:1 contrast ratio
- 160° horizontal viewing angle
- 160° vertical viewing angle
- VGA signal connector
- 300 cd/m² brightness
- 5ms response time
- Internal power adapter
- Black color

**$159**
(ET.B16RP.F02)

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Acer recommends Windows Vista™ Home Premium.

# Acer® Aspire™ 5100

- AMD Turion™ 64 X2 Dual-Core Mobile Technology TL-50
- Genuine Windows Vista™ Home Premium
- 1GB DDR2 533 SDRAM
- 120GB[3] hard drive
- Integrated Super-Multi drive (DVD+R, DVD-R, DVD-RAM)
- 5-in-1 card reader
- 15.4" WXGA (1280 x 800) TFT display, Acer CrystalBrite Technology
- Integrated ATI Radeon™ Xpress 1100 graphics
- 802.11b/g WLAN, 10/100 LAN, V.92 modem
- One-year limited warranty[4]

## Acer Aspire 5100-5033

## $729

AMD Turion™ 64 X2 Dual-Core Mobile Technology TL-50
Genuine Windows Vista™ Home Premium
(LX.AX90X.095)

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Quality is built into every notebook Acer makes, and each comes with a one-year standard limited warranty.[4] 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 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 warranty[4] 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.

[1] Depends on availability of PC-supported connections and location.
[2] 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.
[3] 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.
[4] 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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DO YOU KNOW WHO'S SERVICING YOUR PC?

# How to Gripe (Effectively) Online

## Have a problem with a company or product? Complaining online could help.

HAS YOUR LATEST gadget gone belly up? Or are you finding mystery charges from your ISP or cell phone company? If you're getting nowhere by calling the customer service or tech support departments of the company involved, consider taking your case to the Web. More than ever before, the company may be listening.

Tales of ordinary people who used forums and blogs to get large companies to pay attention have already become Web legends. There's Thomas Hawk, who got Price Rite Photo temporarily kicked off shopping engines by complaining in his blog about hard-sell tactics; Jeff Jarvis, whose noisy dispute with Dell's customer support seemed to crystallize customers' discontent with the PC giant; Brian Finkelstein and his hilarious YouTube video of a Comcast cable modem repairman falling asleep on his couch; and Vincent Ferrari's recording of an AOL customer service representative who wouldn't let him cancel his account.

Not every instance of online grumbling will achieve those levels of notoriety: In each of these cases, the gripe captured the attention of traditional media, and the lousy publicity forced the vendors to pay attention. But these stories suggest some strategies for how—and where—to complain effectively. It's a good skill to learn, especially as more vendors participate in Web communities, either through their own blogs (such as Dell's Direct2Dell) or by monitoring, and sometimes posting on, independent forums.

"The consumer never has had a bigger megaphone than he does today," says Jackie Huba, co-author with Ben McConnell of *Citizen Marketers: When People Are the Message*, a book about how so-called social media empower ordinary folks to spread the word about products and companies that they love—or hate.

However, the most effective way to use that megaphone—and to be heard above the pervasive dull roar generated by other unhappy customers—is to be creative. "The idea is, if you can, to create a meme that will spread," Huba says.

The Comcast video achieved memedom, if you will, because people who viewed it instantly understood and related to Finkelstein's experience. So one of the first lessons here is that a big target is an asset: The larger the offending company, the more likely it is that others will have had the same issues you have.

The video also stood out for its use of humor. "If you've got something in your complaint that's shocking or humorous, it's more likely to spread," Huba says.

Huba also recommends using multimedia to make your point. The Comcast video and Ferrari's recording of the AOL customer service rep speak for themselves, as did the photos of flaming laptops that led to recalls of millions of notebooks with faulty batteries. So if you have audio or visual records of your issue, by all means let the world see or hear them.

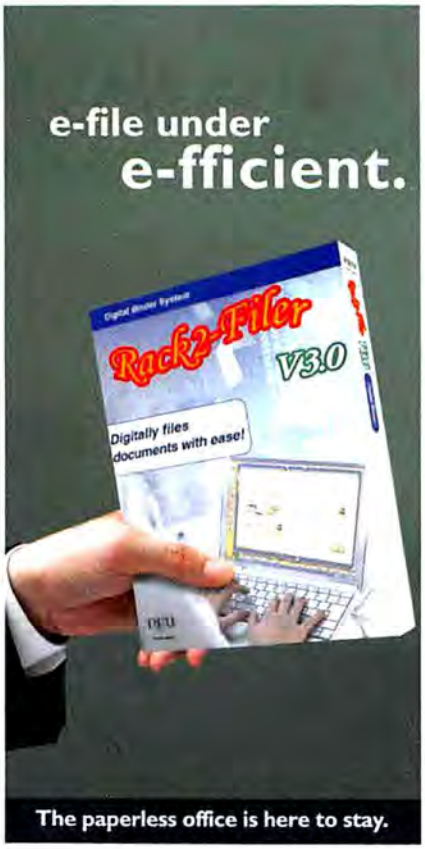
When posting, try to focus on the specifics of your problem, as opposed to ranting about the vendor. You may enjoy writing a post saying how much you hate Dell, HP, Microsoft...you fill in the blank. But it's not as likely to get your problem solved as a summary of what happened and what you think the company should do to make things right. Sticking to the facts is also less likely to get you sued for defamation, something you may have to take into account, especially in dealing with a smaller, litigious-minded company.

### WHERE TO GRIPE

CHOOSE YOUR VIRTUAL soapbox carefully. The bigger the site where you post your complaint, the more likely it is to be monitored by mainstream media reporters—who are, after all, always looking for a good story. Write to entertain. If you can get your story on one of the big social news sites like Digg (digg.com) or Reddit (reddit.com), you'll stand a better chance of attracting the interest and comments of other consumers who have similar problems. There's strength in numbers: If lots of people join your chorus of complaints, you're more likely to get a company's attention.

And there's always the possibility that a fellow consumer might have a solution to your dilemma. Which brings up the ▶

ILLUSTRATION: HAL MAYFORTH



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other good reason to take your gripes to the Web: Even if they don't force a company to publicly eat humble pie, your complaints might lead to a good workaround for your problem.

The best place to get that kind of advice may be the vendor's own site. Not all vendors have user forums, but if you find one, it's the logical place to post. If a vendor is checking any forums, its own is sure to be one; and if you're lucky, you might run into a truly helpful technical or customer support rep. Be as specific as possible in documenting your problem.

Outside the vendor's site, look for busy forums that aren't overrun by flame wars or comment spam. The more focused the forum, the more likely it is to be helpful. For example, I've found solutions to every problem I've ever had with my ReplayTV digital video recorder by searching the Digital Video & Audio Devices section of either AVS Forum (www.avsforum.com) or Planet Replay (planetreplay.com).

And you might run into a helpful customer service type on a third-party forum. Hewlett-Packard's customer service department, for example, is experimenting with having some employees post on certain forums, visibly identified as HP reps. Addressing problems early on through forum posts has the potential of saving the company the expense of dealing with a lot of support calls down the road, says HP spokesperson Siobhan Flanagan. Flanagan admits that it's good public relations, too: "People are talking about their service experiences—and if you're not listening, you're missing the boat."

Dell, having experienced the fallout from Jeff Jarvis's blog posts, decided to fight fire with fire by starting its Direct-

PRIVACY WATCH

## Is It Really a Virus? Get a Second Opinion

EVEN IF YOUR antivirus application says that a file your kid just downloaded is okay, you may still feel leery. Or maybe your antivirus program wants to delete or quarantine a file on your PC, but you're pretty sure that the file's harmless. What do you do?

I head to two free online services for a broader analysis. The first, Virustotal (virustotal.com), has been around for some time. It uses 32 different antivirus engines from a range of companies, including Symantec, McAfee, and Kaspersky, to scan any file you upload.

Click on the 'browse' button at the top of the page to find the file on your PC. Then, sometimes after a short delay, you'll see what each engine thought of the file you uploaded—in the form of a bluish 'no virus found' or a red message with either a generic warning like "suspicious Trojan/Worm" or the name of specific malware like "Warezov."

Sometimes there will be a range of responses. Some engines might think everything is hunky-dory, while others might insist that your file is dangerous—which is a great example of why you'd want a second opinion in the first place.

Most of the time you can go with the consensus view, particularly when only a few engines give generic warnings. Those vague warnings typically come from heuristic technology, which tries to identify unknown malware without full signatures. The technology is useful, but it can raise false alarms.

For even more-exhaustive in-depth analysis, go to Threat Expert (find.pcworld.com/57119). Click 'Submit Sample', and you'll be prompted to upload a file (up to 5MB). Threat Expert analyzes your submission and e-mails you a report. You'll see results from numerous antivirus engines, but the report will also list other details, including whether the sample tries to delete any of your files or directories, change the hosts file, or create Registry keys. Also, you can see what the tested file tried to download from other places when it ran.

*–Erik Larkin*

ILLUSTRATION: MARK MATCHO

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2Dell.com blog last summer. Employees post news and commentary, and often respond to customer comments, which are encouraged. The blog "provides a human element to Dell, the corporation," says Dell digital media manager and frequent blogger Lionel Menchaca.

It's clear that Dell is getting the message: Even the largest firms must pay attention to their Web-savvy users, or suffer the consequences. You can put corporate America's consumer sensitivity to the test by airing your grievance online. ■

*Yardena Arar is a senior editor, Erik Larkin is an associate editor, and Amber Bouman is an editorial assistant for* PC World. *You can send them e-mail 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

## Think You Have On-Site Service? Maybe Not

IN MY PURCHASE OF an ABS Awesome 6300 PC in April 2004 included a three-year on-site service contract. So when my PC failed to start last November, I called ABS. A technician walked me through potential fixes, but none worked. I told him I had an on-site service contract, but he and a manager said the company that was supposed to provide the on-site service had gone out of business, and he and ABS could do nothing about it.

I purchased the service contract from ABS, but I have received from them as yet neither service nor a refund.

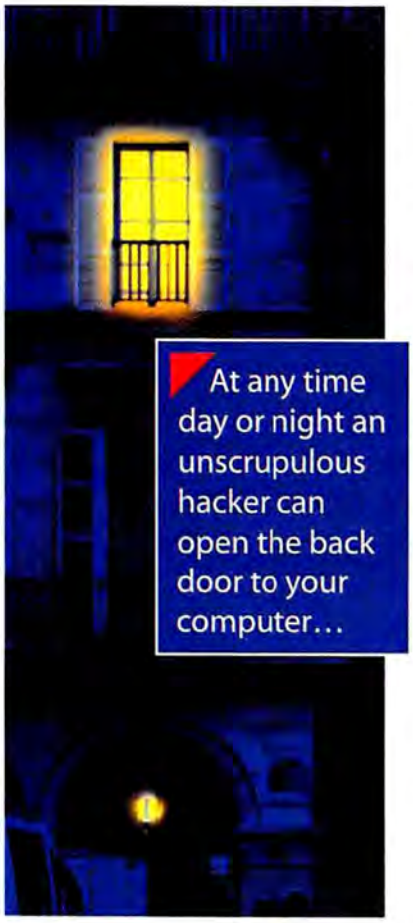
*Luis Garcia-Bunuel, Prescott, Arizona*

***On Your Side* responds:** According to ABS, Garcia-Bunuel's on-site service agreement wasn't actually with ABS, but with 2NET, a company that ABS partnered with for several years. Later, ABS terminated its relationship with 2NET, which has since gone out of business. An ABS spokesperson said the company clearly stated on its Web site and in material accompanying the PC that the service was provided by 2NET. Garcia-Bunuel says the only indication that his service was with 2NET was an item on his initial invoice.

ABS gave free phone tech support to Garcia-Bunuel, and a company rep said he can call if he has more problems.

The lesson here: Be sure to read the fine print and know who your service is coming from. Arrangements such as ABS's with 2NET are common.

*–Amber Bouman*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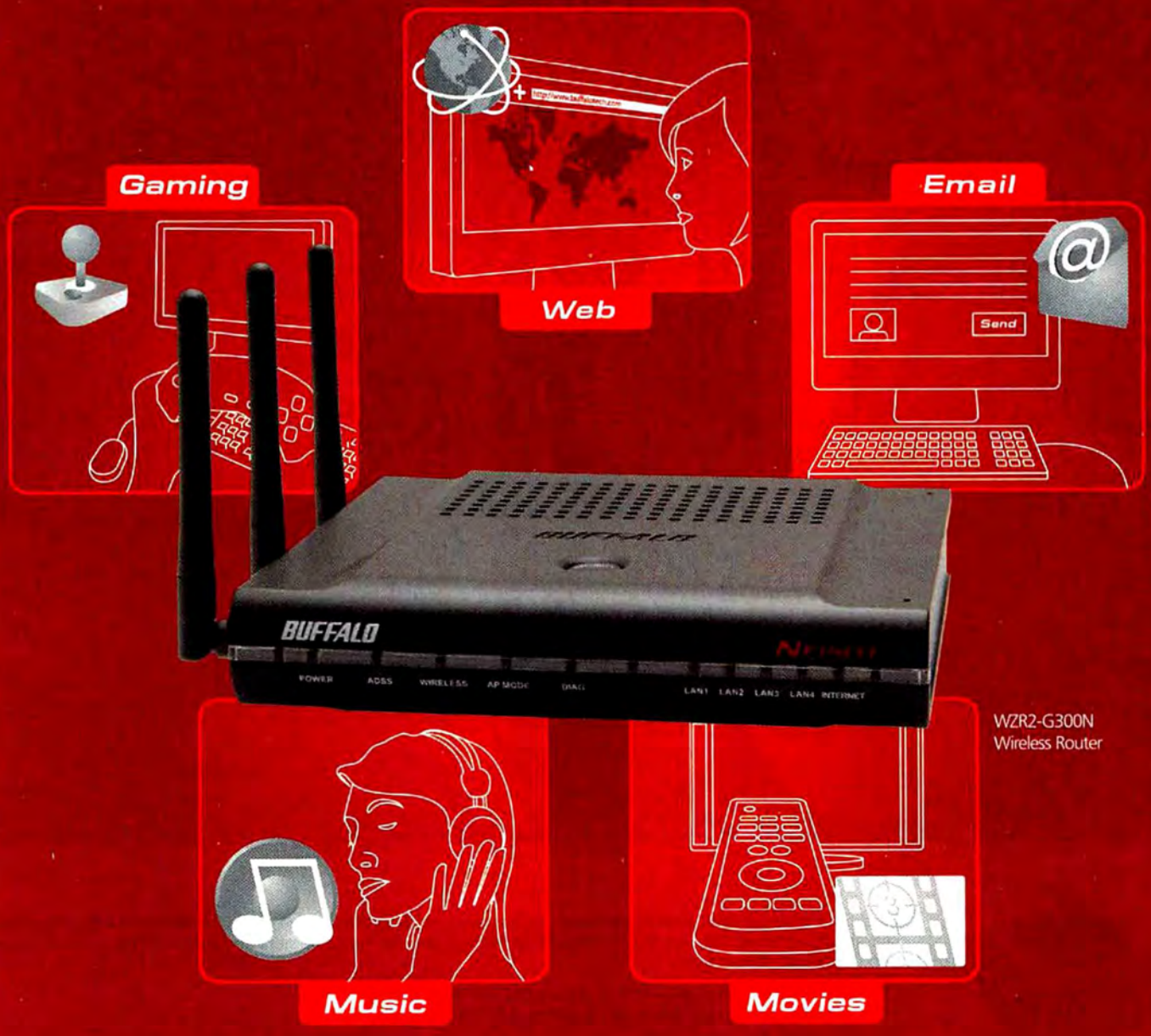


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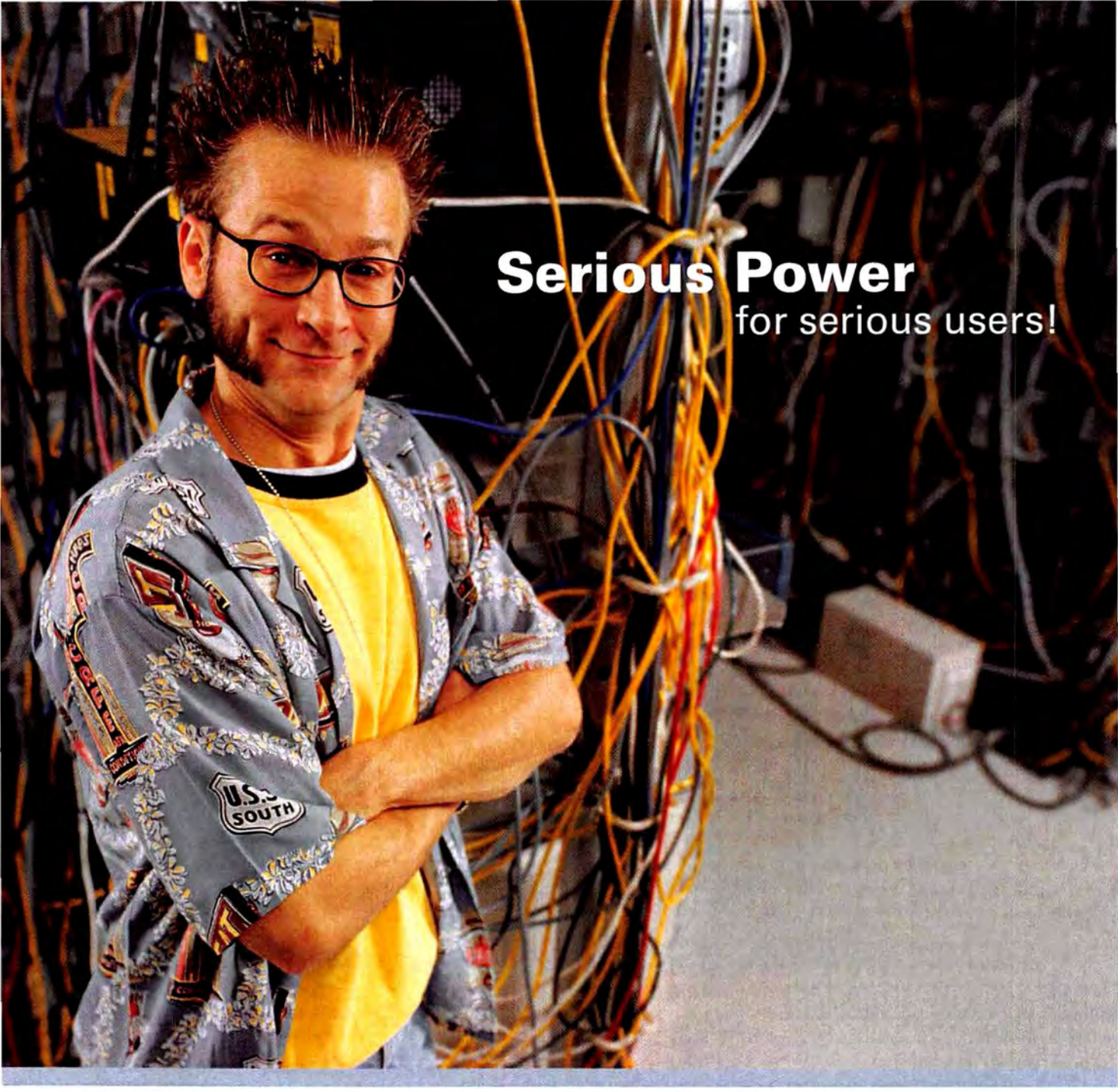
Serious Power
for serious users!

TRUEPOWER TRIO
430W/550W/650W

Meet Ed. He's the king of Gigabit switches and terabytes of storage. Ed needs stable, reliable, and efficient power supplies. TruePower Trio's tight ±3% power regulation is easy on his equipment and cool-running power supplies don't overheat his hairdo.

- Three +12V rails power high-end CPUs, video cards, and RAID arrays
- Up to 85% efficiency saves money and generates less heat
- A 5 year warranty

Ed is a serious user, with serious power requirements, but most of all he needs the quiet provided by the Trio's 120mm low noise cooling fan. That's why he relies only on Antec to power the server farm he has set up in his mom's basement.

Antec
The Power of You

Found out more about TruePower Trio power supplies at **www.antec.com**.

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**Go to find.pcworld.com/57164**

# HASSLE-FREE PC

STEVE BASS

# Smart Fixes for Gnarly PC Problems

## Boot from a USB drive, replace system files, check your RAM, and other remedies.

I HATE IT when a critical file goes missing and I can't boot my system. But I have answers for that and other annoying PC hassles. Keep reading...

**Hassle:** *Can I use a flash device as an emergency boot drive? I tried to format the flash drive as a system drive, just as I would a floppy, but that didn't work.*

**The Fix:** Flash drives make terrific emergency boot devices. Here's how to set it up. First, format the drive by using the free HP USB Disk Storage Format Tool (find.pcworld.com/57052). Be aware that formatting will delete everything on the flash drive. Next copy three boot files from the root of your hard drive—boot.ini, ntldr, and ntdetect—to the flash drive. Then set your BIOS to allow booting from the flash drive. If you're a novice tweaker, follow the instructions at Tom's Hardware (find.pcworld.com/57053). You'll learn how to get system boot files onto the flash drive and how to configure your system board's BIOS to see the flash drive. You can read about how to access your particular BIOS at find.pcworld.com/57054.

**The Hassle:** *My XP system boots normally. But if I ever try to restart after, say, installing a Windows Update, Windows flashes me a "missing or corrupt hal.dll" error message.*

**The Fix:** That's because you have a missing or corrupt Hal.dll file (but you knew that). Tiny Empire's fixntldr should do the trick. This free tool creates a bootable floppy drive and reinstates the necessary files (the site also has instructions for using a CD-ROM). It's near the top of the page at find.pcworld.com/57056.

If that expedient doesn't work, you'll have to do the deed manually. Read Kelly Theriot's "Missing HAL.DLL" tutorial (find.pcworld.com/57057). If you have to start over (I hope not), read Lincoln Spector's "How to Reinstall Windows XP" (find.pcworld.com/57058).

**Quick Tip:** If your system crashes frequently and you get blue screens loaded with error messages, your problem may be bad system memory. For a quick checkup, Use Microsoft's Windows Memory Diagnostic tool (find.pcworld.com/57059).

**The Hassle:** *I switched to a new ISP, and now Internet Explorer and Outlook Express have white buttons, highlights, and shadows. Can you return my interface back to its default appearance?*

**The Fix:** If you're an advanced user, you can run *rundll32 iedkcs32.dll,Clear* from a Command box to restore IE. Or try downloading ISPUnbrand (find.pcworld.com/57060), a small utility that will reinstate the applications' normal appearance. You'll find more details on this slick little tool at Ramesh's Site, at the Find-It number above.

**The Hassle:** *I just found MSOCACHE, a 300MB folder, on my drive. Can I delete it?*

**The Fix:** MSOCACHE is a hidden folder with Office 2003 installation files. Windows puts it on your drive so you won't need Office CDs to add features. To reclaim the space, uninstall it with Windows' Disk Cleanup tool (click *Start•Programs•Accessories•System Tools*, and choose *Disk Cleanup*; then choose *Office Setup Files* from the 'Files to Delete' list). If you want to save the folder elsewhere, use Microsoft's Local Installation Source Tool (find.pcworld.com/57061). ■

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

TOOL OF THE MONTH

## Two Ways to Get More From XP

**HIDDEN UTILITIES XP (find.pcworld.com/57063) allows you to run dozens of tools in XP's applets grab bag. It's super for occasional-use XP tools like Component or Windows Services, or for one of the dozens of command-line tools such as IPConfig or the ever-popular Logman.**

**Taskbar Shuffle (find.pcworld.com/57064) lets you rearrange the order of applications on your Windows taskbar. Drag an item to another spot on the taskbar and drop it. I use this utility to keep items in the exact order I want. Way cool. Both tools are free.**

ILLUSTRATION: MARK MATCHO

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# ASUS® NOTEBOOK CATALOG

Rock Solid · Heart Touching

SUMMER 2007

## In this issue:


NEW ARRIVALS:
Top of the Line Luxury Models
ASUS-Lamborghini VX2,
S6 Leather Collection, and the
Ultra Slim, Ultra Stylish U1

Function, Mobility and Style
R1F, R2H, and W7S

Dream Machines for Gaming
and Beyond: ASUS **G1S** & **G2S**

Your Best Campus Companion

# W5Fe

## Open up a Whole New Vision

### World's First Side Show Notebook with Auxiliary Display Convenience

W5Fe is powered by Intel® Centrino® Duo Mobile Technology

- Intel® Core™2 Duo T7200 2.00 GHz
- Windows Vista Business
- 12.1" Color Shine widescreen display (1280x768 WXGA)
- 2.8" auxiliary display (320x240 QVGA)
- 160 GB hard drive 5400 RPM
- 1.5 GB DDR2 667 MHz main memory
- 1.3 megapixel webcam with 235° swivel, Super Multi DVD/RW dual layer, Bluetooth V2.0+EDR, WLAN 802.11 A/B/G, only 3.7 lbs

**W5FE-A1: $2,199**

### W5Fe Notebook with Vista SideShow

The ASUS W5Fe offers complete Windows® Vista™ functionality with built-in SideShow support. Enjoy the convenience of checking emails, viewing photos, playing music and much more without the need to boot up the entire system for an efficient and power saving computing experience. ASUS' W5Fe is powered by Intel® Centrino® Duo Mobile Technology, offering more performance and more possibilities with the latest Windows® Vista™ operating system.

Review emails on SideShow display for last-minute information check

A quick glance at the calendar, meeting schedule and contact details.

Obtain system information including wireless connections, system on/off, and battery life.

SideShow media player allows photo viewing and music playback in an instant.

**Go to find.pcworld.com/57177**

intel Centrino Duo Core™2 Duo inside™

ASUS
Rock Solid · Heart Touching

AUTOMOBILI LAMBORGHINI

# ASUS-LAMBORGHINI VX2

## Unprecedented Power and Style

## ASUS recommends Windows Vista™ Ultimate

### Sensational Counterpart

Touch the gleaming hood and feel the momentum break free from under your hands. Flick on the light and behold the world as it turns to you. Swipe the key, get comfortable in the hand-fitted leather seats and as the engine roars to life - get ready to speed ahead. The ASUS-Lamborghini VX2 offers more performance and more possibilities with the latest Windows Vista™ operating system. Santa Rosa models available soon.

ASUS-Lamborghini VX2 is powered by Intel® Centrino® Duo Mobile Technology

- Intel® Core™2 Duo T7400 2.16 GHz
- Windows Vista™ Ultimate
- 15.4" Color Shine widescreen display (1680x1050 WSXGA+)
- NVIDIA GeForce Go 7700 512 MB
- 160 GB hard drive 5400 RPM
- 2 GB DDR2 667 MHz main memory
- 5.6 lbs., 8-cell battery pack
- 1.3 megapixel webcam with 240° swivel, Bluetooth V2.0+EDR, WLAN 802.11 A/B/G/N, fingerprint authentication & TPM, hot swappable module bay, Super Multi DVD/RW with LightScribe, spill-proof keyboard, docking station (optional) matching wireless mouse and carrying bag

High resolution webcam with 240° swivel

Privacy protected with fingerprint reader

Leather-bound palm rest with exquisitite stitch detailing

Wheel-rimmed fan lid for cooling ventilation

**VX2-AK007G (yellow) VX2-AK008G (black): MSRP $2,999**

ASUS recommends Windows Vista™ Home Premium

intel Centrino Duo Core™2 Duo inside™

## ASUS S6 Leather Collection

The S6 leather collection with Intel® Centrino® Duo Mobile Technology is a masterpiece of design. Hand-crafted with carefully selected cuts of genuine leather, the S6F achieves a personal and natural feel that is unique in a laptop. ASUS can create such products because we are the only company in the world that designs, manufactures and gives after-sales care for all every laptop we make. Our vision of uncompromised excellence fully goes into each product – from concept to design, from engineering to production.

Stylish leather mouse and matching bag

S6FM is powered by Intel® Centrino® Duo Mobile Technology

- Intel® Core™2 Duo low voltage L7200 1.33 GHz
- Windows Vista™ Home Premium
- 11.1" Color Shine widescreen display (1366x768 WXGA)
- 120 GB hard drive 5400 RPM
- 1 GB DDR2 667 MHz main memory
- 3.4 lbs., 10.6" x 7.5" x 1.5"
- Winner of G-Mark, iF, and Reddot design awards
- Bluetooth V2.0+EDR, WLAN 802.11 A/B/G/N, Super Multi DVD/RW dual layer

**S6FM-1P055C:** $2,199

Polished keyboard

Premium leather

Jeweled details

Hand-sculpted hinge cap

**ASUS recommends Windows Vista™ Business**

## ASUS U1F The One and Only

**Sleek and Slim Computing Redefined - 0.25" Ultra Slim LCD and 2.2 lb. Ultra Light Design**

The compact 11.1" widescreen U1F is tailor-made for metropolitan professionals to stay on the move with style. From its exterior piano painted LCD cover, stainless contour and carbon fiber alloy housing to its genuine leather bound palm rest, the U1F exudes luxury with unique sophistication. ASUS' U1F offers more performance and more possibilities with the latest Windows® Vista™ operating system.

usa.asus.com

U1F is powered by Intel® Centrino® Duo Mobile Technology

- Intel® Core™2 Duo ULV U7500 1.06 GHz
- Windows Vista™ Business
- 11.1" Color Shine widescreen display (1366x768 WXGA)
- 100 GB hard drive 4200 RPM
- 1.5 GB DDR2 667 MHz main memory
- 2.2 lbs., 10.7" x 7.4" x 0.7"~1.1"
- 3+6 cell battery, up to 4.5 hrs.
- Built-in webcam, WLAN 802.11 A/B/G, Bluetooth V2.0+EDR, fingerprint authentication & TPM, LED backlight, hard drive shock protection, 3D sensor IC, carrying bag and bluetooth mouse
- RedDot Design Award winner of 2007

**U1F-A1:** $2,199

Fingerprint authentication and TPM

Built-in webcam for easy video communication

Leather bound palm rest

Piano paint finish and elegant stainless steel frame

# FUNCTION. MOBILITY. STYLE.

## R1F

### Core2 Duo Tablet Means Business

The R1F lets you jot down ideas with a pen in realtime and instantly converts your notes to text. Easily share your ideas on the RIF's swiveling screen. A built-in fingerprint reader, TPM, and ASUS software gives your data triple layer protection.

R1F is powered by Intel® Centrino® Duo Mobile Technology
- Intel® Core™2 Duo T7200 2.00 GHz
- Windows Vista™ Business
- 13.3" Color Shine widescreen display (1280 x 800 WXGA)
- 120 GB hard drive 5400 RPM
- 2 GB DDR2 667 MHz main memory
- 4.2 lbs., 12.5" x 9.1" x 1.4"
- Convertible screen, handwritten input support, fingerprint authentication and TPM, WLAN 802.11 A/B/G, hot swappable module bay, Bluetooth V2.0+EDR, Super Multi DVD/RW dual layer,

**R1F-K049E: $1,899**

## R2HV

### World's First GPS-Enabled Ultra Mobile PC

Full PC functionality in a small form factor means you can create, download or capture content anywhere. Supports Office, stylus input, and has a built-in webcam and microphone.

R2HV is powered by Intel® Centrino® Duo Mobile Technology
- Intel ULV Pentium® M Processor 723 1.00 GHz
- Windows Vista Home Premium
- 7" display (800 x 480 WVGA)
- 80 GB hard drive 4200 RPM
- 1280 MB DDR2 main memory
- 1.83 lbs., 5" x 5.6" x 0.7"
- Built-in webcam, GPS and map, USB keyboard (optional), fingerprint authentication, WLAN 802.11 B/G, Bluetooth V2.0+EDR, handwritten input support

**R2HV-A1: $999**

## W7S

### High-End Graphics, Thin and Light Design

At 4.3 lbs., the W7S is so thin, light, and attractive that you'll want to take it everywhere you go. NVIDIA 8400M graphics make seamless video playback and 3D gaming a reality, and an integrated 1.3 megapixel webcam helps you stay close to those who matter.

W7S is powered by Intel® Centrino® Duo Mobile Technology
- Intel® Core™2 Duo T7100 1.80 GHz
- Windows Vista Business
- 13.3" Color Shine widescreen display (1280 x 800 WXGA)
- NVIDIA GeForce 8400M G 128 MB
- 120 GB hard drive 5400 RPM
- 1 GB DDR2 667 MHz main memory, expand up to 4 GB
- 4.3 lbs., 12.3" x 8.8" x 1.2~1.4"
- 1.3 megapixel webcam, Bluetooth V2.0+EDR, Super Multi DVD/RW dual layer with Lightscribe, WLAN 802.11 A/B/G/N, DirectX 10 support

**W7S-A1W: $1,449**

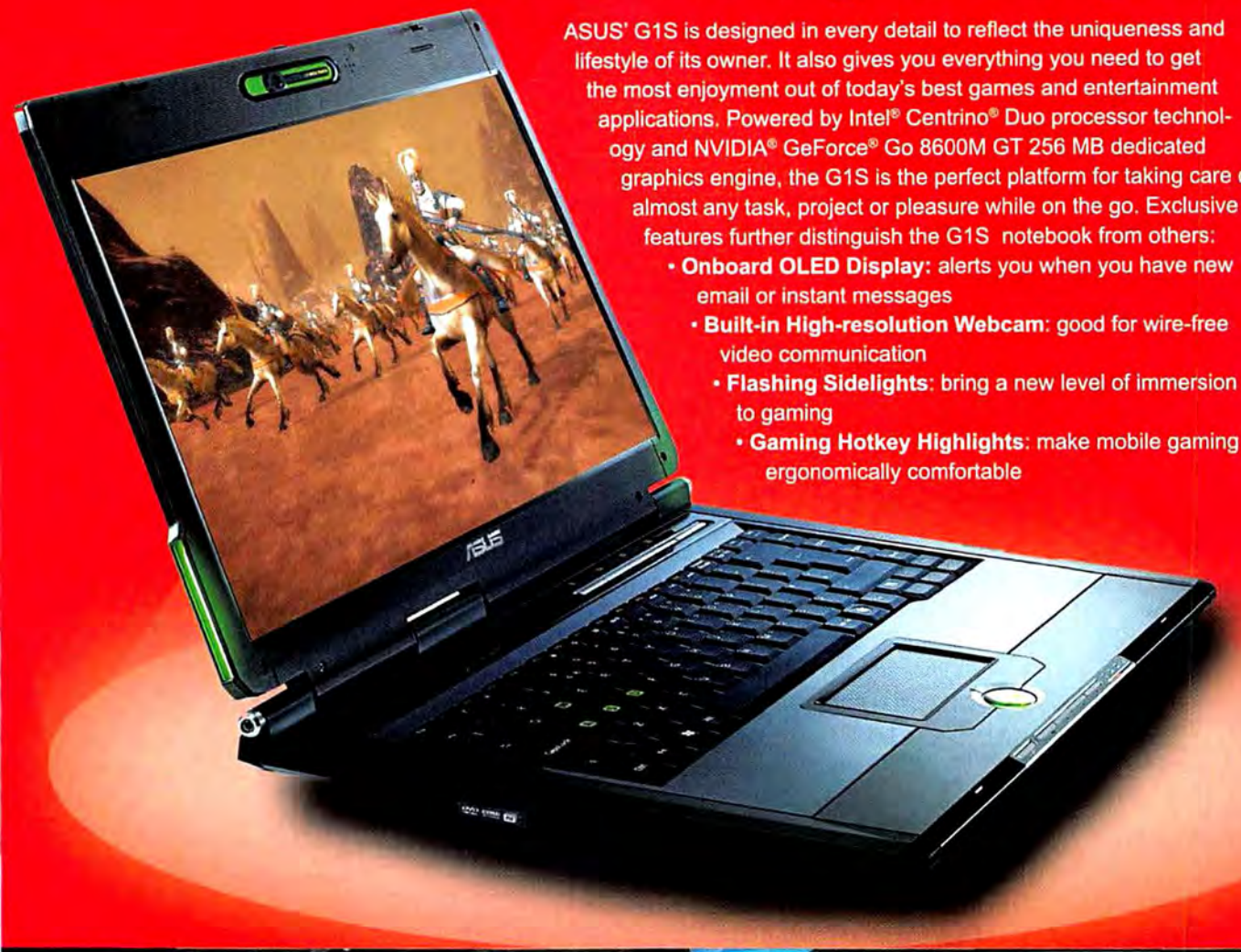
### See you. See me.

Built-in webcams let you experience on-the-go video communication without wires. Have face-to- face conversations with business associates and family members over the Internet - for free. ASUS offers a broad range of notebooks equipped with integrated webcams.

**High-Resolution Webcam**

intel Centrino Duo Core™2 Duo inside™

# G1S Dream Machine for Gaming and Beyond



ASUS' G1S is designed in every detail to reflect the uniqueness and lifestyle of its owner. It also gives you everything you need to get the most enjoyment out of today's best games and entertainment applications. Powered by Intel® Centrino® Duo processor technology and NVIDIA® GeForce® Go 8600M GT 256 MB dedicated graphics engine, the G1S is the perfect platform for taking care of almost any task, project or pleasure while on the go. Exclusive features further distinguish the G1S notebook from others:

- **Onboard OLED Display:** alerts you when you have new email or instant messages
- **Built-in High-resolution Webcam**: good for wire-free video communication
- **Flashing Sidelights**: bring a new level of immersion to gaming
- **Gaming Hotkey Highlights**: make mobile gaming ergonomically comfortable

*Built-in High Resolution Webcam*

*Color Coded Gaming Hot Keys Highlights*

*Graphic Intesity Indicator with Flashing Sidelights*

*Interruption-Fr Live Updates with ASUS Direct Messeng*

G1S is powered by Intel® Centrino® Duo Mobile Technology

- Intel® Core™2 Duo T7500 2.20 GHz
- Windows Vista™ Home Premium
- 15.4" Color Shine widescreen display (1680 x 1050 WSXGA+)
- NVIDIA GeForce 8600M GT 256 MB
- 160 GB hard drive 5400 RPM
- 2 GB DDR2 667 MHz main memory, expansion up to 4 GB
- WLAN 802.11 A/B/G/N, 1.3 megapixel webcam, Bluetooth V2.0+EDR, gaming backpack and gaming mouse, Super Multi DVD/RW dual layer with LightScribe

**G1S-A1: $1,999**

G2S is powered by Intel® Centrino® Duo Mobile Technology

- Intel® Core™2 Duo T7500 2.20 GHz
- Windows Vista Home Premium
- 17.1" Color Shine widescreen display with dual lamp high brightness & 8 ms response time (1920x1200 WUXGA )
- NVIDIA GeForce 8600M GT 256 MB
- 160 GB hard drive 5400 RPM eSATA
- 2 GB DDR2 667 MHz main memory, expansion up to 4 GB
- WLAN 802.11 A/B/G/N, 1.3 megapixel webcam, Bluetooth V2.0+EDR, gaming backpack and gaming mouse, Super Multi DVD/RW dual layer with LightScribe, HDMI connection

**G2S-A1: $2,099**

# A8 Series Incredible Graphics in a Thin-and-Light

The A8 Series' cutting edge graphics bring a new standard of visual experience to the mobile user. See twice as much detail as you can on a standard display. A8 series laptops also offer built-in webcams for video communication without wires.

A8JS is powered by Intel® Centrino® Duo Mobile Technology
- Intel® Core™2 Duo T7200 2.00 GHz
- Windows Vista™ Business
- 14" Color Shine widescreen display (1440x900 WXGA+)
- NVIDIA GeForce Go 7700 512 MB
- 160 GB hard drive 5400 RPM
- 2 GB DDR2 667 MHz main memory
- 5.25 lbs., 13.2" x 19.6" x 1.37"~1.46"
- Built-in webcam, Splendid Video Enhancement Technology, Power 4 Gear+, Instant Fun, Color Shine, Bluetooth V2.0+EDR, WLAN 802.11 A/B/G, Super Multi DVD/RW dual layer

**A8JS-4S050E: $1,649**

A8SC is powered by Intel® Centrino® Duo Mobile Technology
- Intel® Core™2 Duo T7100 1.80 GHz
- Windows Vista Home Premium
- 14" Color Shine widescreen display (1280 x 800 WXGA+)
- NVIDIAGeForce 8400M G 128 MB
- 160 GB hard drive 5400 RPM
- 1 GB DDR2 667 MHz main memory, expansion up to 4 GB
- 5.25 lbs., 13" x 9.6" x 1.4"~1.5"
- Built-in webcam, Power 4 Gear+, Color Shine, Bluetooth V2.0+EDR, WLAN 802.11 A/B/G/N, Super Multi DVD/RW dual layer

**A8SC-A1: $1,299**

## A8 Series – Your Best Campus Companion

With its 512 MB dedicated graphics engine and brilliant 14-inch widescreen, the 5.25-pound ASUS A8 series has your graphics needs covered. You have all the power you need for graphics-intensive assignments or easy and smooth multimedia presentations. The built-in webcam is good for wire-free video communication or igniting the next YouTube phenomenon.

# F3SV Power, Innovation and Performance, All in One

A brilliant Color Shine screen and a powerful dedicated graphics engine bring your multimedia to a whole new level. Stay close to those who matter with an integrated 1.3 megapixel webcam. Copy DVDs with ease with increased storage capacity.

F3SV is powered by Intel® Centrino® Duo Mobile Technology
- Intel® Core™2 Duo T7500 2.20 GHz
- Windows Vista™ Home Premium
- 15.4" Color Shine widescreen display (1680 x 1050 WSXGA+)
- NVIDIA GeForce 8600M GS 256 MB
- 160 GB hard drive 5400 RPM
- 1 GB DDR2 667 MHz main memory, expansion up to 4 GB
- 1.3 megapixel webcam with 240° swivel, fingerprint authentication and TPM, DirectX 10 support, WLAN 802.11 A/B/G/N, Bluetooth V2.0+EDR, Super Multi DVD/RW dual layer with Lightscribe

**F3SV-B1: $1,599**

## Boost 3D Graphics Performance

With a dedicated graphics engine, users can enjoy a best-in-class graphics and unprecedented performance for gaming. Experience the ultimate multimedia experience on a notebook.

**Dedicated Graphics Engine**

# ASUS 360:

Most ASUS brand notebooks sold in the US and Canada are covered by the best warranty in the industry – ASUS 360 with "20224 protection."

2 **A two year global warranty:** You can receive service on your notebook at ASUS service centers around the world for two years from your date of purchase.

0 **A zero bright dot guaranty:** If your LCD displays even a single bright dot within 30 days of purchase, ASUS will replace your notebook's entire screen.

2 **Two way free shipping:** If your notebook needs service, we cover the cost of shipping it to us via Fedex standard overnight from one of over 2,000 Fedex stations nationwide. We overnight it back to you for free as well.

24 **Twenty-four hour tech support seven days per week:** Our customer service professionals are here to service you at all times.

* ASUS reserves the right to exclude certain SKUs; check with your retailer to confirm coverage for specific models. Valid for notebooks purchased in the US and Canada only. Please see usa.asus.com for shipping program requirements and explanation.

## Purchase ASUS Notebooks at these fine resellers

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www.alicecomputer.com
(626) 451-0288

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(408) 248-5888

**Computer Technology Link**
www.ctlcorp.com
(800) 642-3087

**Laptop Authority**
www.laptopauthority.com
(877) 777-8123

**Micro League Inc.**
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(310) 450-2708

**Mobile Advance, Inc.**
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**PC Buzz**
www.pcbuzz.com
(310) 540-6301

**PC Club** *
www.pcclub.com
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www.xoticpc.com
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**East Region**

**Computer Connections**
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**RCS**
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(877) 746-7727

**Star Tech Inc.**
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(724) 962-0536

**Viewmicro**
www.viewmicro.com
(737) 346-9488

* Indicates multiple locations

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www.pcmall.com

**Target**
www.target.com

**PC Connection**
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www.portableone.com

## ASUS Notebook Special Features

ASUS notebooks are not only packed with the latest technology innovations and unique design, but each of them also includes special features that are developed to meet the daily needs of their owners. We highlight some key features for each model, and make it easier for you to choose the right ASUS notebook.

### ASUS Crystal Shine LCD Technology

ASUS' Crystal Shine LCD Technology is the latest in anti-reflective screen technology. It delivers crisper images, brilliant colors, sharp contrast, wider viewing angles, and helps reduce eye fatigue.

### ASUS Color Shine LCD Technology

With Color Shine LCD Technology images are displayed with increased contrast. Movies, pictures, and games are displayed in their natural brilliant and vibrant colors for a more realistic and immersive experience.

### Power4 Gear+ Efficient Energy Saving

ASUS' Power4 Gear technology extends notebook battery life 20%-30% by intelligently regulating power usage. Four useful settings include Quiet Office, Entertainment, High Performance, and Power Saving.

### Splendid Video Intelligence Technology

ASUS' exclusive Splendid Video Enhancement technology takes PC graphics capability to the next level by enhancing color depth and intensity in real-time.

### Fingerprint Authentication & TPM

An unparalleled level of security is at your fingertips. ASUS' fingerprint reader restricts unauthorized access to your notebook, while the Trusted Platform Module encrypts your data.

### Stylus Input

Take notes on the fly with style! Work while carrying this ultra versatile touch-screen notebook.

### Detachable Docking Station

A docking hub connects all your peripherals to your notebook in one easy step, giving you instant synchronization and convenient mobility.

### Hot Swappable Module Bay

Stay productive without being interrupted. Detach your DVD-drive or insert an additional battery for long-lasting power without shutting down your computer.

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# GADGET FREAK

DAN TYNAN

# Traveling the Web's Third Dimension

## My avatar, my self: Second Life shows us the future of the 3D Web.

MY CHILDREN DON'T fight over the TV remote anymore. In fact, they go hours without fighting at all—they're too busy roaming virtual worlds like RuneScape and Club Penguin. We have to haul them from their keyboards kicking and screaming when it's time to eat dinner.

But the kids aren't just frying their brains in front of a glowing LCD, they're learning how to navigate the 3D Web. In a few short years, you too may be shopping, attending classes, snoozing through meetings, and socializing via an online avatar that looks just like you—or how you wish you looked.

Of the many 3D worlds aimed at adults, Second Life probably comes closest to how the "metaverse" will actually look. Created by Linden Lab in 2003, SL now generates nearly $2 million a day in revenue for its residents, mostly through the sale of virtual real estate or objects. Companies from Adidas to Wells Fargo are buying land and erecting offices inside SL, hoping to carve out turf while it's still fresh and new. (Mindark's Entropia Universe is another 3D world with its own internal economy, but it's still playing catch-up to Second Life.) I decided to log on to SL and see what the future looks like.

### THE 3 D's OF SECOND LIFE

THERE'S SOMETHING deliciously surreal about a world where you can fly, force the sun to rise, or change gender with a few mouse clicks. Second Life is also the only place I know where money literally grows on trees: You can pick 20 Linden dollars (L$20) at a time, the equivalent of about 7 U.S. cents on the LindeX currency exchange. Collect enough Linden bucks, and you can buy new threads, rent an apartment, or obtain land.

But this virtual world also has some real problems, and they all start with *d*.

**It's deserted:** As of this writing, SL claims more than 5.6 million residents. But I never saw more than 35,000 people logged on at any time. My avatar wandered through many ghost towns and vast empty landscapes. Catherine Smith, Linden Lab director of brand strategy and communications, says roughly 10 percent of people who sign up for an account become active residents, which puts the real population at around half a million. Visiting Second Life without human interaction is like playing Myst without the clues: It gets boring fast.

**It's difficult:** Ninety percent of visitors don't return because SL is hard to use. I spent most of my time colliding into buildings. Creating objects requires both serious design skills and familiarity with the Linden Scripting Language (LSL), the lingua franca behind all SL objects. (The intrepid can visit a wiki at find.pcworld.com/57141 for programming basics.)

**It's demanding:** Unlike browser-based 3D worlds, SL is a downloadable program that takes over your system, sucking up bandwidth and as much graphics processing power as your PC has. My computer is fairly new, yet buildings and other objects sloooowly drew themselves in as I flew by overhead.

### A WORLD DIVIDED

THESE PROBLEMS should go away. Graphics cards will only get more powerful, and creative tools will get easier (I hope). One study projects that by March 2008, SL will have 25 million residents and 150,000 concurrent users. But 3D worlds won't fully replace today's Web. For search, e-mail, or shopping, the 2D Web will remain faster and easier.

The 3D Web is also likely to create a new digital divide—between 2D Luddites like me and my multidimensional children, for example. My 11-year-old son, the RuneScape devotee, spent 10 minutes on SL and immediately wanted to build and sell objects. (Gratifyingly, he also spent a fair amount of time crashing into things.) Unfortunately, SL is too mature for those under 18, though he'll soon be old enough for Teen Second Life (teen.secondlife.com).

With luck, he'll become a metaverse millionaire and support us. Neither I nor my avatar is getting any younger. ■

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

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# BUGS & FIXES

STUART J. JOHNSTON

# Microsoft Plugs Critical Vista Hole

## Plus: Vista corrupts iPods, Yahoo Messenger creates Internet Explorer risk.

MICROSOFT HAS just patched another critical hole in Vista that it knew about as long ago as last Christmas. The delay was similar to its lag in patching the serious (and heavily targeted) animated-cursor flaw I told you about last month.

The new problem involves the way that the OS's Client/Server Run-time Subsystem (CSRSS) handles error messages, and it affects Windows 2000 SP4 and Windows XP too. This flaw may not be as severe as the cursor problem, as Microsoft says you'd have to perform certain unspecified "actions" on a malicious Web site before an assault could succeed. But if you were to get snared, an attacker could run any command or program on the victimized PC. Proof-of-concept code, which often presages attacks, is available, but no active attacks on this hole have been reported yet.

If you have Automatic Updates enabled, the fix should already be installed. Otherwise, make sure to get hold of it at find.pcworld.com/57284.

In addition, Microsoft has fixed a critical weakness in its Agent technology in Windows 2000 SP4 and Windows XP SP2. The flaw can be exploited through Internet Explorer 6 if you visit a Web page with a poisoned link or banner ad. While the Agent is normally supposed to run little animated helpers (like the infamous Clippy), a malicious site need not display one prior to delivering an attack. Instead, the bad code could lurk inside a seemingly harmless link.

**Rigged bitmap pics can trigger an attack via Photoshop.**

Vista is unaffected by this hole, as is Internet Explorer 7. You can get the patch via Automatic Updates or download it at find.pcworld.com/57285.

### POISONED PICS

ADOBE'S PHOTOSHOP CS2 and CS3 contain critical flaws that can give an attacker control over your PC if you use either program to open bitmap images (those ending with .bmp, .dib, or .rle) that have been rigged, according to security firm Secunia and the French Security Incident Response Team. At least one proof-of-concept exploit is available online. Adobe hasn't yet released a patch, so be careful with e-mailed or downloaded images. Get more info at find.pcworld.com/57286.

Also, an independent researcher nabbed a $10,000 prize from 3Com's TippingPoint division by exploiting a new bug in Apple's QuickTime player to break into a Mac running OS X. Apple released a patch 11 days later, before any actual attacks surfaced. QuickTime 7.1.6 corrects this flaw, which affects Windows as well as Mac OS X; get the patch from find.pcworld.com/57307, or from within the program by clicking *Help•Update Existing Software.* ■

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

### VISTA PROBLEM PLAGUES IPODS

MICROSOFT PATCHED A Windows Vista bug that can corrupt an iPod when you use the 'Safely Remove Hardware' feature or disconnect the iPod using Windows Explorer. Though Microsoft provided no details on just how a player is affected by the bug, the company's notice says that you'll have to use iTunes to restore all the music on your iPod if it happens. (It also says that Apple recommends always using iTunes to disconnect an iPod.) Get the patch and more info at find.pcworld.com/57287.

### IN BRIEF

#### Acer Battery Recall

RISK OF OVERHEATING led Acer to recall 27,000 Sony-made lithium ion batteries in TravelMate and Aspire laptop PCs sold between May 2004 and November 2006 in the United States. For details of the recall, go to find.pcworld.com/57289. For more about the Sony battery cells' long-term problems, check out find.pcworld.com/57298.

#### Messenger Trouble

YAHOO MESSENGER HAS a faulty ActiveX control that leaves you open to attack via IE if you view a poisoned Web page. IE 7 and Windows Vista mitigate but don't remove the threat. Any 8.x version installed before March 13, 2007, is at risk; download the most recent YM version at messenger.yahoo.com.

#### X Marks the Holes

APPLE FIXED 25 security flaws in OS X a mere month after it corrected 45 other bugs. Pick up the fixes from Apple's auto-update feature or find.pcworld.com/57290.

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# REVIEWS & RANKINGS

EDITED BY NARASU REBBAPRAGADA AND ALAN STAFFORD

REVIEWS


56 KODAK EASYSHARE 5300 ALL-IN-ONE
58 PARAGON DRIVE BACKUP 8.5 PERSONAL EDITION, SYMANTEC NORTON SAVE & RESTORE 2.0
62 VISTA READYBOOST-EQUIPPED FLASH DRIVES FROM KINGSTON, LEXAR, AND RITEK


## Budget Business PCs That Run Vista

**These inexpensive, brand-name business systems will still let you run XP if you prefer, however.**

BUSINESS PCs

TEST Center

THE OLD ADVICE about shopping for cars applies to operating systems as well: Don't buy in the first model year—wait for someone else to uncover the bugs. PC buyers, unfortunately, are being forced to purchase systems that run Windows Vista. Most consumer PCs have already made Microsoft's new operating system the only choice. And though you can probably still opt for Windows XP if you're buying a business system from one of the big three PC vendors, they too push Vista aggressively. Microsoft will stop allowing any vendors to preinstall Windows XP on new systems in just six months.

Bowing to the inevitable, we searched out inexpensive business PCs that come with Windows Vista preinstalled, and found the Dell OptiPlex 740, the HP Compaq dc5750, and the Lenovo 3000 J115. All three manufacturers will still sell you XP if you want it, but they recommend Windows Vista Business on these systems, so we had that version installed. Despite costing about $1000 to $1250, the models all came with large wide-screen LCD monitors. Their other components were rather modest, but these systems aren't designed to run Doom 3; likely customers are more apt to buy them for, say, running a small business's PC-based cash-register system. They emphasize security, reliability, and a higher level of service and support than you would expect from a consumer system.

NO FLASHY LIGHTS, no ready-for-takeoff noise: Dell's sedate-looking OptiPlex 740 will fit into any business decor, and it's extremely quiet.

The PCs we tested are comparable in their performance and business-class features, but the OptiPlex 740 won our Best Buy honors by offering a clearly superior case design and superquiet operation.

### DELL DESIGN SHINES

IF YOU'LL NEVER upgrade your PC or even crack the case after you buy it, then you probably needn't worry about finding a system that lets you swap hard drives or install an expansion card as quickly as an Indy 500 mechanic changes wheels. But when a company puts as much effort into its case design as Dell did with the OptiPlex 740, you have to assume that it's paying attention to other details, too.

Dell offers the OptiPlex 740 in minitower, desktop (horizontal orientation), and ultracompact versions. You can mount the ultracompact model on the back of Dell's 17-inch LCD monitor to conserve even more space.

The HP Compaq dc5750 comes in either a microtower configuration or the desktop orientation that we tested. HP

PHOTOGRAPHS: MARC SIMON

64 SANDISK SANSA CONNECT
64 EASY DATA ACCESS DOCSVAULT SMALL BUSINESS EDITION 1.1
68 SONY VAIO VGN-UX390N
72 SAMSUNG UPSTAGE (M620)
74 JOOST
76 HITACHI DESKSTAR 7K1000

60 TOP 5 ALL-PURPOSE LAPTOPS
66 TOP 5 INSTANT MESSAGING SERVICES
70 TOP 5 HARD DRIVES

68

70

calls the latter model a "small form factor" system, but it's nearly identical in size to Dell's desktop case.

The Lenovo 3000 J115 comes only in a tower case with a gray-green, flat plastic front panel and colorfully lit buttons; it reminded me of a German kitchen appliance. The 3000 series is supposed to be more appropriate for small businesses, while Lenovo's ThinkCentre models are aimed at enterprise settings.

The OptiPlex's interior design was substantially better than that of the other two PCs. The Dell uses a 5-inch-diameter, slow-turning fan to pull air through an even bigger plastic shroud, which is mounted over a massive CPU heat sink. The huge fan isn't attached to the back of the case, as is typical, but instead is mounted about 3 inches in from the back of the case, presumably to reduce noise. Likewise, the power supply's fan is mounted toward the interior rather than the back of the case.

The HP and Lenovo PCs use smaller, more traditional fans—one in the power supply, located against the back of the case, and one mounted on top of the CPU's heat sink. Both systems are roughly twice as loud as the Dell OptiPlex (though as PCs go, they aren't bad). Their fans will likely cost less than Dell's, however, should you need to replace them out of warranty.

The Athlon 64 X2 processors in all three systems can take advantage of AMD's Cool 'n' Quiet technology, which allows the PC to adjust CPU speed and voltage to meet the user's needs. AMD says that Vista systems do not require a driver to take advantage of the technology, whereas XP systems do need one.

Hard drives mount perpendicularly to the side of the OptiPlex's case, in plastic sleds with rubber mounts to reduce vibration (though the mounts have less rubber than we used to see in Dell systems). If you pinch the sides of the mounts, the drives slide out easily; I had a slightly harder time getting them back in. Clips on the side of the air scoop route the SATA drive cables neatly, and the cables are precisely the right length for their connectors to reach the drive bays.

**LENOVO'S PRETTY 3000 J115 comes only in a tower case; the HP Compaq dc5750 comes in either desktop or tower orientation.**

Slots cut into the interior of the OptiPlex 740's case let you slide optical drives in without screws; you simply press a lever to pop the front bezel off and release a drive. You can install an expansion card rapidly, thanks to a fairly good quick-release adapter; the power supply comes out without tools, too. The Dell's side panel is much easier to reattach than those of the other two machines: You simply insert the panel's bottom edge into the side of the case and then tip the panel up and slam it shut instead of sliding it on.

The HP Compaq dc5750 has some of the OptiPlex's features, but it's still no match for the Dell (the dc5750's tower version may be better laid out, though). The HP has quick-release mechanisms for its optical drive, power supply, and expansion cards, but they're not nearly as well designed as the OptiPlex's. The expansion slot retainer, for example, is a metal piece held in place by the case lid; if you remove the lid, the retainer can rattle around.

Behind its trendy, attractive façade, the Lenovo 3000 J115 has a surprisingly bare-bones, old-fashioned case. You must remove two thumb screws to slide the side panel off. ▶

Hard drives, optical drives, and expansion cards are held in by screws too, so to swap an optical drive you have to remove both of the case's side panels. Removing anything else inside the PC (aside from RAM) requires tools.

## TORTOISE WINS RACE

THE THREE MODELS rely on integrated graphics systems, which we worried would slow Vista's Aero environment, but Aero seemed to run fine on all three (even the HP, which came with only 1GB of system RAM from which the graphics system could steal).

In our WorldBench 6 Beta 2 tests, the OptiPlex 740's score of 70 barely beat the 68 mark of the identically configured Lenovo 3000 J115; the HP Compaq dc5750, with less RAM and a slightly punier processor, scored a 62, about 11 percent behind the OptiPlex. But while the OptiPlex earned a Superior rating for performance, it was competing against only the J115 and the dc5750—these three PCs are the first Vista value systems we've tested. Compared with the power Vista systems we tested last month, these computers are slow—the fastest machine we tested earlier earned a 129 on our benchmark.

All three displays provided 1680-by-1050-pixel resolution, but only the HP L2045w LCD allowed height adjustments and swiveling; the Dell and Lenovo displays offered only tilt. You can save money ($70 last we looked) by buying the HP monitor separately from the dc5750.

None of the three systems came with chassis-intrusion-detection mechanisms installed, but the OptiPlex and the dc5750 offer it as a no-cost option. You can purchase a port guard for the HP to prevent unauthorized USB connections, and you can disable the front-mounted USB ports on all three systems in their password-protected BIOSs. Dell and HP offer security sleeves for mounting the systems under a desk or on a wall, but only for use with their desktop versions. With the tower models, you'll have to depend on cable locks.

**THE OPTIPLEX 740 has a great interior design: 1) Mounting the fan far from the back of the PC and directing the power-supply fan inward cuts noise. 2) Hard-drive cabling is neatly routed. 3) Quick-release drive sleds use rubber mounts to reduce vibration. 4) Optical drives pop out when you press a lever.**

The Dell and HP systems have Trusted Platform Module chips on their motherboards; the chip works with Vista's Bit Locker security feature, which lets you encrypt your entire hard drive.

## SERVICE ON THE SPOT

ALL THREE COMPANIES offer 24/7 tech support and next-business-day on-site warranty service, but Dell and HP offer *same-day* on-site service as well. HP charges an additional $149 to tack it onto a three-year warranty; Dell charges $154 extra. Lenovo offers same-day on-site service only for its ThinkCentre line, not for the 3000 series.

Dell trumpets that its OptiPlex tech support lines are based in North America (unlike those for its Dimension PCs). Dell offers guaranteed access to tech support in 2 minutes or less for $69 extra. Lenovo promises 1-minute-or-less access at no extra cost.

Lenovo scored the highest of the three makers in our most recent reliability and service survey (find.pcworld.com/57320), albeit with merely average reliability scores. Dell rated average in all areas, except for a below-average mark for phone hold time. HP placed fourth from the bottom, with average marks in every category except "satisfaction with reliability," where it received a below-average score.

## VISTA FOR BUSINESS?

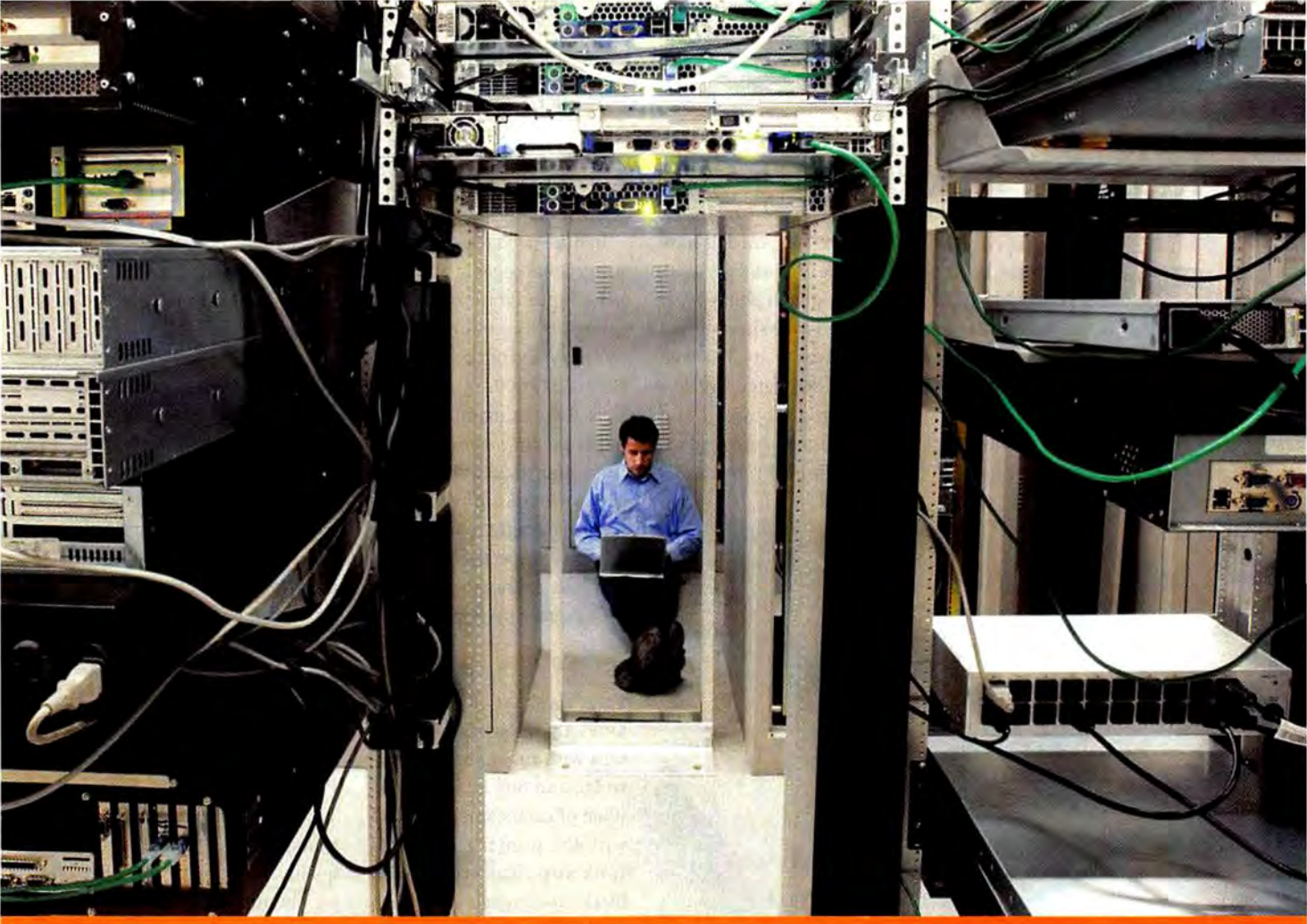
THE DELL, HP, and Lenovo all ran Windows Vista quite well, if not terribly quickly. The HP Compaq dc5750 has a few more security options, and Lenovo's slightly better reliability marks should earn its 3000 J115 some consideration. But Dell's OptiPlex 740 has the best design by far. It's the PC I would choose if I were running a business, though I'd check my preferred applications for compatibility before I sprang for one using Vista.

*—Alan Stafford*

| | VALUE DESKTOP | PCW Rating | Performance | Features and specifications |
|---|---|---|---|---|
| 1 | Dell OptiPlex 740<br>Best Buy $1024<br>find.pcworld.com/57137 | 88 Very Good | • WorldBench 6 score: 70<br>• WorldBench 6 rating: Superior<br>• Overall design: Very Good<br>• Graphics: Poor | • 2.2-GHz Athlon 64 X2 4200+<br>• 160GB drive capacity<br>• 20-inch Dell E207WFP LCD<br>• Integrated nVidia GeForce 6150 LE graphics |
| | ▸ **Bottom line:** Superb internal design makes this business system ultraquiet and very easy to work on. Same-day on-site service is optional. | | | |
| 2 | Lenovo 3000 J115<br>$1238<br>find.pcworld.com/57138 | 79 Good | • WorldBench 6 score: 68<br>• WorldBench 6 rating: Superior<br>• Overall design: Fair<br>• Graphics: Poor | • 2.2-GHz Athlon 64 X2 4200+<br>• 160GB drive capacity<br>• 22-inch Lenovo D221 Wide LCD<br>• Integrated nVidia GeForce 6100 graphics |
| | ▸ **Bottom line:** Targeted at the small-business market, this system lacks the tool-less chassis features of Lenovo's ThinkCentre models. | | | |
| 3 | HP Compaq dc5750<br>$1251<br>find.pcworld.com/57136 | 73 Good | • WorldBench 6 score: 62<br>• WorldBench 6 rating: Very Good<br>• Overall design: Good<br>• Graphics: Poor | • 2-GHz Athlon 64 X2 3800+<br>• 80GB drive capacity<br>• 20-inch HP L2045w LCD<br>• Integrated ATI Radeon X1150 graphics |
| | ▸ **Bottom line:** This PC's desktop orientation saves space on a desk but limits expandability. You can also get it in a minitower version. | | | |

**CHART NOTES:** Prices and ratings are as of 5/9/07. WorldBench 6 scores are from the Beta 2 version of the benchmark; results may differ under the final benchmark, and are not comparable to scores from WorldBench 5.

PHOTOGRAPH: MARC SIMON



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# Kodak's New MFPs Slash Photo Printing Costs

**INKJET MULTIFUNCTION**

**TEST Center** KODAK'S NEW EasyShare All-in-One inkjet multifunction printers aren't the cheapest in their class, but when combined with the company's paper-and-ink packs, they tout the prospect of printing borderless 4-by-6-inch photos for as little as 10 cents each—about half the industry average. I found that claim valid and the photo quality very good, though I noticed some muted colors and slight graininess.

**YOU CAN PRINT 10-cent photos on the EasyShare 5300 All-in-One, though you'll need to use pricier stock to get its best output.**

I tested the $200 EasyShare 5300 All-in-One, which prints, scans, and copies. The company's All-in-One lineup also includes the $150 EasyShare 5100, which lacks an LCD screen, and the $300 EasyShare 5500, which features 33.6-kilobits-per-second faxing with 100-sheet memory, and a 35-sheet legal-size automatic document feeder.

Each model has two USB ports for printing photos directly from a USB thumb drive or a digital camera. All of the EasyShare models have a 100-sheet input tray, a 20-sheet 4-by-6-inch photo-paper feeder, and a 50-sheet output tray. The EasyShare 5300 and 5500 add dedicated buttons for printing, copying, and scanning; media card readers; and pop-up LCD screens (3.0 inches and 2.4 inches, respectively) to make it easy to print without a PC if you wish.

## AUTOSENSING SETTINGS

THE EASYSHARE 5300 supports Windows Vista, Windows XP, and Mac OS X. It comes with Kodak's EasyShare photo management app, which makes light work of printing and scanning.

If you're using Kodak's paper, the nonprint side includes a watermarked code that a sensor in the printer reads to invoke the best print mode automatically. Another sensor determines whether you've inserted plain paper or glossy media, and adjusts print settings accordingly.

In our speed tests the 5300 printed text pages at 6.2 pages per minute, far from the slowest we've seen but just about half the speed of Canon's $180 Pixma MP600, our current Best Buy. In printing plain-paper graphics at default settings and maximum-quality glossy 4-by-6 photos, the results averaged 2.1 ppm and 1.2 ppm, respectively—which is about average among recently tested inkjet MFPs.

## INKS AND PRICING

THE EASYSHARE All-in-Ones use a pigment-ink system with one black-ink cartridge and one five-ink tank. (One of each comes bundled with the printer.) The latter tank supplies true photo black, cyan, magenta, yellow, and a protective coating that covers clear spaces on a print to provide uniform gloss and improved stain protection, according to the company.

Kodak sells two types of paper-and-ink printing packs. The $18 Photo Value Pack includes a full-capacity color cartridge and 180 sheets of 3-star, 48-pound-rated 4-by-6-inch glossy paper. Its claimed cost per photo is 10 cents. The $20 Premium Photo Value Pack provides 135 sheets of thicker, 4-star, 66-pound-rated 4-by-6-inch glossy paper, for a claimed cost of 15 cents per photo. (The star ratings are assigned by Kodak.)

Using the $18 Photo Value Pack and relying on the 5300's autodetection system, I was able to print 205 photos before running out of ink. Because all photos have different levels of color, results will vary; but in my tests the company's claim of 10-cent prints held up. And, their thickness aside, I noticed little output-quality difference between Kodak's 3- and 4-star paper.

The company's 5-star, 74-pound-rated Ultra Premium Paper, used in our PC World Test Center photo evaluations, produced even better quality. Skin tones were spot on, though colors weren't as vibrant as we'd have liked.

In our plain-paper graphics tests, our judges rated the 5300's output as Fair due to some horizontal banding, though such banding isn't unusual for MFPs of this class. The 5300 produced well-formed text too, but characters often had dirty edges.

Kodak doesn't sell the Ultra Premium Paper in a value pack, unfortunately; it comes only in packs of 100, for $21. Also, you must buy the $15 color-ink cartridge separately, which on the Ultra Premium Paper produces 105 4-by-6 photos, claims Kodak.

Bottom line: Getting the highest print quality out of the 5300 costs about 35 cents per photo. But the 10- and 15-cent prints look pretty good too, and those ink prices may be hard to pass up.

*—Danny Allen*

**EasyShare 5300 All-in-One**
**Kodak**
**PCW Rating** 72 **Good**
**This all-in-one's slightly high price is offset by competitive ink costs. Performance is fair, but photo quality can be very good.**
**Street: $200**
**find.pcworld.com/57306**

PHOTOGRAPH: MARC SIMON

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# Image Backup Apps Become Vista Compatible

**DISK UTILITIES**

PARAGON SOFTWARE AND Symantec have each released Vista-compatible drive imaging and backup programs. Both Paragon's **Drive Backup 8.5 Personal Edition** and Symantec's **Norton Save & Restore 2.0** are simple to use, though I preferred Drive Backup 8.5. It's so well designed that it poses serious competition to higher-end imaging applications such as Symantec Ghost and Acronis True Image.

Norton Save & Restore is a consumer-friendly program that uses Symantec Ghost's engine. Version 2.0 is a relatively minor upgrade, save for the Vista compatibility and a redesigned step-by-step interface that is easier to use than that of its predecessor. Symantec says that version 2.0 has been optimized for better performance as well, although it seemed no faster to me.

I liked that Save & Restore will create a drive image on some of the less-capable computers that I often use. It demands, however, that the PC have at least 512MB of memory to restore an image—an onerous requirement for many older systems.

Both Drive Backup and Save & Restore can create full and incremental backup images, and both utilities can back up from within Windows too. Drive Backup also gives you the option of creating a small hidden partition (a "backup capsule") that you can back up to and restore from; all the app is missing is the ability to back up individual files and folders, a feature that Save & Restore and other pro-level programs possess.

I especially liked Drive Backup's tabbed main interface, which provides same-window access to tasks, volumes, created images, and help. And while the program doesn't offer the walk-through of Save & Restore, it does give you a way to schedule backups using the Windows Scheduler. Its interface is more suited for intermediate to advanced users who like to see all of their options.

Drive Backup creates a CD that you can boot from to create and restore images outside the Windows environment (Save & Restore's boot CD is restore only). The $100 Professional Edition adds support for Windows dynamic disks (hard-to-back-up partitions that span multiple disks) and advanced network features.

I would recommend Save & Restore for less-experienced users, though there's no reason for owners of the first version to upgrade until they need Vista compatibility.

*—Jon L. Jacobi*

**SYMANTEC'S SAVE & Restore prompts you to run a wizard to conduct imaging operations such as creating a backup or restoring one.**

**DRIVE BACKUP'S NIFTY Backup Capsule feature lets you back up to and restore from an image on a hidden partition of your hard disk.**

**Drive Backup 8.5 Personal Edition**
**Paragon Software Group**
**PCW Rating** 8.7 Very Good
This full-featured imaging utility lacks only file and folder backup.
List: $50
find.pcworld.com/57146

**Norton Save & Restore 2.0**
**Symantec**
**PCW Rating** 7.9 Good
This minor upgrade offers wizard-based, set-it-and-forget-it drive imaging and file backup.
List: $50
find.pcworld.com/57145

**GOTCHA!**

## Costly Cell Data Plans

IF YOU'VE EVER made calls or used data services on your cellular phone using overseas roaming, you've probably encountered sticker shock. Talk or e-mail too much, and your bill could skyrocket.

AT&T now offers international data rate plans. While it previously had such plans for laptops and BlackBerry devices, the plans now extend to handhelds and smart phones.

For $45 a month (for a smart phone with a numeric keypad) or $70 a month (if your device has a QWERTY keyboard), AT&T will allow you unlimited domestic data (normally $20 or $45 a month for smart phones and full-keyboard devices, respectively) plus up to 20MB of data in some 30 other countries. Extra megabytes cost $5 each.

*–Yardena Arar*

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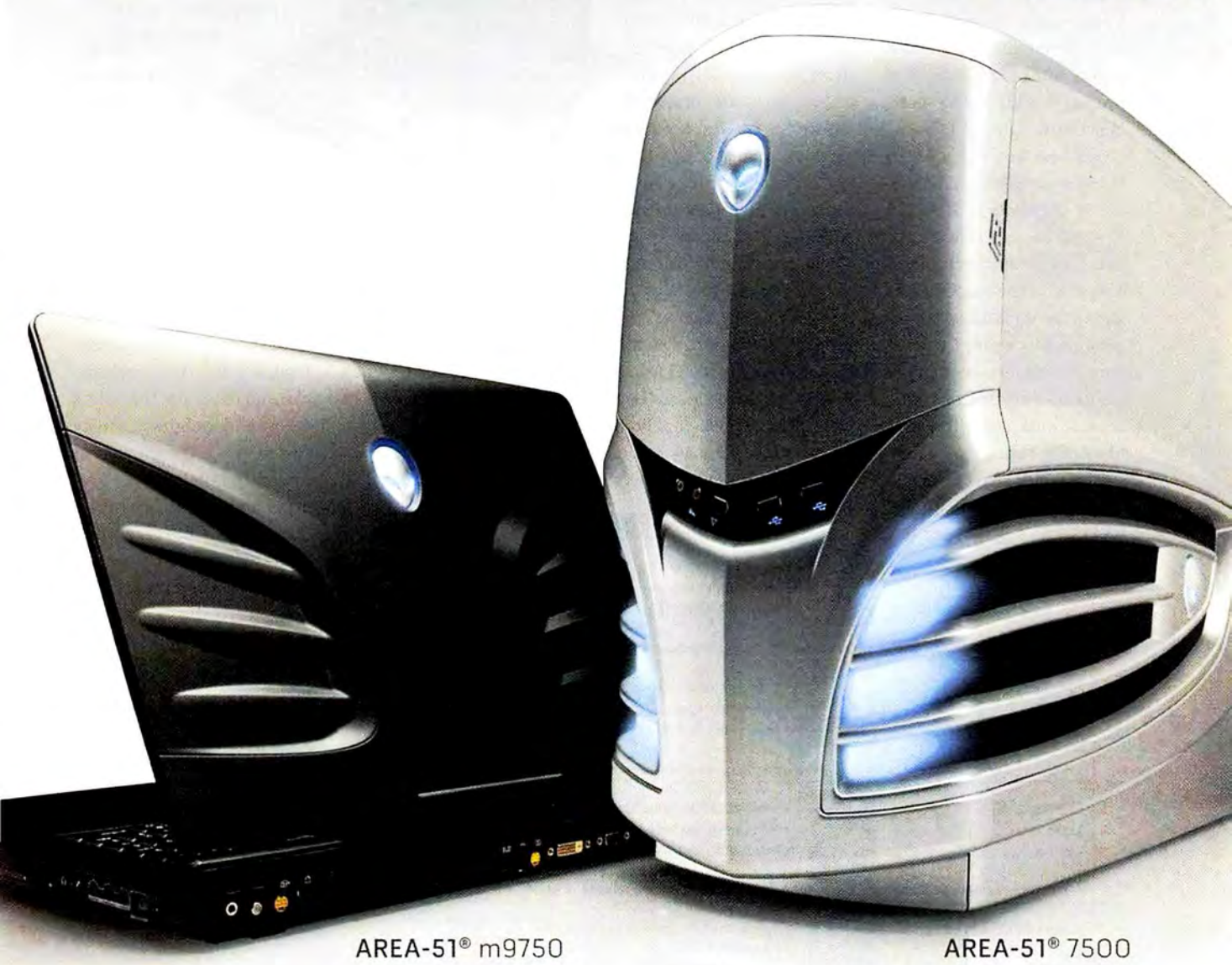

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TOP 5 ALL-PURPOSE LAPTOPS

# All-Purpose 'Santa Rosa' Notebooks Debut

TEST Center EACH OF THE all-purpose notebooks (those with screens between 13.3 and 15.4 inches in size) featured in this month's chart is a newly released, Windows Vista–equipped model that we've tested with WorldBench 6 Beta 2, the latest version of the PC World Test Center's benchmark suite for PCs.

Our Best Buy, HP's $1309 Pavilion dv6500t, and Gateway's third-ranked, $2270 E-475M each use Intel's updated Centrino technology. Previously code-named Santa Rosa, the updated platform now goes by either Centrino Duo (for general models) or Centrino Pro (for business models outfitted with extras like Active Management technology, which IT staffs can use to maintain laptop fleets).

Notebooks that use the Intel 965 Express chip set in either the Centrino Duo or the Centrino Pro feature an 800-MHz frontside bus (up from 667 MHz), DDR2-800 memory support, built-in draft 802.11n Wi-Fi with 802.11g backward compatibility, and a CPU socket that supports a range of new Core 2 Duo mobile processors, most of which now provide 4MB of Level 2 cache.

The multimedia-oriented HP Pavilion dv6500t uses the new 2-GHz Core 2 Duo T7300 processor, while the small-business-focused Gateway E-475M includes a 2.2-GHz Core 2 Duo T7500 chip. Both laptops had stellar battery life, helped by the new chip set's ability to save power by underclocking during periods of low CPU usage. The Gateway also turned out to be the fastest Vista notebook we've tested to date, as it bested our previous top WorldBench 6 Beta 2 scorer, a Micro Express NP5760 desktop replacement system running an older 2.33-GHz Core 2 Duo T7600 chip, by 1 point—83 to 82.

**HP'S PAVILION DV6500T uses Intel's new mobile platform.**

## BATTERY LIFE CONCERNS

THE FOURTH-place Lenovo ThinkPad T60, with a 14.1-inch display and almost 5 hours of battery life, is a great example of a traditional, moderate-size laptop. At $1899, though, it's significantly pricier than the second-place Asus A8JR-4P021C or the Fujitsu LifeBook A3120, which missed a place on the chart. The Asus's 5.5-pound weight and nice design give it the makings of a quality notebook for students and worker bees alike, but its battery life of exactly 2 hours was well below average for a notebook of its size.

We were similarly disappointed by the Fujitsu A3120's battery life; it lasted a mere hour and a half on one charge. Still, its 6.4-pound weight is light for a laptop wielding a 15.4-inch screen, and the system features a stylish cream-colored exterior and a unique touchpad that lets you jot down notes or draw within selected applications.

*—Danny Allen*

| | ALL-PURPOSE LAPTOP | PCW Rating | Performance | Features and specifications |
|---|---|---|---|---|
| 1 | HP Pavilion dv6500t<br>Best Buy $1309 NEW<br>find.pcworld.com/57131 | 85 Very Good | • WorldBench 6 Beta 2 score: 75 Superior<br>• Overall design: Very Good<br>• Tested battery life: 3:57 | • 2-GHz Core 2 Duo T7300<br>• 15.4-inch wide screen<br>• 6.2 pounds<br>• DVD+R DL/DVD±RW |
| | ▸ **Bottom line:** Latest midsize consumer notebook from HP has a gorgeous design and one of Intel's latest mobile dual-core processors. | | | |
| 2 | Asus A8JR-4P021C<br>$1099 NEW<br>find.pcworld.com/57133 | 80 Very Good | • WorldBench 6 Beta 2 score: 60 Good<br>• Overall design: Good<br>• Tested battery life: 2:00 | • 1.66-GHz Core 2 Duo T5500<br>• 14-inch wide screen<br>• 5.5 pounds<br>• DVD+R DL/DVD±RW |
| | ▸ **Bottom line:** This inexpensive laptop's price and weight are attractive, but the dim screen is hard on the eyes. | | | |
| 3 | Gateway E-475M<br>$2270 NEW<br>find.pcworld.com/57130 | 79 Good | • WorldBench 6 Beta 2 score: 83 Superior<br>• Overall design: Very Good<br>• Tested battery life: 5:17 | • 2.2-GHz Core 2 Duo T7500<br>• 15.4-inch wide screen<br>• 7.2 pounds<br>• DVD±R DL/DVD±RW/-RAM |
| | ▸ **Bottom line:** Gateway's E-475M is a blazingly fast, stylish unit that will please everyone but audio aficionados. | | | |
| 4 | Lenovo ThinkPad T60<br>$1899 NEW<br>find.pcworld.com/57132 | 79 Good | • WorldBench 6 Beta 2 score: 69 Very Good<br>• Overall design: Very Good<br>• Tested battery life: 4:56 | • 2-GHz Core 2 Duo T7200<br>• 14.1-inch screen<br>• 5.7 pounds<br>• DVD+R DL/DVD±RW/-RAM |
| | ▸ **Bottom line:** If long layovers with no wall outlets in sight are a frequent occurrence for you, the T60's battery could be a lifesaver. | | | |
| 5 | Lenovo ThinkPad T60p Widescreen<br>$2199 NEW<br>find.pcworld.com/57129 | 76 Good | • WorldBench 6 Beta 2 score: 73 Very Good<br>• Overall design: Very Good<br>• Tested battery life: 4:35 | • 2-GHz Core 2 Duo T7200<br>• 15.4-inch wide screen<br>• 6.2 pounds<br>• DVD±R DL/DVD±RW/-RAM |
| | ▸ **Bottom line:** Wide-screen version of the ThinkPad T60 series has mobile workstation graphics, but its display is a little dark. | | | |

**CHART NOTES:** Prices and ratings are as of 5/9/07. Weight does not include AC adapter, power cord, or external optical drive(s).

## ONLINE

FORE MORE INFORMATION on the all-purpose laptops reviewed in this month's chart, including testing details, see find.pcworld.com/47739.

PHOTOGRAPH: MARC SIMON

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# ReadyBoost Flash Drives Lack Significant Boost

FLASH DRIVES

TEST Center WINDOWS VISTA'S ReadyBoost sounds too good to be true, and based on our extensive lab tests, it is. The technology promises to let you speed up Windows by plugging an inexpensive USB flash drive into your PC. We found that while ReadyBoost may speed up Vista a tiny bit, it can also slow the OS down in some instances.

Vista's ReadyBoost is supposed to create a faster, flash drive–based cache of one of Windows' primary bottlenecks: the swap file on your hard drive that most Windows operations use. So ReadyBoost should theoretically speed up certain frequently performed Windows tasks, such as loading programs.

The technology is supposed to work with only the fastest flash drives—those capable of 3.5-megabytes-per-second throughput for 4KB random reads, and 2.5-MBps speeds for 512KB random writes. We looked at three ReadyBoost drives: Kingston's 1GB DataTraveler ReadyFlash, Lexar Media's 4GB JumpDrive Lightning, and Ritek's Ridata 1GB Twister EZ Drive.

**FROM LEFT: The Kingston DataTraveler ReadyFlash, Lexar Media JumpDrive Lightning, and Ritek Ridata Twister EZ Drive.**

First, we used our WorldBench 6 Beta 2 benchmarking suite to test whether any of these devices sped up general Windows use when plugged into a desktop PC (an HP Compaq dc5750) and a notebook PC (an HP Pavilion tx1000). They didn't. The Lexar even slowed the desktop, reducing its WorldBench score from 42 to 39. (These marks represent only the subset of WorldBench 6 Beta 2 tests that we used for this story.)

In addition, we created a test to evaluate one of ReadyBoost's main claims—that it decreases the time required to load a program you've loaded many times before.

Judging from our test results, ReadyBoost does shorten the time it takes to load frequently used applications, but not by much. We clocked launch-speed improvements of 4 to 6 percent. Without a stopwatch, you likely wouldn't notice the performance gain.

We also evaluated how the drives perform if you simply use them for conventional flash-drive chores. The Lexar was the clear winner here, beating out the next-fastest Kingston by a wide margin.

If launching a program in Vista seems lethargic, using one of these drives may help—a little. But adding RAM to the PC would help a lot more.

*—Lincoln Spector*

TEST REPORT

## TEST Center ReadyBoost Drives Won't Speed Vista Perceptibly

NONE OF THE drives significantly improved performance using ReadyBoost, though the Lexar was the fastest at file transfers.

| FLASH DRIVE | PCW Rating | Performance on an HP Compaq dc5750 desktop PC | | Performance on an HP Pavilion tx1000 notebook PC | | Performance on a 3.4-GHz Intel Pentium D desktop PC | | Bottom line |
|---|---|---|---|---|---|---|---|---|
| | | WorldBench 6 Beta 2 without/with ReadyBoost[1] | % speed increase in loading applications | WorldBench 6 Beta 2 without/with ReadyBoost[1] | % speed increase in loading applications | Number of seconds to read large file from drive[2] | Number of seconds to write large file to drive[2] | |
| Lexar Media JumpDrive Lightning<br>**Street: $50 (4GB)**<br>find.pcworld.com/57295 | 81 Very Good | 42/39 | 6% | 32/30 | **6%** | **25** | **35** | Fastest at file transfers by a wide margin, this expensive drive also comes with the Ceedo operating environment for running applications from the drive. |
| Kingston DataTraveler ReadyFlash<br>**List: $24 (1GB)**<br>find.pcworld.com/57293 | 77 Good | **42/41** | **6%** | 32/31 | 5% | 43 | 45 | This basic flash drive offers nothing exceptional and didn't accelerate app launches in Vista, but it performed adequately for file-copying tasks. |
| Ritek Ridata Twister EZ Drive<br>**Street: $25 (1GB)**<br>find.pcworld.com/57296 | 75 Good | 42/40 | 6% | **32/32** | 4% | 47 | 187 | The black case and cap-free pocketknife design are attractive and practical, but the drive's write speed is slow compared with the other drives'. |

**CHART NOTES:** Prices are as of 4/30/07. Boldface indicates the best result for each test. **FOOTNOTES:** [1] WorldBench 6 Beta 2 scores were customized for this story and do not represent the full scores of the test PCs. [2] Large-file size was approximately 760MB.

PHOTOGRAPH: MARC SIMON

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intel Centrino Duo Core™ 2 Duo inside™

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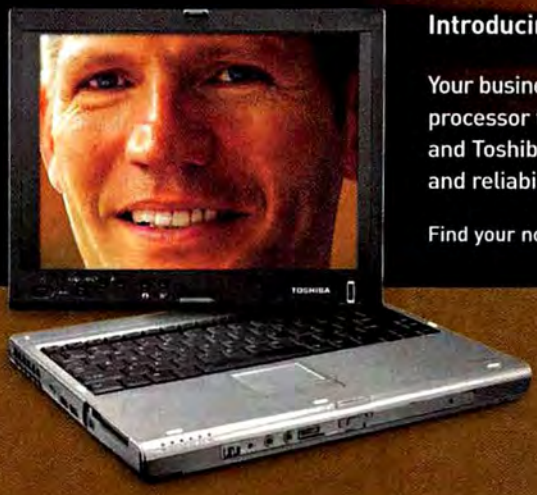

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# Sansa MP3 Player Does Wi-Fi Right

**MP3 PLAYER**

THE THING THAT most struck me about SanDisk's Wi-Fi–equipped MP3 player, the **Sansa Connect**, is that its wireless capabilities are actually useful. This 4GB player uses Yahoo services to offer more music-sharing options than Microsoft's Zune does.

Once you locate an open Wi-Fi access point, you can stream Launchcast Internet radio stations or browse Flickr photo streams. You can sign up for Yahoo's Music Unlimited To Go ($12 to $15 per month) and wirelessly download tracks or albums, as well. If you hear a song you like on streaming radio, you can easily queue it up for download. But you can get music only through Launchcast stations or from Connect-equipped friends, and the device doesn't allow you to wirelessly sync music with your PC.

Streamed Internet radio sounded quite good. When I used my home Wi-Fi connection, stations took a little time to buffer, but they sounded on a par with 128-kbps MP3 files. I experienced no dropped sound—not even when my Wi-Fi network was handling several other tasks.

**THE SANSA CONNECT has a vibrant, 2.2-inch color screen.**

In our audio-quality tests, the Sansa Connect ranked just behind the best flash-based players—Apple's iPod Nano, Creative's Zen V Plus, and Samsung's K5. The Connect's frequency response deviated very little from our test signal, though the player's showing on our crosstalk test ranked it near the back of the pack.

The Sansa Connect's iPod-style scrolling dial has a bit of a lag, and the main control is inconveniently placed at the bottom of the device. But as the first truly useful wireless MP3 player, it's certain to become a popular gadget.

*—Eric Dahl*

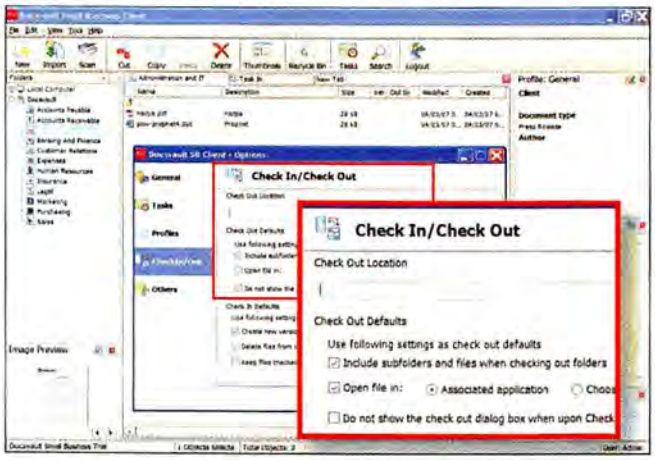
**Sansa Connect**
**SanDisk**
**PCW Rating** 77 Good
Does a fine job of wedding Wi-Fi capabilities to an MP3 player, but the interface is sluggish.
List: $249
find.pcworld.com/57079

# Docsvault Manages Files and Information

**PRODUCTIVITY**

EASY DATA ACCESS'S **Docsvault Small Business Edition** can help consultants, lawyers, and other service businesses cut down on messy paper files. This inexpensive client-server software provides useful tagging and search features for managing and tracking electronic documents and digitized files, but it has no built-in optical character recognition.

You can import any electronic document from any networked disk connected to the Docsvault server. On client computers Docsvault adds a menu to several Microsoft Office applications, including Word, Excel, and Outlook (Office XP, 2003, or 2007 required), to help you save documents to Docsvault. In addition, you can scan paper documents and add them to the Docsvault database as Adobe PDF files. Docsvault lacks OCR software for creating searchable text, however.




**DOCSVAULT'S VERSION TRACKING lets you check out a document so that no one else can make changes while you're working on it.**

Docsvault's Explorer view lets you tag documents for sorting in electronic filing cabinets, which you identify using custom-created or default labels such as *marketing* or *administration*. (The tags simply identify documents in the software interface.)

Docsvault allows you to save and track versions of documents: Users can check files in and out to prevent multiple people from making simultaneous changes. The Task Management feature helps you manage workflow—for example, by routing a draft document to your supervisor for review and approval.

Docsvault SB would make a good entry-level document manager for small businesses needing to quickly file and find documents, and it is inexpensive compared with competitors such as DocuXplorer 4 Small Business.

*—Richard Morochove*

**Docsvault Small Business Edition 1.1**
**Easy Data Access**
**PCW Rating** 80 Very Good
This inexpensive document manager for small businesses lacks optical character recognition.
List: $400 for five users
find.pcworld.com/57337

PHOTOGRAPH: MARC SIMON

# Companies that live by their networks, swear by APC

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– Venture Development

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INSTANT MESSAGING

# Meebo Tops in Web-Based IM Services

IF YOU WANT to stay connected to your colleagues and friends via instant messaging, you don't need a bloated software client. A Web service can keep you linked to your favorite IM client (and often, more than one client) with ease. We tested six free Web-based IM services—eBuddy, ILoveIM, Imhaha, Kool IM, Meebo, and RadiusIM—to measure how successfully they could deliver the features you've come to expect from desktop software. All six of them were easy to use, and several were very impressive.

All of the services we tested connect to multiple IM clients, but not all let you do so simultaneously. Most connect to the big three of AIM (from AOL), MSN Messenger, and Yahoo Messenger, and some add support for such alternatives as Google Talk, iChat, ICQ, Jabber, and Sametime. In most cases, using a Web-based client isn't altogether different from using your desktop software. Most of the services import your buddy list in a well-organized, easy-to-understand format, so you can quickly connect to all of your contacts.

**MEEBO DISPLAYS NEW** instant messages in pop-up windows.

Of the six services we reviewed, Meebo finished on top, and it is one of the few services that qualify as viable replacements for a desktop client. Meebo's site has a sleek, clean interface and allows you to use your existing screen names and passwords to sign on to multiple IM services at once. Its performance was excellent, too: Within a few seconds of accessing the Web site, we had connected to our buddy list, and were ready to send and receive messages.

RadiusIM provides a similarly clean interface and a nice array of features—but you must register before you can begin using it, slowing your initial access to the service.

Kool IM has several attractive features. Unlike most services, it lets you decide whether to view your buddy list, and it can show messages as pop-ups or as windows embedded within a Web page. (Most services use one format or the other.) Despite its frivolous name, Imhaha offers a reasonably good feature set and is nicely laid out; it occasionally seemed slow, though.

Both eBuddy and ILoveIM (which just missed landing on our chart) have a common limitation: Neither allows you to access multiple IM services at the same time, which may frustrate users who have buddies on various services.

*—Liane Cassavoy*

| | WEB-BASED IM SERVICE | PCW Rating | Usability | Features and specifications |
|---|---|---|---|---|
| 1 | Meebo<br>Best Bet **Free**<br>find.pcworld.com/57122 | 94 Superior | • Performance: Superior<br>• Design: Superior<br>• Features: Very Good | • Connects to AIM, Google Talk, iChat, ICQ, MSN Messenger, Yahoo Messenger<br>• Connects to multiple services at once<br>• Doesn't require registration |
| | ▸ **Bottom line:** With its sleek interface, connections to all major IM services, and quick performance, Meebo could replace your desktop app. | | | |
| 2 | RadiusIM<br>**Free**<br>find.pcworld.com/57124 | 86 Very Good | • Performance: Superior<br>• Design: Very Good<br>• Features: Good | • Connects to AIM, Google Talk, ICQ, Jabber, MSN Messenger, Yahoo Messenger<br>• Connects to multiple services at once<br>• Requires registration |
| | ▸ **Bottom line:** RadiusIM has a nice interface and supports most major IM services, but no other contender we tested requires registration. | | | |
| 3 | Kool IM<br>**Free**<br>find.pcworld.com/57123 | 84 Very Good | • Performance: Superior<br>• Design: Very Good<br>• Features: Fair | • Connects to AIM, Google Talk, ICQ, Jabber, MSN Messenger, QQ, Sametime, Yahoo Messenger<br>• Connects to multiple services at once<br>• Doesn't require registration |
| | ▸ **Bottom line:** Kool IM can fill in for your IM client when you're on the road, but its lack of notification and customization tools limit its appeal. | | | |
| 4 | Imhaha<br>**Free**<br>find.pcworld.com/57121 | 80 Very Good | • Performance: Good<br>• Design: Good<br>• Features: Good | • Connects to AIM, ICQ, MSN Messenger, QQ, Yahoo Messenger<br>• Connects to multiple services at once<br>• Doesn't require registration |
| | ▸ **Bottom line:** Though accessing this service is sometimes slow, Imhaha offers an impressive array of security and collaboration features. | | | |
| 5 | eBuddy<br>**Free**<br>find.pcworld.com/57125 | 77 Good | • Performance: Good<br>• Design: Good<br>• Features: Poor | • Connects to AIM, MSN Messenger, Yahoo Messenger<br>• Doesn't connect to multiple services at once<br>• Doesn't require registration |
| | ▸ **Bottom line:** eBuddy suffers from a confusing interface and an inability to let you sign on to multiple services simultaneously. | | | |

**CHART NOTES:** Ratings are as of 4/20/07. Software versions are current as of 4/20/07.

## ONLINE

FOR MORE INFORMATION on the instant messaging services reviewed this month, including details on how we test, go to find.pcworld.com/57309.

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LGusa.com

# Sony Ultraportable Is Packed With Features

ULTRA MOBILE PC

TEST Center

IN DESIGNING ITS new VAIO Micro PC VGN-UX390N Sony has condensed a standard notebook computer into a device only a little larger than—and about double the weight of—a BlackBerry. It did a good job, with two critical exceptions: The 4.5-inch display is too small for easy viewing, even when held, and a finger on the keyboard is a typo waiting to happen. But if you add an external monitor, a keyboard, and a mouse, you will see the better half of the UX390N's split personality: An ultramobile PC that's right at home on your desktop.

## BIG ON FEATURES

MEASURING JUST under 6 inches wide by 4 inches high by about 1.5 inches deep, and weighing about 1.2 pounds, the UX390N is too big to fit in your pocket. But even when enclosed in the included padded nylon carrying case (excluding the bundled port replicator, which is a bit larger but much lighter than the laptop itself), the device fits easily—and nondescriptly—in a backpack. The UX390N has a 32GB flash-memory-based drive, which is sturdier than a standard notebook hard drive, since it doesn't have any moving parts.

It offers Bluetooth and 802.11a/b/g wireless, plus support for Cingular's EDGE cellular data network (but you'll have to pay an extra monthly fee to access it). The port replicator has three USB 2.0 ports, a VGA port, an ethernet port, a FireWire port, and audio/video-out. A second adapter (also bundled) handles ethernet, VGA, and A/V-out.

The device includes a front-facing, 0.3-megapixel camera and a second, 1.3-megapixel camera in the back. A fingerprint scanner let me log on to Windows with a quick swipe of my index finger.

**MOUNTED NEARLY FLUSH, the VGN-UX390N's keyboard keys look nice but make typing a chore.**

Unless you have tiny fingers, you'll have trouble entering text quickly and accurately via the device's keyboard: Its keys are nearly flush to the surface and offer little tactile feedback.

## CURSIVE AND CURSES

AFTER A FEW minutes of thumb-wrestling with the UX390N's keyboard, I decided to give Vista Business's handwriting-recognition app a try. Even after 20 minutes of training, Vista's handwriting recognition made for slow going. When I wrote a URL in a browser address bar or sent off a quick IM or e-mail message, the input pad worked well enough, but my attempts at extended composition in a Microsoft Word document were slowed by the many corrections I had to make. Cursive writing was more accurate than printing, because every time I lifted the stylus off of the pad, I risked making an error.

## GOOD—BUT IT'S SLOW

USING ITS 1.33-GHz Intel Core Solo Processor U1500 and 1GB of RAM, the UX390N turned in a WorldBench 6 Beta 2 score of 32—the same mark posted by a Fujitsu LifeBook P7230 with a 10.6-inch screen, 1.2-GHz Core Solo U1400 CPU, and 1GB of RAM, but pretty pokey. Still, it responded quickly as I opened apps and browsed the Internet.

Sony rates the device's battery life at between 2.5 and 4.5 hours, though the PC World Test Center obtained just less than 2 hours from it.

I liked the UX390N better than either of the other two UMPCs I've reviewed recently, the OQO Model 02 and the FlipStart E-1001S (see find.pcworld.com/57313). If you're looking for a lot of PC in a very small package—and you don't mind typing with your thumbs—it could serve as a less-bulky laptop alternative.

*—Dennis O'Reilly*

**VAIO Micro PC VGN-UX390N**
**Sony**
**PCW Rating** 80 **Very Good**
This expensive UMPC ranks as one of the best we've seen, but the keyboard is troublesome.
**Price:** $2500
find.pcworld.com/57303

PHOTOGRAPH: MARC SIMON

TECH TREND

# Game Time for DirectX 10

**WINDOWS VISTA'S DIRECTX 10 technology promises richer applications and more-lifelike games, but to enjoy them you'll need a DX 10-ready graphics card. The first DX 10 cards, which were based on nVidia's GeForce 8800 chip, cost at least $300, but new boards based on the GeForce 8500 GT and 8600 GT start at $90 and $150, respectively.**

**In May, ATI announced its first batch of DX 10 cards, including the $400 Radeon HD 2900 XT, plus the sub-$100 Radeon HD 2400 series. Laptop buyers can now choose from ATI's Mobility Radeon HD 2000 Series and nVidia's GeForce 8400M or 8600M mobile chips.**

**As for games, a DX 10 patch for Company of Heroes should be available by the time you read this, and new games such as Lost Planet and Crysis should be out soon. *–Danny Allen***

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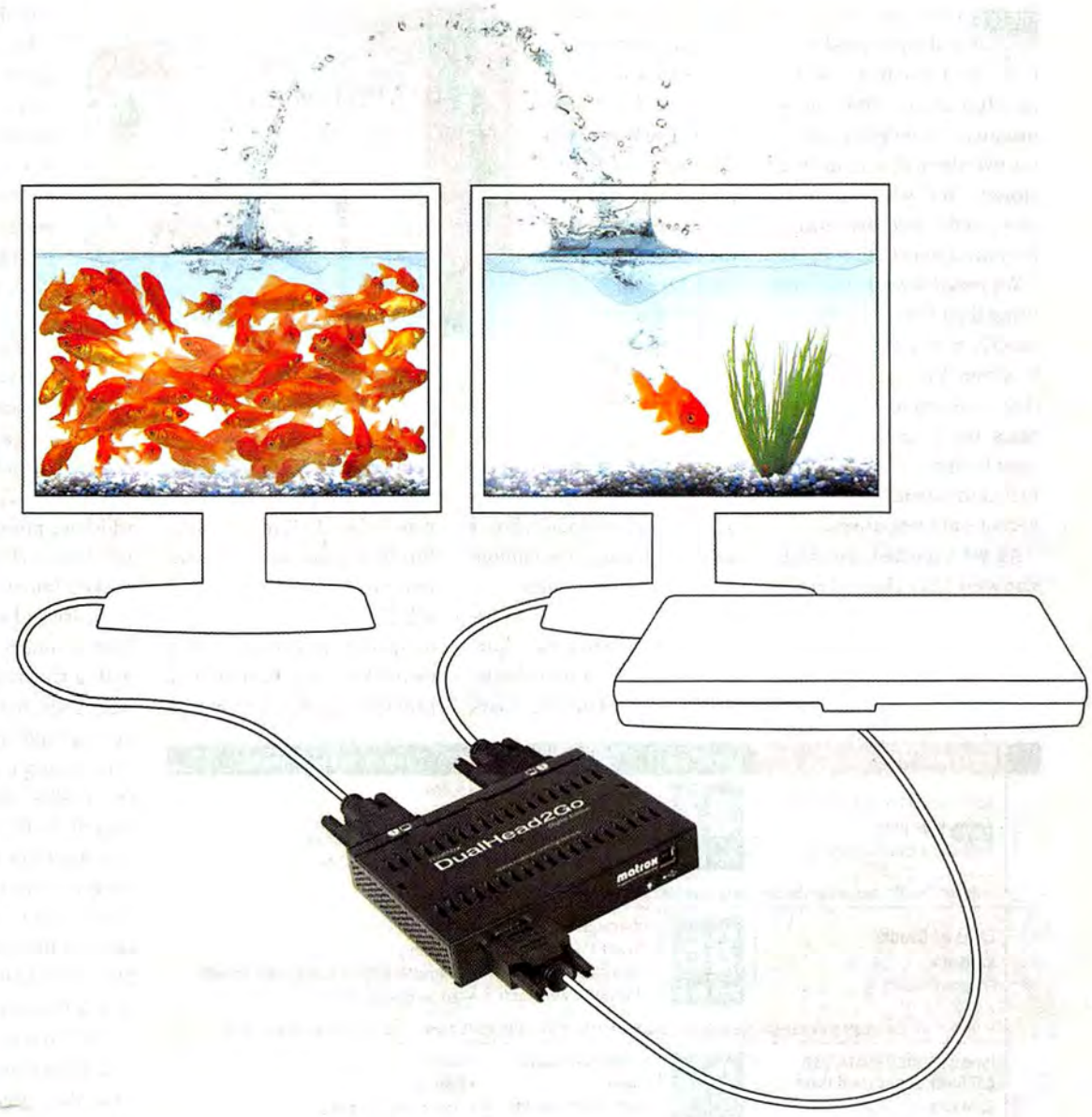


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TOP 5 HARD DRIVES

# Fast, Cheap External Drives Use eSATA Interface

TEST Center GROWING capacities and high-speed interfaces on the latest external desktop drives make these products an increasingly attractive alternative to internal storage. But which of them give you the best performance for your money?

We tested seven such drives using their fastest interface—eSATA in five cases. In two, however, it was FireWire 800; that's common enough on Macs, but most PC users will need to install a FireWire 800 PCI card (about $60) to connect one of these drives.

As we expected, our tests showed that the external SATA drives were faster than the FireWire 800 models, with one exception: Western Digital's MyBook Pro Edition performed just as well as its slightly cheaper eSATA equivalent, the $230 MyBook Premium ES Edition, our fifth-ranked unit. All the drives we tested offer the convenience of a USB 2.0 port.

Apricorn's EZ Bus Desktop SATA earned our Best Buy distinction and top performance rating. This 500GB drive is fast and inexpensive; it lacks the style accents and the FireWire interface of costlier models, but it has basic backup, encryption, and file-syncing utilities.

The price premiums on LaCie's stylish drives have hurt their rankings in past charts. The new d2 Quadra costs about $50 to $70 more than other 500GB drives, but it provides eSATA, FireWire 800, FireWire 400, and USB 2.0 interfaces, and it performed solidly. For PC users who plan to upgrade to eSATA or who own a Mac, the flexibility of multiple interfaces might be worth the extra cost.

**APRICORN'S EZ BUS Desktop SATA is fast and inexpensive.**

Iomega's 500GB Black Series eSATA drive ranked third overall, but in performance tests it came in a very close second behind the Apricorn. It looks more stylish and costs about $20 more than the Best Buy, but it also comes with EMC's Retrospect Express backup software and an eSATA PCI card in case your system doesn't have a SATA port.

Seagate's FreeAgent Pro, which we previously reviewed (find.pcworld.com/57135), ranked fourth. This drive is attractive and well priced for a 750GB model, and it comes with a five-year warranty as well as very full-featured backup and versioning software.

Two products missed our chart. The 500GB Western Digital MyBook Pro Edition was the fastest drive to perform a virus scan and a file search, but the slowest when our test PC wrote a series of files and folders to it, despite its FireWire 800 interface.

CMS Products' 1.5TB Velocity2 Redundant Backup System, which also failed to rank, returned average performance but includes server and desktop backup software, as well as RAID 1 and 0 options.

*—Narasu Rebbapragada*

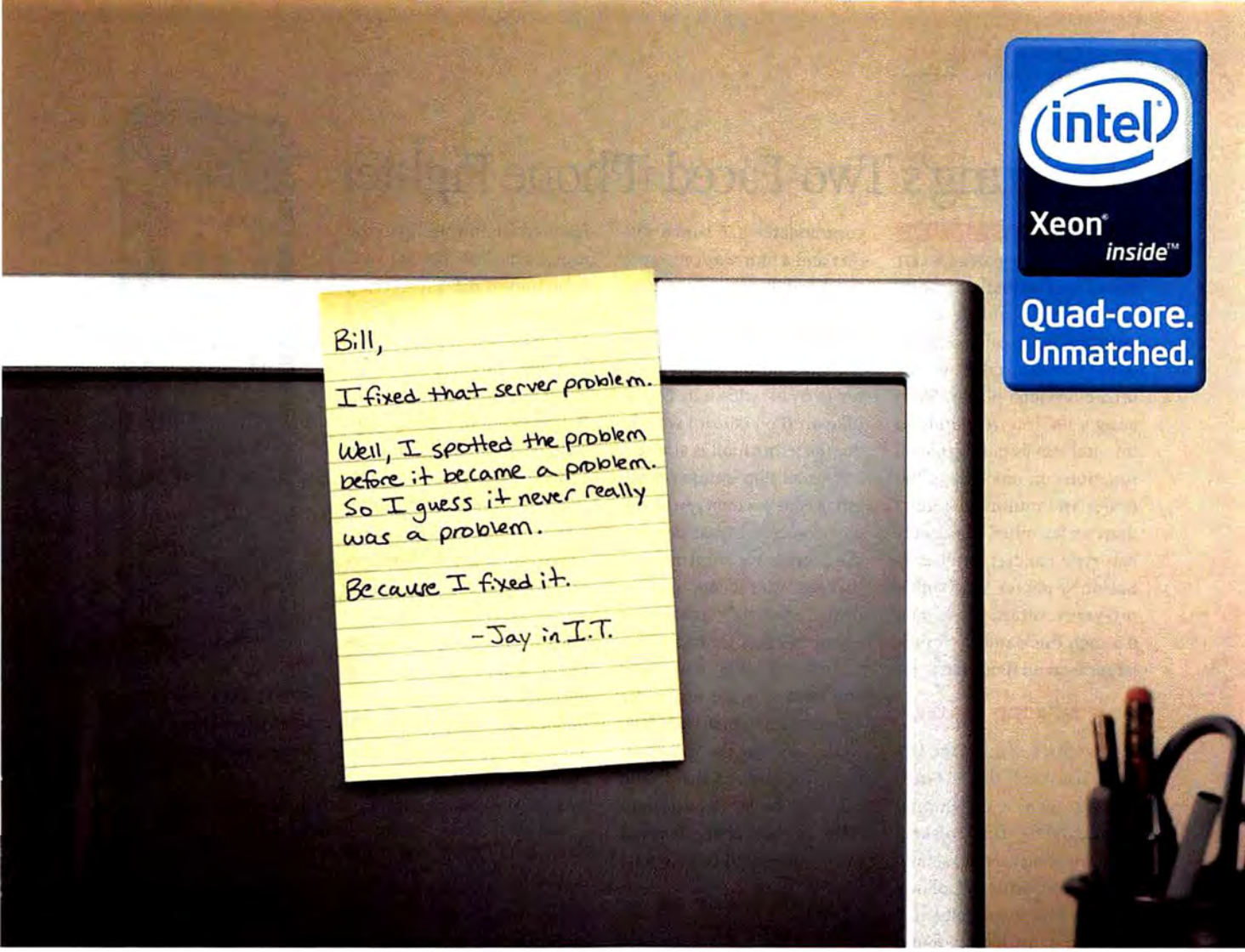
| | EXTERNAL HARD DRIVE | PCW Rating | Performance | Features and specifications |
|---|---|---|---|---|
| 1 | Apricorn EZ Bus Desktop SATA<br>Best BUY $229 NEW<br>find.pcworld.com/57139 | 87 Very Good | • Overall performance: Superior<br>• Copy files: 76 seconds<br>• File search: 105 seconds | • 500GB<br>• 7200 rpm<br>• External SATA-300, USB 2.0<br>• Cost per gigabyte: $0.46 |
| | ▸ **Bottom line:** This fast, cheap drive comes with three basic file-copy, backup, and encryption utilities. | | | |
| 2 | LaCie d2 Quadra<br>$300 NEW<br>find.pcworld.com/57127 | 86 Very Good | • Overall performance: Superior<br>• Copy files: 87 seconds<br>• File search: 108 seconds | • 500GB<br>• 7200 rpm<br>• External SATA-150, USB 2.0, FireWire 800/400<br>• Cost per gigabyte: $0.60 |
| | ▸ **Bottom line:** For a slight price premium, the d2 Quadra gives you the flexibility of USB, eSATA, FireWire 400, and FireWire 800 interfaces. | | | |
| 3 | Iomega 500GB ESATA/USB 2.0 Black Series Hard Drive<br>$250 NEW<br>find.pcworld.com/57116 | 84 Very Good | • Overall performance: Superior<br>• Copy files: 95 seconds<br>• File search: 101 seconds | • 500GB<br>• 7200 rpm<br>• External SATA-150, USB 2.0<br>• Cost per gigabyte: $0.50 |
| | ▸ **Bottom line:** If you want a speedy, reasonably priced drive, this is a nicely designed choice. | | | |
| 4 | Seagate FreeAgent Pro<br>$350<br>find.pcworld.com/56722 | 78 Good | • Overall performance: Fair<br>• Copy files: 80 seconds<br>• File search: 114 seconds | • 750GB<br>• 7200 rpm<br>• External SATA-300, USB 2.0<br>• Cost per gigabyte: $0.47 |
| | ▸ **Bottom line:** The FreeAgent Pro has lots of capacity and an eye-catching design, plus useful and well-rounded software. | | | |
| 5 | Western Digital MyBook Premium ES Edition<br>$230 NEW<br>find.pcworld.com/57117 | 77 Good | • Overall performance: Fair<br>• Copy files: 92 seconds<br>• File search: 109 seconds | • 500GB<br>• 7200 rpm<br>• External SATA-300, USB 2.0<br>• Cost per gigabyte: $0.46 |
| | ▸ **Bottom line:** This inexpensive model sports a nice design, but it's slower than other 500GB eSATA drives. | | | |

**CHART NOTE:** Prices and ratings are as of 5/9/07.

## ONLINE

FOR MORE INFORMATION about these external hard drives, including details on how we tested them, go to find.pcworld.com/57339.

PHOTOGRAPH: MARC SIMON

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1. A HP SC11Xe Host Bus Adapter ($209) is a required option needed to connect the Ultrium 448 solution to the DL360 G5 server. Prices shown are HP Direct prices; reseller and retail prices may vary. Prices shown are subject to change and do not include applicable state and local taxes or shipping to recipient's address. Offers cannot be combined with any other offer or discount and are good while supplies last. All featured offers available in U.S. only. Savings based on HP published list price of configure-to-order equivalent ($5125 - $1426 instant savings= SmartBuy price $3699). 2. Financing available through Hewlett-Packard Financial Services Company (HPFS) to qualified commercial customers in the U.S. and subject to credit approval and execution of standard HPFS documentation. Prices shown are based on a lease 48 months in term with a fair market value purchase option at the end of the term. Rates based on an original transaction size between $3,000 and $25,000. Other rates apply for other terms and transaction sizes. Financing available on transactions greater than $349 through June 30, 2007. HPFS reserves the right to change or cancel these programs at any time without notice. Intel, the Intel Logo, Xeon and Xeon Inside are trademarks of Intel Corporation in the U.S. and other countries. © 2007 Hewlett-Packard Development Company, L.P. The information contained herein is subject to change without notice.

# Samsung's Two-Faced iPhone Fighter

CELL PHONE

TEST Center CELL PHONES WITH multimedia capabilities generally struggle to balance the needs of a conventional handset and those of a music or video player. Samsung's UpStage responds to this problem by putting phone functions on one side of the device and multimedia functions on the other. This candy bar–style handset, offered by Sprint Nextel for $150 with a two-year contract, is less than 0.5 inch thick and not much larger than an iPod Nano.

## TWO-FACED PHONE

THE PHONE SIDE of the UpStage has a very thin 1.4-inch color screen, a directional switch, and the usual soft keys for navigating menus, all topping a conventional phone keypad. The phone felt small but solid in my hand; I found its keypad quite usable, and the sound quality of voice calls was generally good. The multimedia side of the device accommodates a 2.1-inch display and a four-way capacitive touchpad whose central, mechanical play button took some getting used to. The excellent documentation warns users not to try to swipe it in a circle (like an iPod control wheel), but the temptation is strong.

A small Flip button on the unit's edge permits you to toggle between the two sides, but the prompt for confirmation that you want to stop playing music and start making a phone call gets old fast.

Unfortunately, whenever you have to input text while using the multimedia side (say, while browsing the Web), you must flip over to the phone side. The device does present 'Flip' as a soft-key option, but the process is tedious anyway.

## YOUR MUSIC OR SPRINT'S

THE SPRINT MUSIC Store (which now charges 99 cents for over-the-air purchases of music tracks) is prominently featured when you flip to the music side. You also get a PC Sync button for transferring music from your desktop to a MicroSD Card in the UpStage (the phone has a 64MB card, and it can support up to 2GB). Before using it, you must install the Sprint Music Manager desktop application on your PC and connect the phone using the included USB cable. The Sprint app is no Windows Media Player or iTunes killer, but it's serviceable enough. You can create playlists on the phone. I appreciated Sprint's decision to substitute an earphone adapter (complete with a microphone) for the mediocre-quality earbuds that come with most music phones.

## THE BATTERY WALLET

THE UPSTAGE'S FLIP case comes with a battery wallet—an innovative embedded battery that recharges along with the phone when you store the phone in the case. When it's charged, the wallet serves as an extended battery, prolonging the handset's life between charges. In our tests, parking the phone in the wallet yielded a very good talk-time battery life of 7 hours, 43 minutes.

The UpStage is equipped with Bluetooth (for linking to a headset or for using the phone as a PC modem) and a 1.3-megapixel camera, too.

For video viewing, the UpStage's screen is small. But if you're a music lover who isn't especially keen about video, e-mail, or messaging, Samsung's approach just might upstage Apple's iPhone—and its price certainly does.

—*Yardena Arar*

**FLIP TO TALK: The UpStage puts a phone on one side and a media player on the other.**

**UpStage (M620)**
**Samsung**
**PCW Rating** 79 Good
Music fans seeking a small, chic phone should take a look at this innovative product's design.
List: $150 (with two-year Sprint contract)
find.pcworld.com/57077

PHOTOGRAPH: MARC SIMON

ASK OUR EXPERTS

# Partitioning a Hard Drive in Vista

**I HAVE A new HP PC with Windows Vista preinstalled, and I want to partition the hard drive. How do I do this in Vista?**

*–tsys001, via PCWorld.com Forums*

**Senior Associate Editor Dennis O'Reilly responds:** To create a new partition (Vista calls it a "volume"), click the *Start* button, type **diskmgmt.msc**, and press **<Enter>** to open the Disk Management utility. To create space for a new volume, right-click an existing volume and choose *Shrink Volume*. Vista will calculate the amount of space you can regain and will open a dialog box where you can enter the size of your new volume. (You'll also see the total size before the shrink, the maximum shrink available, and the size of the old volume after the shrink.) After shrinking, right-click the new "Unallocated" space represented in the program and choose *New Simple Volume*. Then follow the wizard's steps to create and format your new volume. When you're done, you'll see your new volume represented in Disk Management's graphs. Note that you can shrink only volumes that use the NTFS drive format. Your new PC's drive is almost certainly NTFS.

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# Joost Online TV Has Style, Little Substance

INTERNET TV

THE LATEST CREATION of Kazaa and Skype inventors Niklas Zennstrom and Janus Friis, Joost is a free, ad-supported, "TV-like" experience at your PC screen. I recently tested the beta version of the service and came away with a mixed opinion: I liked the look and feel of the site, but found the picture quality and the video selection somewhat lacking.

**Joost (Beta)**
**Joost**
**Beta product, not rated**
New Internet service broadcasts TV channels to your PC, but video quality isn't great.
Free
find.pcworld.com/57349

Like Skype, Joost has a simple, attractive interface, so you can locate shows and navigate to them in a few clicks. The My Joost area lets you invite friends to watch certain shows while you do; it has an IM tool for chatting as you watch.

Joost hosts approximately 160 hours of video from 100 content providers worldwide. Unfortunately, much of it is far from prime-time stuff. From Comedy Central we get a sitcom called *Stella*, rather than, say, *The Daily Show.*

**JOOST'S SEARCH BOX appears at the bottom of your screen when you move your mouse. The service doesn't offer much content as yet.**

Joost terms its video "broadcast quality," but at its best the video quality resembles that of a cable TV show recorded on VHS tape a decade ago. Too often Joost's video becomes jittery and pixelated, and at times it cuts out completely, leaving you to stare at a black screen with an embedded error message. Joost says that it's working to fix these problems.

But we're willing to forgive some of Joost's shortcomings because, well, it's free.

*—Mark Sullivan*

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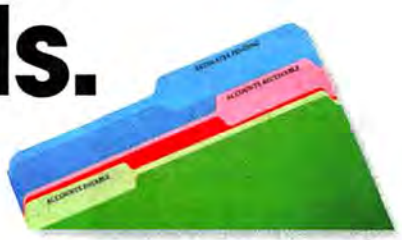

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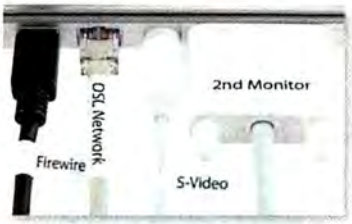
**Manage**
*Make durable equipment labels with moisture, tear and smear resistant SLP-TMRL or SLP-TRL.*

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# Hitachi's Massive 1TB Hard Drive

**STORAGE**

DATA STORAGE RARELY elicits wows, but that's all about to change: Hitachi's **Deskstar 7K1000**, the first hard drive to achieve a capacity of 1 terabyte, has arrived—and it's a keeper. Just be ready to pay a premium for this drive's high capacity.

Having 1TB of storage space allows the Deskstar 7K1000 to pack 330,000 high-resolution digital photos (at 3MB a pop) or about 150 high-definition movies (encoded at 9 MBps using MPEG-4) onto a single drive. To achieve its massive capacity, the hard drive crams 200GB onto each of its five platters. This model is also Hitachi's first 3.5-inch drive to use perpendicular magnetic recording to record data.

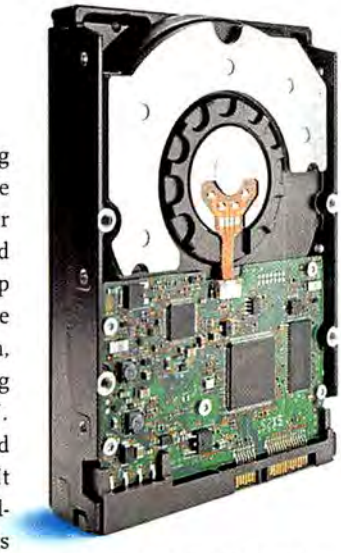
The Deskstar 7K1000 was a speedy performer across the PC World Test Center's test suite. The drive finished first on our file search test, requiring just 151 seconds to complete its search for a text string in the 11.7GB of content that we placed on the drive. It tied for top honors on our ACDSee test, too, performing our scripted tasks of searching and converting files from one format (say, .jpg) to another (say, .gif) in 513 seconds; and it sailed through our WinZip test, shaving 2 seconds off the previous best mark we'd seen, established by the Samsung SpinPoint T Series HD501LJ.

The Deskstar 7K1000 did less well on two other tests. It wrote 3.06GB of files and folders in 144 seconds (25 seconds behind the SpinPoint, our top performer on this measure), and a large 3.06GB zip archive in 117 seconds (27 seconds behind the SpinPoint).

The Deskstar's deep-bucket capacity and top-of-the-line performance—not to mention the limitless possibilities that working with a 1TB hard drive allows—more than justify the premium price it commands.

*—Melissa J. Perenson*

**Deskstar 7K1000**
**Hitachi**
**PCW Rating** 8.3 **Very Good**
Pricey but high-capacity drive delivers excellent performance.
List: $399
find.pcworld.com/57074



**HITACHI'S DESKSTAR 7K1000 comes with five 200GB platters.**

PHOTOGRAPH: MARC SIMON

Go to find.pcworld.com/56974

Special Advertising Supplement

# When Losing Files Is *Not* An Option

## *R-Studio from R-Tools gives major boost to data recovery and business continuity*

A Vista-ready business continuity solution that allows users to preview major file types before they are recovered, **R-Studio** has gotten even better.

The latest version of R-Studio from R-Tools, the industry leader in high-performance data recovery solutions, now includes a universal hexadecimal editor to inspect and edit file system structures. These can include NTFS and FAT boot sectors, MFT file record, MBR, LDM structures, and others. This advanced tool is particularly helpful for specialists working in lower-level data processing, IT security, data recovery and computer forensics. R-Studio is an ideal file recovery solution for IT specialists and advanced users who need to recover lost data on a computer or server locally or remotely over a Microsoft network.

PC WORLD ADVANTAGE MARKETING

R-Tools also recently launched an enhanced version of **R-Wipe & Clean**, which automatically keeps applications free and clear of harmful clutter. R-Wipe & Clean now supports Windows Vista and removes useless or unwanted data from more than 200 third-party applications, including Microsoft Office 2007.

Another business continuity solution in the R-Tools lineup is **R-Drive Image 4.0**, which enables users to totally, quickly and confidently restore their systems after a major crash, attack or hardware failure. R-Drive Image 4.0 is flexible in that imaged files can be stored in a variety of places and on various removable media such as CD-R(W)/DVD, Zip disks, Jazz disks, and so on. The utility is accurate in that image files contain exact byte-by-byte copies of a hard drive, partition or logical disk.

Other superb utilities and solutions from R-Tools include:

- **R-Mail for Outlook** and **R-Mail for Outlook Express**, which reconstruct inadvertently deleted email messages or damaged .pst and .dbx files
- **R-Word** and **R-Excel**, which recover damaged Word or Excel files that have been corrupted or attacked

To learn more about the latest release of R-Studio and the rest of the exceptional solutions from R-Tools designed to keep your business up and running efficiently, visit **www.r-tt.com**.

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# PC WORLD

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# HOW TO SURVIVE THE WORST PC DISASTERS

Can't get your PC to boot? Forgot your Windows password? Or just sent your boss a really embarrassing e-mail? Here's how to recover from these and nine other potential catastrophes, plus advice on avoiding trouble to begin with.

BY CHRISTOPHER NULL • ILLUSTRATION BY EDWIN FOTHERINGHAM

WHEN IT COMES to computers, sometimes things go south...and sometimes they go to Antarctica. If your computer won't boot or your data's gone astray, panic is soon to follow, and you might find yourself making things worse in your haste to solve the problem.

To prepare for that inevitable day, save this article: The next time some piece of hardware or software decides to take an unexpected vacation, pull out and consult our handy guide to see how to deal with some of computing's most devastating debacles.

Of course, this advice won't solve every tech-related problem you may come across, but it includes some neat tricks that you may not have thought of, such as freezing a bad hard drive to get it to boot one last time so you can retrieve your data, baking your wet mobile device in an oven set on low to make it functional again, and putting a delay on your outbound e-mail so you have a chance to reconsider the flame you just wrote. ▶

# Problem: Your computer won't boot.

**Likely Cause:** Could be anything. Determining whether the issue stems from hardware or software is part of the fix.

**The Fix:** You'll have to play Sherlock Holmes to figure out what's dead. Take it step-by-step.

♦ First thing: Check all cables (including the plug into the electric socket) to make sure everything is hooked up nice and tight.

♦ Next, see if the power supply turns on. Listen for the sound of its fan or of your hard drive spinning. If you hear nothing, your power supply probably needs to be replaced. To confirm, consider testing the voltage output with a power-supply tester such as PC Power and Cooling's $10 ATX (find.pcworld.com/57276). Of course, you should also check your home's circuit breaker before doing major PC surgery, and try powering another device from that outlet to make sure it's getting juice.

♦ If your power supply is okay but nothing appears on screen, plug in a different monitor (borrow one if you must) to ensure it's not your display that's blown. If the monitor proves to be good, try replacing the video cable. Still nothing on screen? If your drive is spinning normally, your video card is probably bad. To replace it, see our guide at find.pcworld.com/57260, or use the video output integrated into your PC's motherboard, if it has that feature. While your case is open, make sure all the fans inside work when you power on the PC. You could have excess-heat issues.

**YOUR CMOS BATTERY** may stand vertically or lie flat (as shown here) near the CMOS jumpers.

♦ If your monitor is working but you detect no hard-drive activity and see no display (or you see a display but the PC can't get through boot-up), reset the CMOS. Shut down the PC, unplug it, ground yourself, and take out the battery on the motherboard (see photo). Wait 5 minutes, and consult your PC manual or go to the vendor's Web site for instructions on resetting the CMOS jumpers. Reboot and see if that fixed the problem.

♦ If the PC is still not functioning, bad RAM could be the culprit. Remove one memory module at a time (or replace each module with a known good one) and reboot after each test. Alternatively, create a free MemTest86 boot disk on another PC (go to www.memtest86.com), and try using it to test the RAM.

♦ If none of this works, your motherboard or CPU is probably damaged, and will need to be replaced (cost: $80 to $300 or more). However, your data is probably still intact and can be recovered if you install your hard drive on another system. Consider going to a repair shop for an estimate on the repair; it may be more cost-effective to replace the PC. Also, a repair shop might be your best (and only) option if your PC is a laptop.

Finally, if the PC's BIOS routine runs but the drive won't spin, your drive may have crashed. See page 86 for help with that.

As dire as these hardware failures seem, you're far more likely to encounter software issues, such as Windows refusing to start or freezing while it's loading. Here's how to get back up and running if your operating system is the problem.

♦ Boot into Safe Mode. As Windows starts up, press the key as directed to reach the boot menu. Select *Safe Mode*. Often, Windows will recover if you boot into Safe Mode and then shut down and reboot normally. With Windows Vista, you can also try the 'Repair Your Computer' option by selecting it at the boot menu (if you don't have that option, check your Vista DVD for it). You'll have various choices to aid your PC: 'Startup Repair' is worth a shot.

♦ No results? Try 'Last Known Good Configuration' at the boot menu, which is especially helpful if you have recently changed hardware or drivers. If this works, remove new hardware (which may be incompatible) and roll back drivers in Device Manager. Right-click *My Computer* (*Computer* in Vista), click *Hardware* (in XP), and choose *Device Manager*.

♦ If you can run Safe Mode but not regular Windows, try System Restore (via *Programs•Accessories•System Tools* in XP; in Vista, click *Start*, type **system**, and choose *System Restore* from the Programs list) to roll back your PC to when it did work. Run antivirus and antispyware apps in Safe Mode, too.

♦ If you still can't boot, you probably have heavy-duty Windows problems. Try to boot from an emergency CD like a Knoppix disc (find.pcworld.com/57261) or an Active Boot Disk (find.pcworld.com/57262), which can help you to see whether your PC will boot at all and to collect any critical files from the drive.

♦ If your PC is still unstable, reinstalling Windows is probably your best bet. For directions on reinstalling XP, see find.pcworld.com/57277; for Vista, cruise to find.pcworld.com/57278.

**How to Avoid It Next Time:** PCs typically die unexpectedly, so focus on getting up and running quickly: Turn on System Restore, keep your system-recovery discs and copies of critical apps handy for reinstalls, back up often, and keep a spare hard drive and power supply. Using a drive-image program such as the $50 Acronis True Image 10 (www.acronis.com) or the $70 Norton Ghost 10 (find.pcworld.com/57279) can make it much easier to restore your PC and data, too. If you can, have a second PC to use in emergencies if your main system needs repair.

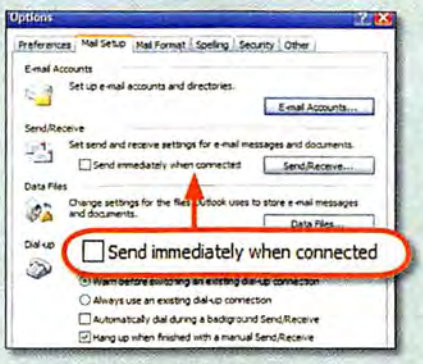
PHOTOGRAPHS: MARC SIMON

## Problem: You just told off the CEO in an e-mail and instantly regret it

**Likely Cause:** Failure to see that those pay cuts really were for the good of the firm.

**The Fix:** You may be tempted to use the "recall" command present in some e-mail clients, but don't use it unless you are positive it works and are certain the boss hasn't already read your e-mail. Nothing adds insult to injury more than a reminder of the stupid message you sent, and recall functions often fail in the real world.

If recall isn't an option, walk right into the CEO's office and prepare to eat crow. Resist the urge to apologize via e-mail—it will come off as insincere. If you can't explain in person, the phone makes for a distant second choice. Also helpful: a handwritten apology and a small gift like flowers or tickets to a sporting event.




**How to Avoid It Next Time:** Self-control is your friend. Check your emotions when using e-mail, and remind yourself how easy it is to begin a flame war, given the impersonal nature of e-mail. Also, make a habit of double-checking message recipients before you click Send to avoid accidentally sending your private rants to the person you're complaining about.

You also have technical solutions. For example, set your e-mail client to delay sending/receiving messages so outgoing mail isn't delivered for a few minutes. In Outlook, click *Tools•Options•Mail Setup*. Uncheck 'Send immediately when connected' and then click on 'Send/Receive...'. On this screen, change the 'Schedule an automatic send/receive every' option to 10 minutes or so. That should give you enough time to think better of your impromptu hate mail.

**SET YOUR E-MAIL client to delay transmission of mail to give yourself time to reconsider if necessary.**

### READER TALES OF PC DISASTERS

A WORK COLLEAGUE asked me for help with a bad hard drive that had a lot of irreplaceable family photos and files on it.

I tried a few revival methods on the crashed drive, but nothing worked. Then I stumbled on something: freezing the drive. I'd heard of it before but never knew of anyone doing it and successfully retrieving data. Since the drive was already gone, I tried it. After 18 hours in a freezer, the drive was able to turn on. It worked for only 20 minutes until it heated back up, but I was able to get most of her data.

**NATHAN WIEST,**
computer technician in Lincoln, Nebraska

## Problem: No PCs show on the network.

**Likely Cause:** Windows is probably at fault, but the source could be hardware. An easy way to check which it is: If you can access the Internet, chances are the problem is not your hardware or drivers.

**The Fix:** If the problem is not hardware, start by going through the various Windows settings to see which has gone bad.

♦ If you've never been able to see other computers on the network, check that they're all part of the same workgroup. (Windows Vista changes the default workgroup name.) Select *Start•Run*, type **sysdm.cpl**, and press **<Enter>**. Click the *Computer Name* tab and then the *Change* button, and look at the *Workgroup* field.

♦ Next, look for duplicate IP address assignments, another common problem. Windows will usually pop up a warning about one PC being assigned an IP address that's already in use on the network. A router and/or PC reboot will often solve this; but also check that manually assigned, static IP addresses haven't been set on some systems in the same area the router uses to assign automatic IP addresses (check each PC individually by clicking *Start•Run*, then typing **cmd /k ipconfig** and pressing **<Enter>**).

Running Windows Update on all systems could solve this problem, too, particularly on XP machines. As always, check cabling and Wi-Fi settings. (Also, is the PC you want to reach actually on?)

♦ Finally, make sure the printers or folders you are trying to access are shared and have the appropriate permissions for clients to read; you'll need to log in as an administrator to do this. For folders, go to Windows Explorer, right-click the folder you want to share, and select *Share*. For printers, go to *Start•Printers and Faxes* (*Printers* in Vista), right-click the printer you want, and choose *Sharing*. Remember, sharing in Vista is quite different than in XP: Make sure network discovery and file and/or printer sharing are turned on in the Network and Sharing Center.

**How to Avoid It Next Time:** Once these issues are remedied, the problem should not crop up again. If it does resurface, a few reboots ought to take care of it. ▶

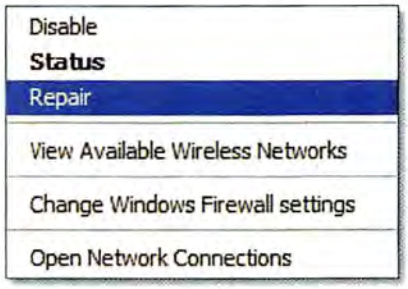
## Problem: Your Net connection is dead.

**Likely Cause:** Your router could have seized up, sunspots might be mucking with the Web, or...

**The Fix:** Start with the issues you can control. Modems and routers are vulnerable to frequent crashes. A simple reboot usually corrects the problem.

♦ First, try using another PC to reach the Web (you could have a faulty network card in the first machine). If you can't do that, check if your local network is working (if not, the culprit might be the router, which you may need to reboot or replace).

♦ Next, see if your cable or DSL modem is displaying error lights. If it indicates trouble, unplug it. You may as well do the same for your router and shut down your PC. Wait about 30 seconds after you've unplugged your gear, and then plug everything back in and start up your PC.




**SELECT 'REPAIR' TO renew your IP address through Windows' network connection tools.**

♦ If that doesn't work, try resetting your PC connection in Windows. The most reliable way in XP is to click *Start•Run* and type **CMD** (in Vista, type **CMD** at the search prompt). Then type **ipconfig /renew** at the terminal prompt. You'll get a similar outcome by right-clicking the network connection icon in the system tray and selecting *Repair*. However, I find the terminal method more effective.

♦ If you're still not online and you usually connect via a wireless adapter, try plugging in directly to the router via an ethernet cable. Still not working? Try skipping the router and connecting a PC directly to the modem to further isolate the problem. Check all cables and replace them if possible. Examine cable modems for fraying on the coaxial wiring.

No dice? It's time to call your broadband provider to check for known outages in your area. (Don't forget to check the obvious: If you use a cable modem, is the cable TV working? Did you pay the bill?) Some providers can test your network gear remotely, as well; in some cases the ISP may need to send a reset signal to your modem. But at this point you're likely dealing with a network outage. Such outages are usually temporary, but reporting them and complaining—repeatedly—will likely result in a speedier resolution.

**How to Avoid It Next Time:** Invest in backup connectivity gear—find a nearby friend whose Wi-Fi signal you can use, or buy a wireless data card and account for your laptop. Even having dial-up numbers for your ISP or an AOL or NetZero CD handy can get you online in a pinch.

## Problem: You just received a letter from the RIAA/MPAA—you're being sued.

**Likely Cause:** We're not here to judge.

**The Fix:** Resist the urge to drop your computer into a lake, format your hard drive, or steamroller your iPod. The only appropriate action when served with legal papers is to call a lawyer. You can find a nearby attorney who handles this type of lawsuit by browsing through the list at find.pcworld.com/57266.

**How to Avoid it Next Time:** Make sure that your wireless network connection is secure and that media folders are not shared on your PC. After the dust settles, uninstall from your system any peer-to-peer applications that don't check for copyright.

## Problem: Your identity has been stolen!

**Likely Cause:** You'll probably never know. Your credit report was illegally pulled, or your Social Security, credit card, or ATM number was scammed.

**The Fix:** Take these steps as soon as possible. (This section includes tips from the Federal Trade Commission.)

1 Cancel ATM/credit cards and report the issue to your credit card companies; request new account numbers if necessary. Change all PINs (even on new cards). Banks and credit card companies require notice in writing of any compromised accounts; you can use the FTC's fraud affidavit to provide that notice (go to find.pcworld.com/57263).

2 Change the passwords to all your financial-institution Web sites.

3 Explain the situation to the fraud department at each of the three credit reporting agencies: Equifax (equifax.com, 866/640-2273), Experian (experian.com, 800/493-1058), and TransUnion (transunion.com, 800/916-8800). File forms as required.

4 Examine your credit report (each agency will provide a copy) for illegal or inaccurate listings. File forms disputing the reports as appropriate.

5 File a police report locally or where the theft took place (if you know). Ask for copies of the report; you'll need to send it to credit agencies, and you should keep one, as well.

6 File an ID theft complaint with the FTC. You can do so online at find.pcworld.com/57264.

**How to Avoid It Next Time:** You can get one credit report free per year per credit agency; try checking one report every four months for timely monitoring. Use strong passwords and PINs (for tips on creating strong passwords, see find.pcworld.com/57265). Don't share your Social Security number if possible. Consider limiting the business you do on the Web to sites you've vetted.

# Problem: Your camera, cell phone, laptop, or keyboard just got doused with water—or worse.

**Likely Cause:** This is one you can't blame on Microsoft.

**The Fix:** Water and electronics don't mix, but a little spill doesn't necessarily mean your gear is ruined. To be honest, the odds aren't great for your gadget's full recovery—but with care, you might be able to revive your hardware.

♦ First, if the device is still on, turn it off immediately and remove any batteries, CDs, SIM cards, memory cards, etc. For a notebook, remove any modular components like PC Cards and removable optical drives. Dry off any visible liquid with a towel. Depending on how comfortable you are with the process, disassemble the device as much as possible and as quickly as possible to improve your chances of recovering it. This is essential if you can actually hear trapped liquid sloshing around inside.

Your goal is to get the device completely dry, inside and out, as rapidly as you can. There are many ways of doing this, so from the following bag of tricks try whatever is convenient and appropriate for you. Remember that all of these "cures" can cause more damage than they repair. Luck is a major factor here.

♦ Desiccants will absorb moisture. Put the device in a sealed bag with a few silica gel packets. Only brand-new packets will work—old ones will have long ago absorbed their limit in moisture. The same trick can work with regular uncooked white rice and even salt; just make sure not to get any grains inside the device. (Try wrapping your gadget in tissue paper.)

♦ Heat can evaporate water. Put the device on the dashboard of your car for an afternoon (just make sure that it doesn't get hotter than about 150 degrees). If you're brave, you can try putting the device in a 150-degree oven for an hour. Keeping your cell phone in your front pants pocket all day also might warm it enough, as might a hair dryer (don't set it on high, though). Make sure the battery is removed if you try any of these tricks.

♦ Alcohol attracts water. Again, this is not a trick for the faint of heart, but you can dunk a wet gadget completely in a container full of alcohol (use 99 percent rubbing alcohol, not the standard 70 percent), which will bind to the water and pour out or evaporate. Make sure you do this quickly, as alcohol can damage some kinds of plastics.

♦ If the device has (or is) a keyboard, put it upside down for a spell to give the liquid a chance to drain out.

♦ If you managed to get something sticky (like soda) in your notebook or cell phone, it will probably need to be cleaned after it dries. That means opening the affected device and swabbing it with a Q-Tip dipped in 99 percent rubbing alcohol—otherwise the electronics are likely to short-circuit from the goo trapped inside.

**How to Avoid It Next Time:** Unless you drink from a sippy cup, avoiding spills is hard to do. Some gadgets have waterproofing technologies available: Spill-proof keyboards (or plastic covers) are now commonplace, and underwater camera housings can help if you're shooting pics near the beach or on a boat. If you're going to be near water, even storing your cell phone or iPod in a plastic bag can save lots of headache later (see *Digital Photo Tips* on page 140 for more on keeping your camera safe from the elements). ▶

## READER TALES OF PC DISASTERS

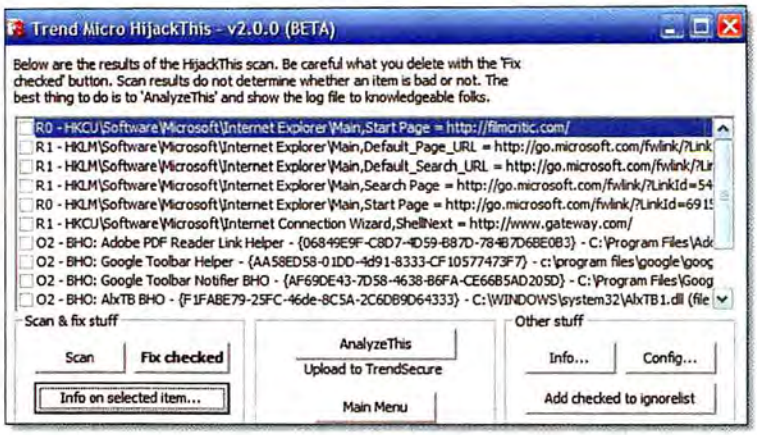
**SHANE MITCHELL,** college student, in Boulder, Colorado

I SAT DOWN to do my homework with my trusty iTunes providing my study music. I had been at it for only a few minutes before my PC's sound began to crackle and do its best to act as though it were a radio being jammed before ceasing to work completely. I tried a reboot, and then tried upgrading drivers. But when I booted with the new drivers, my system kept freezing up, then starting again, then freezing again. I tried different troubleshooting methods, up to and including replacing my SATA hard-drive cable, reformatting a suspect bad drive, and reinstalling Windows (twice). But my problems persisted. Then I had a sudden flash of insight: Could the problem be my BIOS?

I decided to try reinstalling the crippled hard drive to see whether I could get into Windows and attempt to update the BIOS. I succeeded in getting back into Windows and discovered the nifty Windows Based BIOS Flashing utility program that Asus has on its Web site. The BIOS updated successfully, the error I was receiving was banished back to the void from which such problems originate, and I soon found myself back with a working Windows.

PHOTOGRAPH (TOP): MARC SIMON

# Problem: You're inundated with pop-ups when you boot your PC.




**HIJACKTHIS GIVES YOU a detailed report of what is running on your PC; get help to decipher it.**

**Likely Cause:** Spyware or adware.

**The Fix:** This may not be pretty, but most cases aren't terminal. Here's how to recover:

1 Unplug your PC from the network (or disable your wireless connection).

2 Boot in Safe Mode by pressing the key you're prompted to during boot-up (often <F8>).

3 Run a complete system scan using your antivirus software. Then run both Ad-Aware (www.lavasoftusa.com) and Spybot (www.spybot.info), and fix all the problems these antispyware apps uncover. Restore your Net connection, reboot, and run both programs again after updating them with the latest definitions. Also consider using an online virus checker, such as one from Symantec.

4 If you have a truly nasty infection, chances are the prior step helped but didn't fully solve your problem. (And some spyware can even wreak havoc in Safe Mode, preventing antispyware apps from running.) HijackThis (find.pcworld.com/57267) is your next step: It's a specialized application for determining exactly what's trying to gain control over your PC. HijackThis produces a log file that you'll probably find to be gibberish. Post it online at one of the forums listed on the HijackThis page (find.pcworld.com/57268). A volunteer adviser will offer help on cleaning up your specific infection, usually within 24 to 72 hours. If you're in a rush, go to find.pcworld.com/57269; this site offers an automated analysis of your log, but you may still need a person to tell you which specific tools to use on your PC.

5 If all else fails, try using System Restore to roll back your OS. If *that* doesn't work, you'll probably need to reinstall Windows. But exercising patience when going through the prior step and following advisers' tips is almost always successful.

**How to Avoid It Next Time:** Use common sense. Don't click on strange attachments, pop-ups, or links on dicey sites. Raise IE's security settings (go to *Tools•Internet Options•Security*) or switch browsers. Keep your antivirus and antispyware programs up-to-date. Turn on System Restore. Disinfect your PC at the first sign of trouble (spyware tends to snowball). And save current copies of your security apps on a thumb drive or CD for easy access.

# Problem: You deleted a critical file, and you have no backup

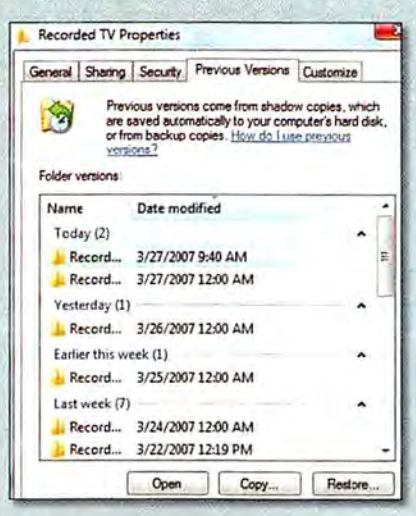
**Likely Cause:** Not enough sleep.

**The Fix:** Most Windows users know that deleting a file doesn't really erase it. There's a good chance it's recoverable, even if it's no longer in the Recycle Bin.

♦ First step: Immediately stop using the PC in question. Close all open programs and stop any real-time indexing services such as X1, Google Desktop, or Windows' own indexing service, as they could overwrite the file you're trying to recover.

♦ Give one of the popular undelete products a spin. QueTek's File Scavenger ($49, find.pcworld.com/57270) or Diskeeper's Undelete ($30, find.pcworld.com/57271) are affordable and can make quick work of scouring your drive for deleted files.

♦ If an undelete tool doesn't work, start thinking about alternate places where the file might live. Did you e-mail it to someone? Check the sent items in your e-mail client, or ask the recipient to send it back to you. Was the file a photo or video? Check your camera's memory card, or perhaps you uploaded it to Flickr or YouTube. Many files exist in temp folders scattered around your hard drive.




**VISTA'S SHADOW Copy feature lets you restore folders (and their files) to previous versions.**

♦ If you're using certain versions of Vista, you can use the Shadow Copy feature (on by default) to restore your files. Right-click the folder where your file was, and select *Restore previous versions* to retrieve your documents (see *Windows Tips* on page 132 for more details).

**How to Avoid It Next Time:** Nightly backups (or better yet, real-time backups) will make this problem a thing of the past. Also, once installed, programs like Undelete keep track of erased files until they are overwritten, and so make recovering them much easier. ▶

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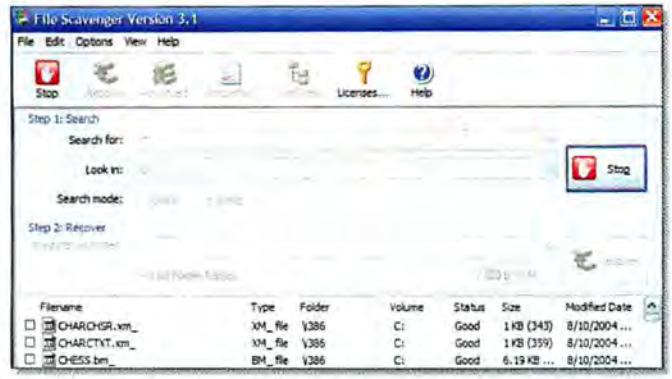
No purchase is necessary. Go to www.pcworld.com/giveaway to submit your entry.

**NO PURCHASE NECESSARY TO ENTER OR WIN.** The Hi-Tech Giveaway begins at 12:01 PM Pacific Time ("PT") on November 16, 2006 and ends at 11:59 AM (PT) on November 15, 2007. Sweepstakes is open to legal residents of the 50 United States and the District of Columbia, age 18 and older at time of entry. Void where prohibited by law. Sponsored by PC World, 501 Second Street, San Francisco, CA 94107.

# Problem: Your trusty hard drive has crashed.



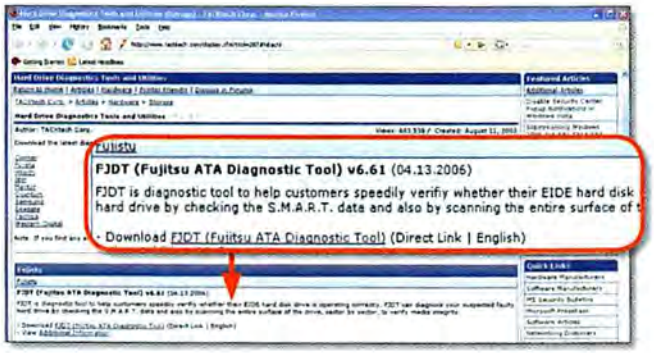

**QUETEK'S FILE SCAVENGER can help recover lost files from a damaged hard drive.**

**Likely Cause:** Whether it was dropped, became overheated, or simply died of old age, the hard drive is possibly the most failure-prone part of your computer.

**The Fix:** If you've traced a problem to your hard drive, the solution depends on the specific symptom it's exhibiting.

If the drive spins up but behaves erratically, you probably have data corruption caused by a failing drive. Try the following steps to recover your data and copy it to a good drive before the bad one dies.

1 Before anything else, if you're using an IDE drive, check that your data cable is connected properly, and if it is, try a new cable. IDE cables are notoriously cheap and prone to having their insulation stripped by the metal edges inside a PC case, shorting the cable.




**TACKTECH'S SITE LETS you download brand-specific tools to diagnose a drive.**

2 Try booting with a Knoppix CD (see the tip on page 80) or another boot disk to learn if the drive is readable. If it is, back up the data to another drive and reformat the original disk to see if it is salvageable.

3 You may have bad sectors; try using HDD Regenerator (www.dposoft.net) to locate any. Download the demo and burn it to a bootable CD. If the free demo finds bad sectors, it's probably worth paying the $60 for a full version of the software to recover the bad sectors and make the drive usable.

4 TackTech's Web site (find.pcworld.com/57272) features manufacturer-specific utilities for virtually any hard drive vendor. Find out what company made the drive that's failing, then download the appropriate diagnostic application. All of the tools are free and can be of major help in diagnosing problems on a drive and repairing them. (The Hitachi, Western Digital, and Seagate tools—in that order—will best work on other makers' drives, at least in part, so give any of them a whirl.)

5 If you still can't get the drive to boot, turn to data-recovery software to attempt to salvage lost files. You have dozens of alternatives in this market, and prices generally run $40 to $200. QueTek's File Scavenger (see the tip on page 84 about file recovery) and the Stellar Phoenix line (pricing varies, find.pcworld.com/57273) are both worthwhile.

If the hard drive will not spin up at all, you can still try a few tricks to revive it. These are all last-ditch efforts with only a slim chance of working—but if your drive won't even spin, it probably won't hurt to try. Don't do anything to further damage the drive, as a drive-recovery service might be able to help, too (more on this below). For example, don't tap or beat on the drive, and don't remove the cover from it and expose the heads. Such methods probably won't help and will probably cause data loss.

6 Hold the drive in your hand and rotate your arm outward quickly, parallel to the orientation of the platters (like throwing a Frisbee). Repeat several times. Make sure not to bang the disk on anything. This action is designed to solve a problem called "stiction" (static friction), which can prevent drive platters from spinning.

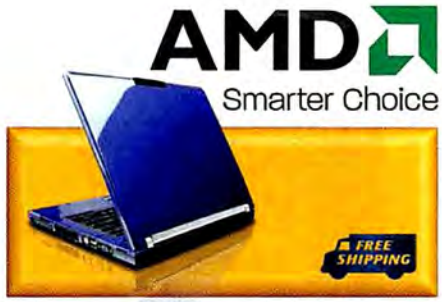
7 Try attaching the drive to a high-wattage power supply. Even though it won't draw extra power, a burst of juice from the highest-wattage power supply you find could jar it into spinning up one last time. I've seen this work.

8 The "freezer trick" is an old standby if you have a drive that is "clicking" but not spinning: Put the drive in a plastic freezer bag (and wrap it in a paper towel for extra protection against moisture) to keep water out, and then freeze it for a few hours. Let it thaw back to room temperature after you take it out, and get rid of any condensation you see. There's no agreed-upon length of time to freeze it, but start with an hour and work your way up to 24 hours to see if you can make the drive spin up one last time.

Remember that if you do get a dead drive spinning, don't let it stop until you've copied all your critical data. Chances are you won't have it working again.

If all else fails and you absolutely need data off the hard drive, your last, best hope is to send it to a data-recovery service like DriveSavers (www.drivesavers.com). It isn't cheap—expect to pay up to $3000—but I've seen the magic its wizards can do when consumer-grade tools fail.

**How to Avoid It Next Time:** Make sure backups are up-to-date. For added security, mirror a second hard drive to ensure you have a real-time backup with minimal risk of data loss and downtime. A cheaper aid: Monitor your drive's health with the free HDD Health utility (www.panterasoft.com), which uses SMART technology to predict impending crashes (though it won't catch them all). ▶

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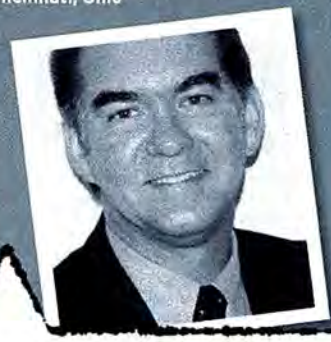
**READER TALES OF PC DISASTERS**

**BOB DRAKE, math professor in Cincinnati, Ohio**



AFTER INSTALLING WINDOWS, my PC became unstable, so I opted to return to DOS. I rebooted from a DOS disk, but found no remnants of data on the C: drive. My data was backed up on my E: drive, so I wasn't concerned—yet. I formatted my C: drive, but then got nothing on it or my other two drives. I had 15 years' worth of work stored on that PC! I phoned Microsoft tech support multiple times with the same result: "We don't know what's wrong, we can't help."

I finally got hold of a tech in Texas who instructed me to format a floppy (my A: drive still worked) and to create a specific small .bat file. I had unwittingly "compressed" my C: and D: drives, and when formatting C:, I deleted the file needed to tell the PC how to read my drives. The .bat file let me access E: and get my data.

## Problem: You can't get into Windows because you forgot your password.

**Likely Cause:** Consult your family physician for a complete diagnosis.

**The Fix:** With each version of Windows, recovering a lost password becomes a bit harder, thanks to Microsoft's inexorable security improvements. However, there's no need to abandon hope.

1 If it's your Windows XP log-in password, try logging in under another account with administrator privileges. (There may have been an account like 'Owner' installed, often with no password, when you first bought your PC.) Any administrator account can reset the password of any other account. If you're not using the Windows XP log-in screen (the one with the icons for each user), you can try logging in with the account named 'Administrator', which is hidden on the XP log-in screen. If you are using the XP log-in screen, try pressing **<Ctrl>-<Alt>-<Delete>** to reach the old, NT-style screen, which should allow you to type in the user name.

2 If no other account exists on the PC, you'll need to turn to third-party tools to reset the password or crack it. Ophcrack is the first third-party tool I'd recommend to recover a lost password: Using another PC, download the free software from ophcrack.sourceforge.net and burn it to a disc. Boot from this CD and watch Ophcrack go to work. Based on extensive password tables, it can recover most passwords in a matter of minutes, for all the accounts on a PC.

3 You also can try a tool that can reset your password if everything else has failed; note, though, that such tools generally involve a small risk of data loss or corruption. Offline NT Password & Registry Editor (find.pcworld.com/57275) and Emergency Boot CD (ebcd.pcministry.com) are both free, include bootable CD versions, and are fairly self-explanatory if you're comfortable working with the command line. Both can reset your Windows password for you, and they support multiple Windows versions.

If you lost a BIOS-level password, you can try resetting or bypassing it. First, try backdoor passwords as listed at find.pcworld.com/57341. If none works, try resetting your CMOS, as discussed in the tip on page 80, to cause the BIOS to reset to its default state. Replace the battery and then restore the jumper to its original position and reboot your system.

**How to Avoid It Next Time:** If password loss is a frequent problem, consider writing them down and keeping them in your wallet, or storing them in a bank safe deposit box or a safe at home—just make sure you don't lose the key. ■

*Christopher Null is a veteran journalist who covers technology topics daily through his blog at find.pcworld.com/56216.*

*To read more users' PC horror stories or add yours, go to find.pcworld.com/57321. Also see find.pcworld.com/57347 for a guide on using HijackThis and a video on salvaging wet gear.*

## Problem: Your pitch to the VCs just went south when your presentation croaked.

**Likely Cause:** Corrupted files, downed router, incompatibilities on a loaner machine—it doesn't really matter. You don't have time to play detective.

**The Fix:** If you're brave, go without your slides. The sad truth is that everyone hates PowerPoint, and you'll prove your flexibility and ability to handle setbacks if you forgo the crutch of slides and continue immediately.

♦ If you absolutely have to have a presentation and a quick reboot doesn't help, try OpenOffice.org (www.openoffice.org). If you can buy the time, you can download and install it in 10 to 15 minutes. Better yet, always pack a spare in case of just such an emergency: OpenOffice.org Portable (find.pcworld.com/57274) will run directly from any thumb drive. Just keep a copy of it on a USB drive along with your presentation so you can run it at any time, on any computer.

**How to Avoid It Next Time:** Come prepared. Bring hard-copy printouts of all slides to use as handouts, and pack the aforementioned OpenOffice.org Portable as a precaution.

# Do you know if you have enough network protection? You could find out on your own or just ask CDW.

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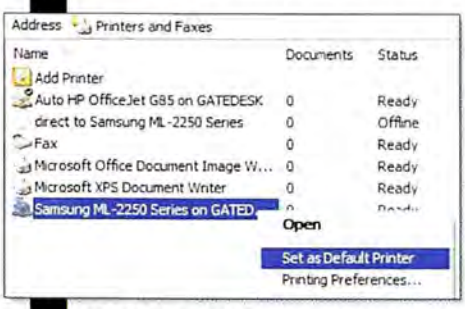
TIPS

# 10 FAST FIXES FOR NAGGING PC PROBLEMS

These common snags won't make a brick of your PC, but they're frustrating, annoying, and real productivity drains. Here's how to solve them.

1 **Your Wi-Fi network is now dog-slow.** If it's not a network outage, you likely have interference. Try relocating your router to shield it from disruptions such as microwave use or calls from a cordless phone. Or you may be on a crowded channel. Change this via your router's configuration page; look for a 'Channel' section and try 1, 6, or 11. Go to find.pcworld.com/57152 for more ideas.

2 **Your display looks terrible.** Check display settings by right-clicking the desktop; choose *Properties* in XP or *Personalize* in Vista, then *Settings*. If you can't increase resolution and color quality, click *Advanced*•*Adapter*. If Standard VGA Adapter or another generic adapter is listed, download a driver specific to your PC (see find.pcworld.com/57153 for details on doing this). If your adapter is there, try a prior driver version. In XP, click *Properties*•*Driver*•*Roll Back Driver*; in Vista, open the Personalization Control Panel, choose *Display Settings*•*Advanced Settings*•*Properties*, and click *Driver*•*Roll Back Driver*.




**MAKE SURE YOUR preferred printer is the default one via the printers control panel.**

3 **Your printer is spewing out garbage.** A cancelled print job may not have cleared properly from the printer's memory. Turn the printer off for a minute, then back on. While you're waiting, go to *Start*•*Printers and Faxes* in XP, or *Start*•*Printers* in Vista, to delete anything in the print queue. If the problem continues, download and reinstall the driver.

4 **Your default printer is no longer the default.** Some apps, like Microsoft's OneNote, install faux-printer-like devices as output options, and some will also unhelpfully make them the default for all print jobs. Select *Start*•*Run*, type **control printers**, and press **<Enter>**. Right-click the printer you prefer, and click *Set as Default Printer*.

5 **You see daily, consistent error messages citing memory problems.** To check if bad RAM is actually the trouble, download the free MemTest86 and stick it on a boot disk (www.memtest86.com); then run the full battery of tests.

6 **Your PC starts up too slowly.** Click *Start*•*Run* and type **msconfig**. Then click the *Startup* tab to see all of the apps that load at startup. Uncheck anything you don't want to start at boot-up—but uncheck programs one at a time, as you need many of these apps to run your PC. (For more on pruning safely, see find.pcworld.com/57154.)

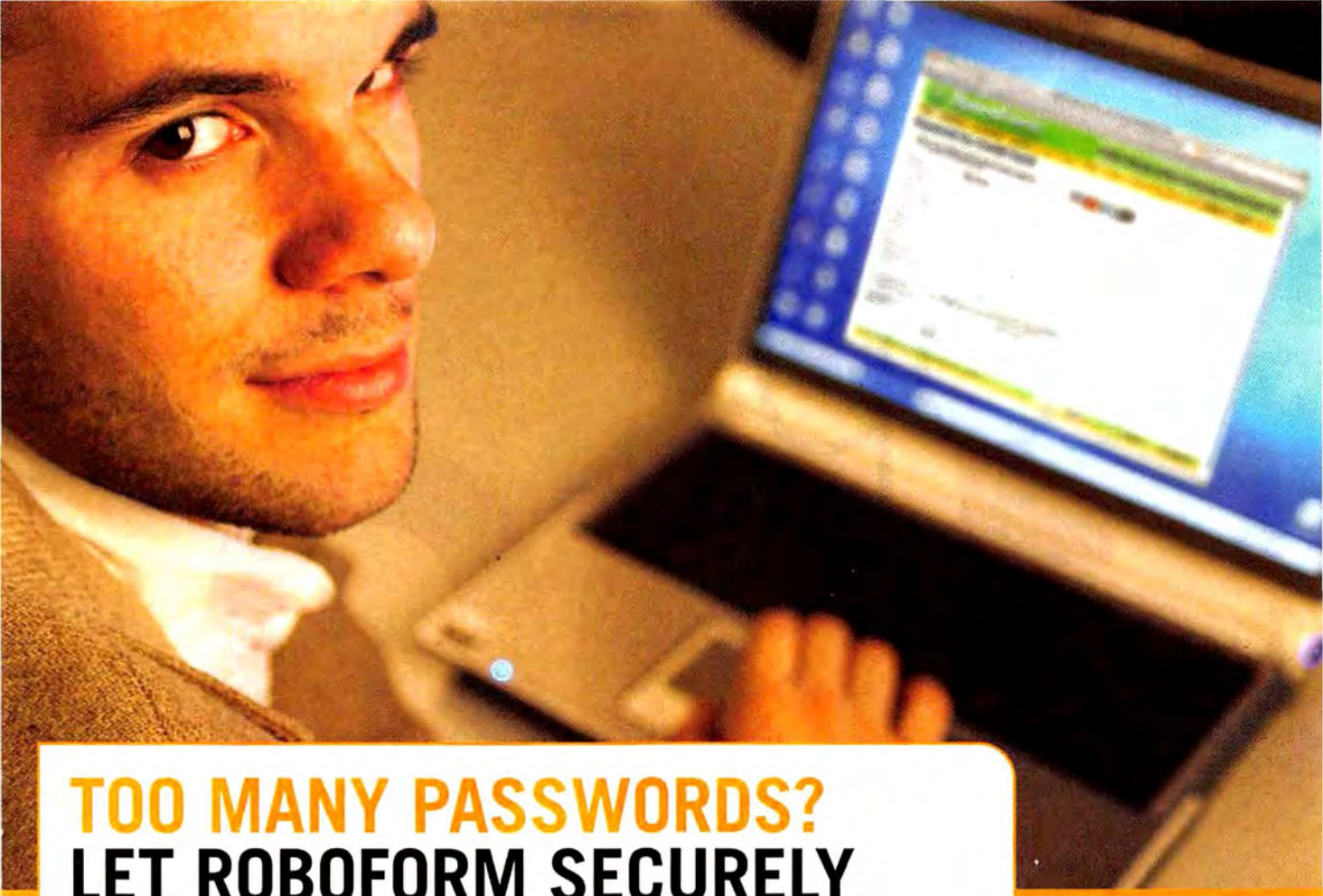
7 **Videos play sans audio or image.** Your codecs are probably out of date. Get multiple updates via a free pack such as the ACE Mega CodecS Pack (find.pcworld.com/57155) or the K-Lite Codec Pack (find.pcworld.com/57156).

8 **You broke a key off your keyboard.** If part of the key mechanism is broken, consider scavenging an unused key (<Insert>, perhaps) and use its mechanism with your broken key (Apple's tutorial at find.pcworld.com/57158 will walk you through this—it should work for almost any keyboard).

**TO TWEAK YOUR monitor, go to Display Properties' Settings tab and adjust it.**

9 **You bent a pin on one of your PC's ports or cables.** Using pliers will probably make things worse, but the tip of a large-diameter mechanical pencil will fit most pins. Just slip it over the bent pin to straighten it out.

10 **Folders show only large icons.** Change the default in Windows Explorer by setting the right view on any folder, and then click *Tools*•*Folder Options*. Click the *View* tab, then *Apply to All Folders* (*Apply to Folders* in Vista). ■



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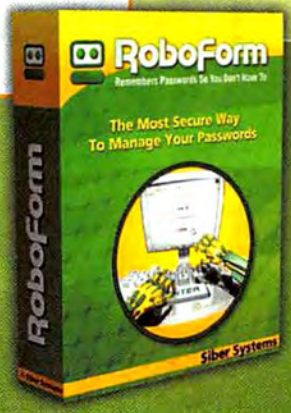


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# top 100 products of the year

Innovative Web applications, powerful processors, spectacular HDTVs, and creative game consoles—we asked you for your favorites and added lots of our own for our annual ranked roundup of the best hardware, software, and services. ▸

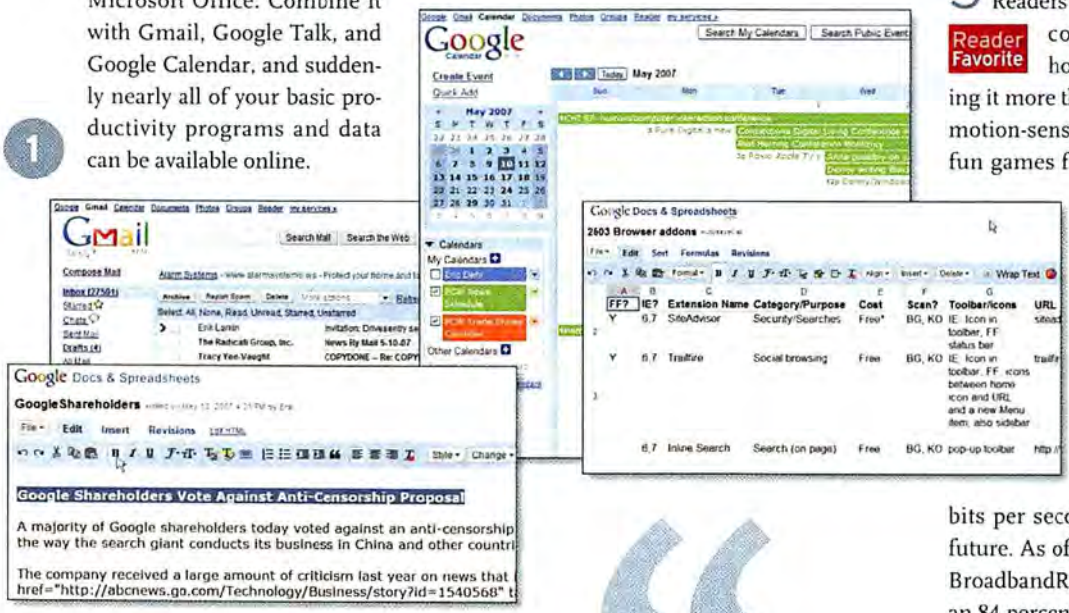
EDITED BY ERIC DAHL

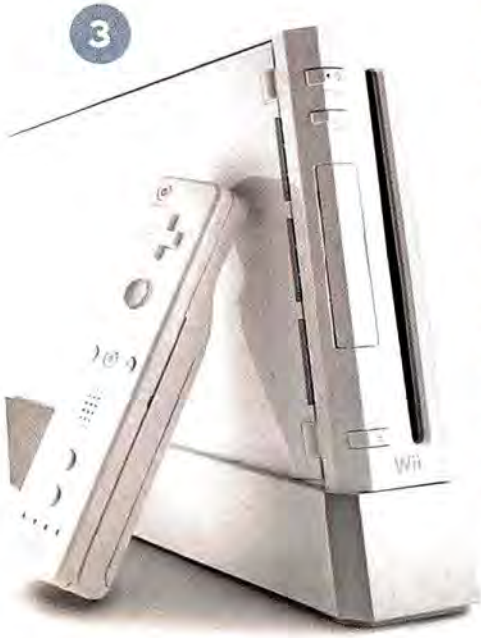
PHOTOGRAPHS BY MARC SIMON

CLOCKWISE (FROM TOP): Samsung Syncmaster 244T (#12), Infrant Technologies ReadyNAS NV (#8), Nikon D40X (#23), Hitachi Deskstar 7K1000 (#20), HP dv9000t (#14), and Parallels Desktop (#6).

**1 Google Apps Premier Edition (Web applications; $50 per user per year)** Google is much more than just a search engine, and with its invaluable Google Apps suite, the company is well on its way to challenging Microsoft for productivity-suite supremacy. Google's Docs & Spreadsheets (soon to be joined by a PowerPoint-esque presentation application) already makes for an interesting alternative to Microsoft Office. Combine it with Gmail, Google Talk, and Google Calendar, and suddenly nearly all of your basic productivity programs and data can be available online.

For small businesses that need more than the free versions offer, Google Apps Premier Edition adds capacity, support services, and tools for integrating existing infrastructure so that all your employees can use Google's powerful Web apps—no matter where they are. Printouts may never die, but if Google has its way, the office-less office may become a reality long before the paperless one does.




> Not only has Wii brought fun and interaction back into the gaming world, but it actually makes people exercise a little bit. Wii is just so 'real' at times, it's scary.
>
> —*Forum reader MarvTV*

**2 Intel Core 2 Duo (desktop CPU; $150 and up)** It's superfast, it's not too expensive, and it uses less energy than its predecessor does. But could Core 2 Duo be too good? Unless AMD can respond to its startling success, the absence of competition could drive up desktop PC prices. That's how terrific this CPU is.

**3 Nintendo Wii (game console; $250)** Readers went gaga for the first game console to get nongamers hooked on gaming, nominating it more than any other product. With motion-sensitive controls and a slate of fun games for all ages, Nintendo really has something with the Wii. Now if only we could find one for sale...

Reader Favorite

**4 Verizon FiOS (Internet service; $40 per month and up)** Supplying enough bandwidth to offer IPTV plus Internet access at up to 30 megabits per second, fiber is the way of the future. As of this writing, FiOS users on BroadbandReports.com gave the service an 84 percent satisfaction rating.

**5 RIM Blackberry 8800 (smart phone; $350 with two-year contract)** Take one sweet smart phone, and add GPS. With no camera but some serious e-mail mojo, the 8800 is all business.

**6 Parallels Desktop (virtualization software; $80)** A Mac OS application in *PC World*'s Top 10? You bet. With a simple interface and improving 3D acceleration, Parallels offers the slickest way to run Windows (or any other OS) on Apple's beautifully designed Intel-based hardware.

Reader Favorite

**7 Pioneer Elite 1080p PRO-FHD1 (plasma HDTV; $8000)** In a crowded field of nice-looking HDTVs, Pioneer's high-res Elite series plasma stands alone as the display that everyone wants. If you have the means, we highly recommend it.

**8 Infrant Technologies ReadyNAS NV** (network-attached storage device; $900) Great for backups or shared storage, Infrant's 1TB ReadyNAS performs well and includes helpful features such as uPNP support and a built-in print server.

**9 Apple Mac OS X 10.4 "Tiger"** (operating system; $129) Quick: Name a good Vista feature that goes beyond what's in Tiger. Yeah, we can't either.

**10 Adobe Premiere Elements 3** (video-editing software; $99) Like the rest of Adobe's Elements products, Premiere gives you just the video editing features you need at a reasonable price.

**11 Apple TV** (media-streaming device; $299) Apple's media streamer focuses on doing a beautiful job at a few key tasks. Now that it's out in the wild, hackers can focus on making it do a bunch more cool things.

Reader Favorite

**12 Samsung Syncmaster 244T** (wide-screen monitor; $700) The 24-inch wide-screen LCD has been this year's hot display format, and Samsung's model is one of the best, with outstanding image quality and lots of useful features.

**13 BillP Studios WinPatrol** (system utility; free) When programs install themselves, WinPatrol watches your back, ensuring that tray icons, update checkers, and other random junk show up on your PC only if you allow them.

**14 HP dv9000t** (power notebook; starts at $1099) This attractive 17-inch notebook is a terrific performer when properly equipped. An optional HD DVD drive lets you rock the HD movies on its WXGA+ screen.

**15 McAfee SiteAdvisor** (security software; free) The free version of SiteAdvisor can warn you away from spyware, adware, or phishing sites before you visit them, giving you some peace of mind during your Web surfing.

**16 Ubuntu 7.04** (operating system; free) Fast and friendly, Ubuntu has solidified itself as the one Linux distribution that Linux geeks love and newbies can comfortably use. Even Dell turned to the 7.04 version of Ubuntu when it announced its intention to preload some systems with Linux.

**17 Pandora.com** (digital music site; free) Sadly, the current scrap over Internet-radio royalty payments may turn this award into a eulogy for Pandora, a nifty Internet radio service that learns your preferences and plays songs you've never heard but will probably like.

**18 Microsoft Xbox 360 Elite** (game console; $480) The high-end 360 now ships with 1080p support and a 120GB hard drive, but it's the Xbox Live service, and the games and downloadable video on it, that make Microsoft's console really shine.

Reader Favorite

**19 Paint.net** (image editing software; free) This open-source photo editing application packs tons of muscle into a measly 1.3MB download that doesn't cost a dime. Impressive.

**20 Hitachi Deskstar 7K1000** (hard drive; $399) Sure, it's pricey, but Hitachi's 1TB monster isn't just a big hard drive: It aced our performance tests.

**21 Sightspeed 6** (video-conferencing software; free) The best video-conferencing app we've tested improved further in ver- ▶

PHOTOGRAPH (TOP): COURTESY OF PIONEER

sion 6 with a tabbed interface for contacts. Even better: Sightspeed is still free.

**22 Kayak (travel site; free)** This travel search engine consistently digs up the best deals on airfare, hotels, and rentals by searching through a vast range of sites and databases.

**23 Nikon D40X (digital SLR camera; $599)** Nikon's shockingly affordable entry-level digital SLR includes a capable help system so that SLR newbies can get the most out of the camera.

**24 Times Reader (news viewer; $15 per month after free trial)** More than just a nifty Vista demo, Times Reader is an entirely new way to consume news. Download it and treat yourself to *New York Times* stories in a format that's as clickable as a Web page but as readable as print.

**25 Samsung BlackJack (smart phone; $150)** This Windows Mobile–based smart phone for Cingular's 3G HSDPA service beats the Motorola Q at its own game. It's thin, light, multimedia-savvy, and of course a great device for e-mail and text messaging.

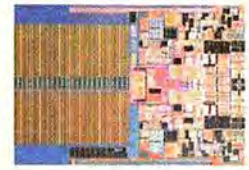
**26 Apple 80GB iPod (MP3 player; $349)** Apple may not want to proclaim it the true video iPod, but this 80GB model is more than capable of storing a complete MP3 collection along with a few movies and TV shows.

**27 Yahoo Mail Beta (Web-based e-mail; free)** Its Ajax interface makes it the closest yet to Outlook in your browser—without the security holes.

**28 TomTom One (GPS navigation system; $499)** With high-quality ▶

IN THE WINGS

# most-anticipated products



NO MATTER WHEN we plan our awards issue, there are always a few hot products that sound promising but just miss the cutoff date. Here are a few that we think might be worth waiting for:

**Apple iPhone (June):** Reality Distortion Field aside, the iPhone is the real deal. While the lockout of third-party apps is disappointing, the preproduction version of Apple's überdevice had the best mobile browser we've ever seen, an incredibly slick touch-screen interface, and some innovative and useful e-mail, voice, and text messaging features. Here's hoping Apple gets that software keyboard right.

**AMD Phenom (summer 2007):** There's a lot riding on this CPU and its 65nm manufacturing process. Can AMD recapture the performance lead? Can it at least catch up to Intel? By all accounts, the Barcelona architecture has a very modular design that AMD should be able to scale for years. However, not too long after it launches, Intel should be ready with its own new offering, namely...

**Intel Penryn (Q1 2008):** Intel may have a serious performance lead with its Core 2 Duo, but the company isn't resting on its laurels. Samples of Penryn, Intel's successor to Core 2 Duo, are already running at over 3 GHz in labs, and Intel's first benchmarks of the new chips showed some impressive gains in gaming and video editing. Penryn will be the first mainstream CPU manufactured through a 45nm process with high-K metal gates, which permits Intel to continue upping clock speeds while keeping power requirements constant.

**Mac OS X 10.5 "Leopard" (October 2007):** Supposedly delayed so Apple could finish the iPhone, this latest OS X update will include official support for dual-booting through Boot Camp. Also on tap: an automatic-backup feature called Time Machine, continuing iChat improvements, and some other cool tricks yet to be disclosed.

**Rock Band (Q4 2007):** This second Guitar Hero follow-up adds bass, drum, and vocal parts so you really can get the band back together. Rock on!

# You've got more music, more photos, more video – you need more and safer storage!

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>
> —*Reader Chris Mori*

maps, clear driving directions, and a slim LCD screen, the TomTom One is the in-car GPS unit lots of people were waiting for.

29 **Dell Ultrasharp 2407WFP** (wide-screen monitor; $669) Samsung's wide-screen display may look a bit better, but Dell's frequent discounts make this 24-inch monitor particularly affordable.

30 **Zoho** (office suite; free) Integration gives Google's online office suite the overall edge, but the polished interface of Zoho's offering has its fans. Zoho Writer is particularly good.

31 **Gmail** (Web-based e-mail service; free) Whether in storage capacity, searchability, or raw speed, Google's Gmail feels like e-mail without limits.

32 **SlingMedia Slingbox Pro** (media-streaming device; $249) Send live or recorded media to any Net-linked device with a browser. Reader Favorite

33 **Red Octane Guitar Hero 2** (video game; $90) Shredding your way through an array of classic guitar rock anthems has never been so much fun.

34 **YouTube** (video site; free) Is there a better way to waste time on the Web? If so, we haven't found it. We'll keep looking after we watch just one more video.

35 **Mozilla Firefox 2** (Web browser; free) Sure, Microsoft eventually did some nice things with IE 7, but why even bother with that browser if you don't have to? Firefox is secure, free, and always improving. Reader Favorite

36 **Google Picasa** (image editor; free) Google's no-cost app makes organizing, renaming, and sharing photos as easy as...well, a Google search.

37 **Nikon D80** (digital SLR camera; $1200) Ultrafast response time, beautiful photo quality, and convenient, useful features such as in-camera photo editing—what more could you want from a high-quality digital SLR model? ▶

FORECASTS

# technology barometer

**Solid-state storage:** Dell, Fujitsu, and Sony (among others) already offer notebook models carrying Solid State Disks based entirely on flash. Models providing 32GB of storage have reached a semiaffordable $450 premium over 60GB hard drives on ultraportable machines, while 64GB notebook-size drives are also available. Even 128GB models have been announced, and some might even be affordable for the military and governments of most industrialized nations.

**LED backlights:** Compared with standard CCFL backlights, LEDs improve color reproduction while lowering power consumption. Formerly seen only in super-high-end monitors and HDTVs, LED backlights are poised to go mainstream over the next couple of years. Sony uses them on its VAIO SZ laptop line, and Samsung plans to introduce an entire LCD monitor line with LED backlights this year.

**Ajax/Web 2.0:** On the one hand, Ajax and Web 2.0 have clearly revitalized the Web. On the other, Web 2.0 security concerns are just beginning to rear their ugly heads (see page 18 for more details). At the same time, many rich Web applications like Zimbra have begun to add offline capability.

**DRM:** EMI hopped off the bandwagon this April, announcing that it would offer DRM-free music through iTunes and other music stores. Plus, hackers are already all over the AACS system that protects Blu-ray and HD-DVD movies. Hollywood and the RIAA won't give in anytime soon, but the writing is on the wall.

**Powerline networking:** As many people seeking to stream media through the home have already realized, 802.11b, -g, and -n wireless networks just don't cut it, especially in a crowded urban environment. Powerline networking in general, and the HomePlug AV standard in particular, is poised to profit from the inevitable consumer discontent—especially as electronics vendors begin to incorporate powerline adapters into products such as set-top boxes.

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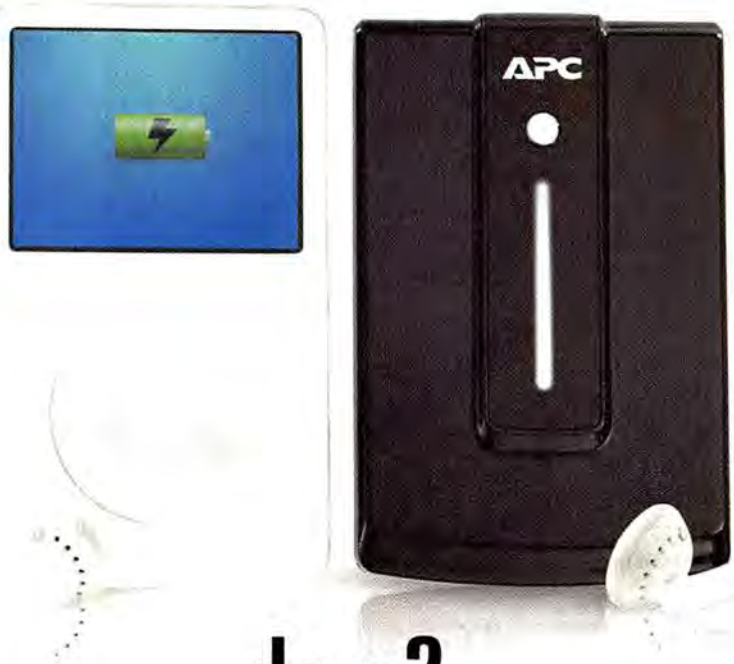


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**38 Skype 3** (VoIP software/service; unlimited calling, $68 per year) Though Skype may not replace a landline, the service makes VoIP calling easy—and cheap.

**39 Aliph Jawbone** (headset; $120) Now that Aliph's attractive noise-canceling headset has gone wireless, the Jawbone is indisputably the coolest way to look like you're talking to yourself.

**40 Shure E500 PTH** (headphones; $499) The innovative push-to-hear module pipes in sounds from the outside at the flick of a switch. These audio-isolating headphones otherwise keep you immersed in a pristine sonic environment.

**41 CyberPower Gamer Infinity Ultimate** (power desktop; $4399 as last tested) Chock-full of high-end options, CyberPower's Gamer Infinity Ultimate PCs have consistently placed near the top of our power-PC charts on the strength of their components and (relatively) reasonable prices.

**42 Asus w5fe** (ultraportable notebook; $2199) One of the first Windows Vista SideShow notebooks, Asus's 12.1-inch w5fe packs enough power for an everyday machine.

**43 AVS Forum** (Web forum; free) You'll find the best info on all things home entertainment—from the latest HD sets and players to cable-quality myths—at this revered Web forum.

**44 Flickr** (photo-sharing site; free) Yahoo's photo-sharing site is fun and fast by itself—but all the little apps that are built around Flickr make it one of the best services available.

**45 Apple iPod Nano** (MP3 player; $149 and up) Now with up to 8GB of capacity, Apple's flash player can hold more than enough music for casual listeners in a package the size of a few business cards.

Reader Favorite

**46 Nikon Coolpix S50c** (point-and-shoot digital camera; $350) Built-in Wi-Fi, a 3-inch LCD, and direct uploads to Flickr (see #44) are the highlights of this thin little point-and-shoot.

**47 Dell Ultrasharp 2007WFP** (widescreen monitor; $390) If you can't afford to step up to a full 24-inch wide-screen LCD, 20-inchers like this Dell are your next best bet.

**48 OCZ Trifecta Secure Digital Memory Card** (flash memory; $25 and up) This superfast microSD flash card from an enthusiast memory maker comes bundled with an SD Card adapter that's equipped with a flip-down USB adapter.

**49 Archos 704-WiFi** (portable media player; $549) Is it a video player or a PDA? Archos's 704-WiFi is a bit of both. Full 802.11g wireless access, a 7-inch touch screen, and a built-in Web browser make for a truly interesting combo device.

**50 Lenovo X60 Tablet** (ultraportable convertible notebook; $2500) Well-designed ultraportables such as the convertible X60 Tablet prove that the venerable ThinkPad line is still in good hands.

**51 Canon EOS 30D** (digital SLR camera; $1499) The successor to Canon's popular 20D camera includes well-designed controls and a bump up in its LCD screen size to 2.5 inches.

**52 LaLa.com** (music-trading Web site; $1.79 per CD received) List your CD collection through LaLa's efficient Ajax interface, and then trade discs you don't want for ones you do.

**53 Google Maps for Mobile** (mapping service; free) Need directions on the go? Try bringing the power of Google Maps to your mobile phone. ▶

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**54 Canon Pixma iP4300** (inkjet printer; $90) Sometimes you simply need a solid printer, and Canon's Pixma iP4300 is just that. Beneath its minimalist design lies a fast inkjet that delivers very good image quality.

**55 Kaspersky Anti-Virus** (antivirus software; $50) PC security is as important as ever, and Kaspersky's fast response to outbreaks makes this a first-rate tool for locking down your PC.

**56 Microsoft Office 2007** (office suite; $100) Innovation in Microsoft Office? That has to drop the temperature in Hades a few degrees. This year Office got an entirely new interface, built around a toolbar-eliminating "ribbon" that exposes Office's many options.

**57 Asus Crosshair** (motherboard; $250) Packed with high-quality integrated sound and nearly every port you could ever want, this board for AMD CPUs is an overclocker's delight.

**58 Digg.com** (community-based news Web site; free) Whether it's political debates, hot new software, or other sites such as ICanHasCheezburger, Digg.com keeps you plugged in to whatever's hot on the Web at the moment.

**59 Dell XPS M1210** (ultraportable notebook; $1299 and up) Designing an ultraportable to be an entertainment machine is a tall order, but the XPS M1210 proves Dell was equal to the task.

**60 Creative Zen V Plus, 8GB** (MP3 player; $200) Apple's iPod Nano may be more popular, but with FM radio, a built-in mic, and a pretty interface, the Zen V Plus is a better value.

**61 Apple iTunes** (digital music software; free) Even without the continually expanding iTunes store, Apple's music-management application would be one of the best around.

**62 Gigabyte GA-965P-DQ6** (motherboard; $230) Our favorite Intel-based motherboard may be a bit expensive, but Gigabyte's solid construction and reliability make this model a terrific starting point for assembling an Intel-based computer.

**63 Iomega NAS 1TB** (network-attached storage device; $799) This Iomega NAS features decent performance, but the true highlight is its support for hot-swappable drives.

**64 Fujifilm FinePix F40fd** (point-and-shoot digital camera; $260) Built-in software detects people's faces to help automatically focus the camera on the correct spot.

**65 Canon MP600** (inkjet multifunction printer; $180) Great paper handling and fast, high-quality prints make up for this multifunction printer's lack of fax functionality.

**66 37signals Backpack** (project-management/organizer software; free trial, or $5 per month and up) 37signals deserves its rep for building great, tightly focused applications. Backpack helps you manage projects through a simple interface that permits you to grab data from lots of sources.

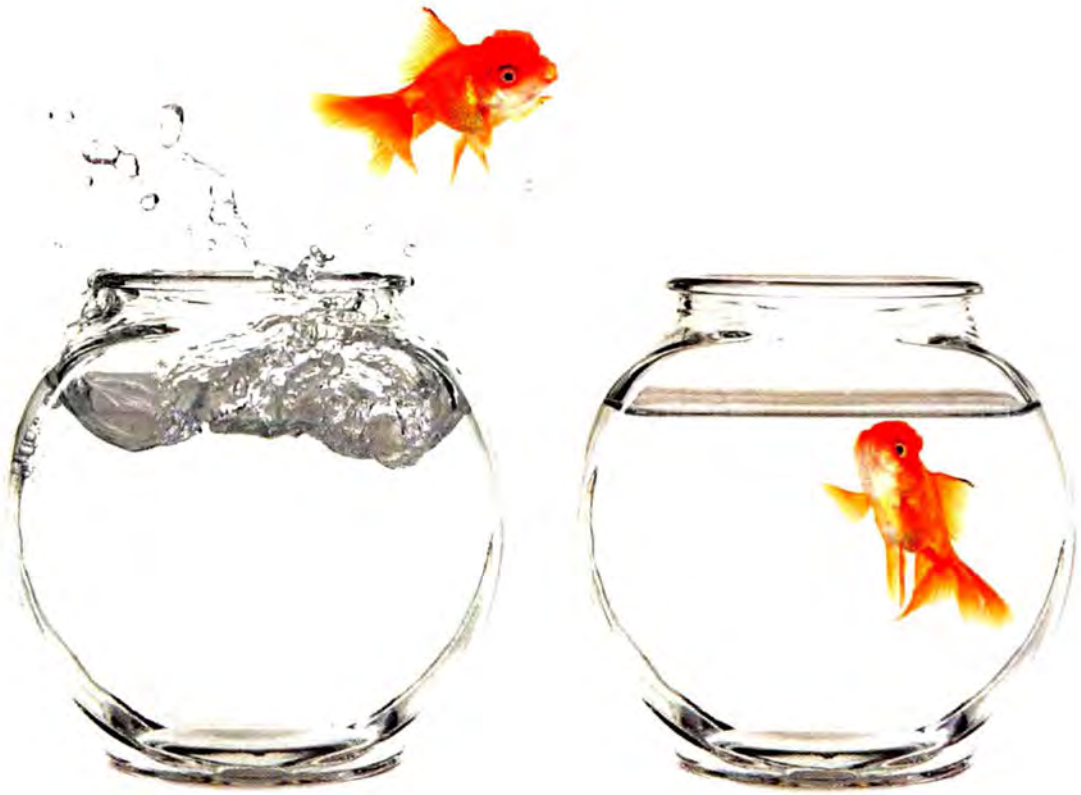
**67 LG Electronics BH100** (high-def video player; $1200) Why take sides in a format war when LG's player can handle both Blu-ray and HD DVD media?

**68 Craigslist.org** (Web-based classified ads; free) From housing and jobs to personals and free stuff, you can find almost anything on Craigslist.

**69 BBB.org** (consumer Web site; free) The venerable advocacy organization is still tirelessly looking out for Joe and Jane Consumer.

**70 Fujitsu Scansnap s500** (scanner; $495) Is the Scansnap s500 the last scanner you'll ever buy? In a world where documents are increasingly created digitally, it very well may be.

**71 NEC MultiSync 90 GX2** (19-inch LCD monitor; $300) As workhorse ▶



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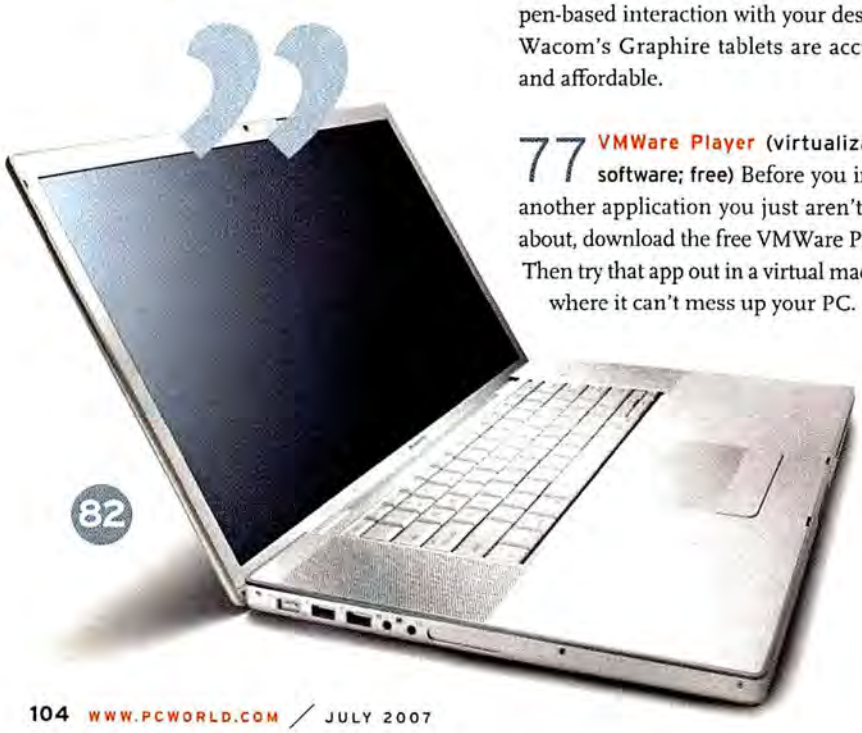
monitors go, NEC's glossy-screen MultiSync 90 GX2 is quite the thoroughbred. Hey, we can't all have gigantic widescreen LCDs gracing our desks.

> A wonderful, powerful, elegantly designed laptop that can run Windows if you need it. More important, it runs OS X 10.4.9 and will run the industry-leading Leopard when it is released.
>
> *–Reader Michael Lee*




**72 Adobe CS3 (graphics software suite; $450 and up)** You'll pay an arm and a leg for Adobe's latest Creative Suite, but for creative pros its improved multithreading support and updates to all of Adobe's critical apps are worth it.

**73 Dell XPS 410 (power desktop; $2033)** Dell's XPS 410 isn't the most powerful high-end desktop you can find, but its easy setup, minimal bundle of preinstalled trial applications, and clean design all make it a great value.

**74 Meebo (instant messaging; free)** If you've ever traveled without a notebook, you'll appreciate Meebo. Log in, and you have access to all your IM contacts in a neat little Web-based app—no installation required.

**75 Process Explorer (system utility; free)** Like Task Manager on steroids, Process Explorer shows you exactly what's running on your system in minute detail.

**76 Wacom Graphire4 6x8 Bluetooth Tablet (input device; $249)** Whether you're an artist or you simply prefer pen-based interaction with your desktop, Wacom's Graphire tablets are accurate and affordable.

**77 VMWare Player (virtualization software; free)** Before you install another application you just aren't sure about, download the free VMWare Player. Then try that app out in a virtual machine where it can't mess up your PC.

**78 Emusic (digital music; starts at $10 per month for 30 downloads)** The service still sticks to high-profile independent music, but Emusic sold DRM-free tunes long before EMI got on board.

**79 TiVo Series3 HD Digital Media Recorder (DVR; $800)** With the Series3, TiVo fanatics can now record up to 32 hours of HD or 300 hours of standard-def programming, even from two channels at once—that is, if they can get their cable provider to give them a CableCard.

**80 Netvibes (customizable home page; free)** Construct your very own home page with as much or as little of the Net as you like. You can even add e-mail and calendar modules.

**81 Trip Advisor (travel community site; free)** The granddaddy of travel community sites, Trip Advisor is unequaled in the breadth and depth of its hotel reviews and in its forums, where you invariably find users who can answer the most specific destination questions.

**82 Apple MacBook Pro (power notebook; $1999 and up)** The latest Reader Favorite iteration of Apple's beautiful MacBook design has fast Core 2 Duo CPUs and ATI Radeon graphics chips—great for OS X or Boot Camp–ing into Windows for a little gaming.

**83 Avira AntiVir Personal Edition Classic (antivirus software; free)** One of the few good, free antivirus applications left, Avira's AntiVir is perfect for troubleshooting a dodgy system. ▶

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84 **Ning.com** (community Web site; free) Marc Andreesen's latest venture lets you quickly build MySpace-like community sites focused around whatever interests you have.

85 **Checkpoint ZoneAlarm Internet Security Suite** (security software; $50) Reader Favorite This utility bundles a Kaspersky antivirus engine with the inimitable ZoneAlarm firewall.

86 **SanDisk Sansa Connect** (MP3 player; $250) Far better than Microsoft's Zune, the Sansa Connect lets you listen to Internet radio or download songs over any open Wi-Fi connection.

87 **VirusTotal.com** (security Web site; free) This site is a great resource if you suspect your antivirus software has fallen short. Upload a file, and VirusTotal runs it through 32 antivirus engines (for more, see *Privacy Watch* on page 42).

88 **Flurry** (mobile e-mail; free) Even people who don't own a PDA phone sometimes need a quick e-mail fix. Flurry (flurrymail.com) provides it, via an easy-to-set-up Java app that runs on most recent phones and works like a charm.

89 **Oki Printing Solutions C3400n** (color laser printer; $400) Oki's compact, entry-level color laser is a great fit for a small office, with high-quality text output and fast color prints.

90 **nVidia GeForce 8800 GTX** (graphics chip set; $550 and up) This offering is still the fastest in DirectX 10 graphics, apart from nVidia's crazy $1000 GeForce 8800 Ultra.

91 **Microsoft Windows Media Player 11** (digital music software; free) Microsoft added album-art matching, tossed in improved searching capabilities, and introduced a completely redesigned interface to this version of Media Player. The result: a media manager you'll actually want to use.

92 **Netflix Watch Now** (movie rental service; $5 per month and up) Netflix has long been a popular favorite, and the addition of streaming online movies to the mix only makes the service better.

93 **Audacity** (audio editing; free) Another free-software triumph, Audacity is where it's at for quick-and-dirty manipulation of audio files.

94 **Congoo** (Web news/information service; free) On this specialized news site, you can search and read content that's normally locked away behind a paid-subscription wall.

95 **Adblock Plus** (browser plug-in; free) Tired of slow page loads and flashing Web ads? AdBlock Plus (for Mozilla-based browsers such as Firefox) can speed up and clean up your surfing.

96 **Buffalo Nfiniti Dual Band Gigabit Router & Access Point** (wireless router; $130) This is the first draft-802.11n router to also support 802.11b/g/a Wi-Fi gear and gigabit ethernet.

97 **Panasonic HDC-SD1** (HD camcorder; $1500) This exceptionally light camcorder records HD video to a 4GB SD Card, with impressive quality.

98 **Logitech Harmony 880 Advanced Universal Remote** (universal remote control; $249) Logitech's Harmony remotes bring something new to your home-theater setup: sanity. The 880's color screen makes setting up and controlling a variety of devices easy.

99 **Slingbox SlingPlayer Mobile** (mobile video player; $30) Just when you thought Slingbox couldn't make video more portable, this app brings your media to compatible Windows Smartphone or Pocket PC devices.

100 **Shure E210** (headphones; $150) These entry-level Shure in-ear headphones pump out impressive sound via a single-driver design. ■

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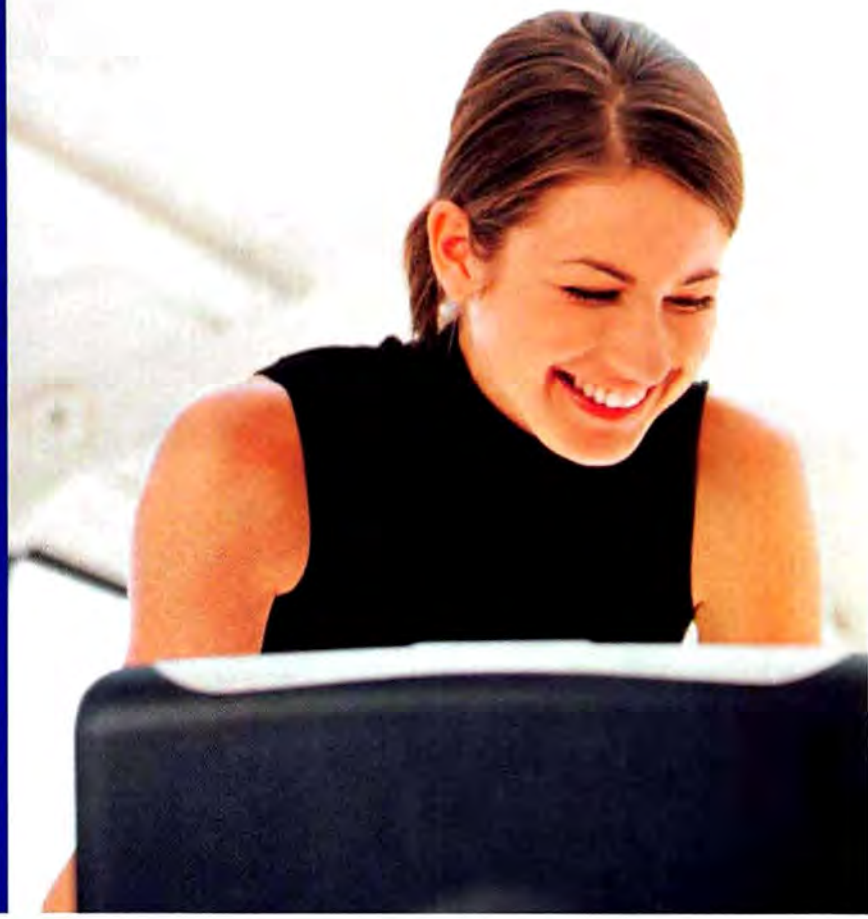

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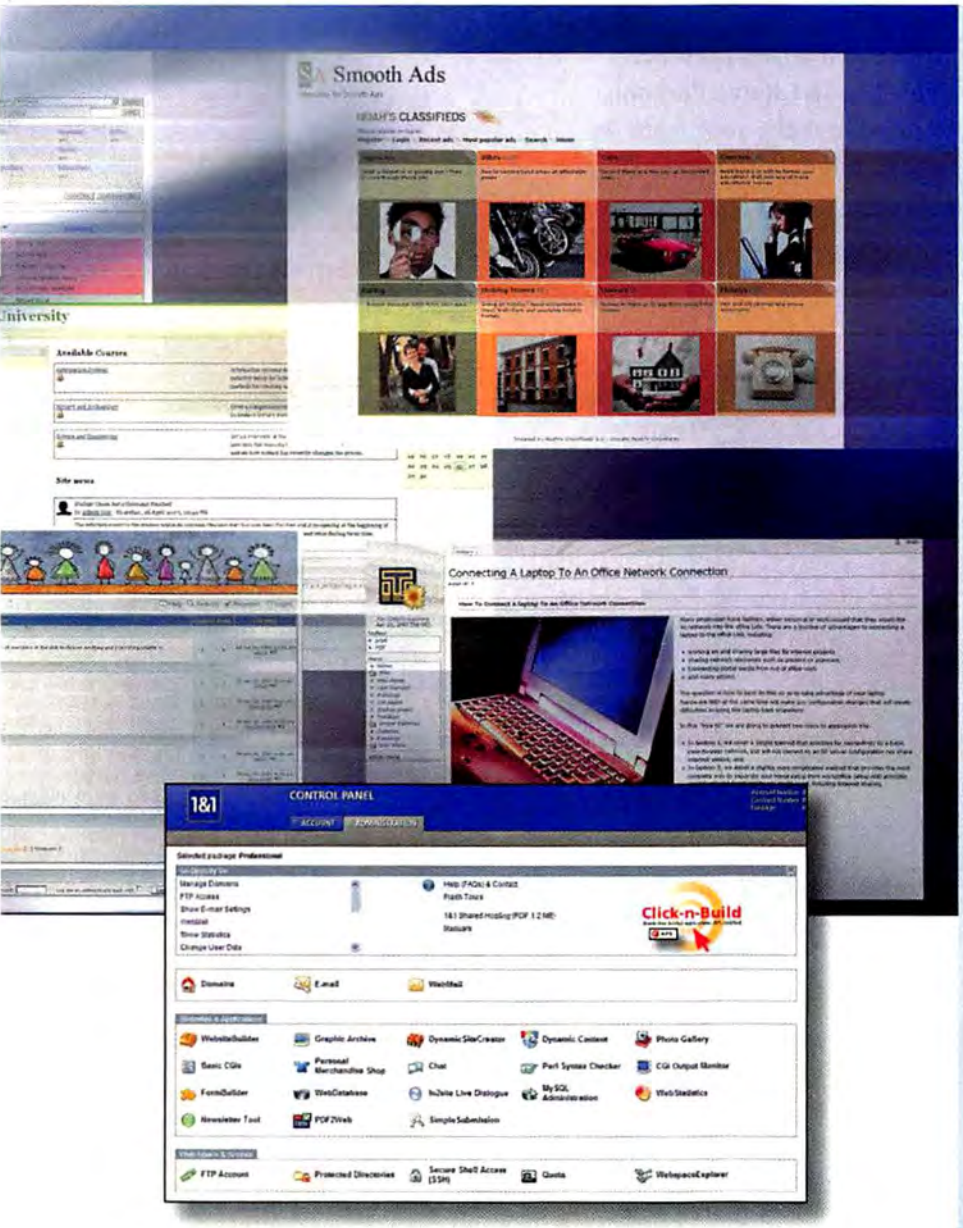


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**Moodle:** Content Management System (CMS) designed to create effective online learning communities

**Mantis:** Popular bug tracking system

**OpenAds:** An online ad management tool for tracking in-house and paid-for ads

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| Photo Gallery | ✓ | ✓ | ✓ |
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| Dynamic Web Content | ✓ | ✓ | – |
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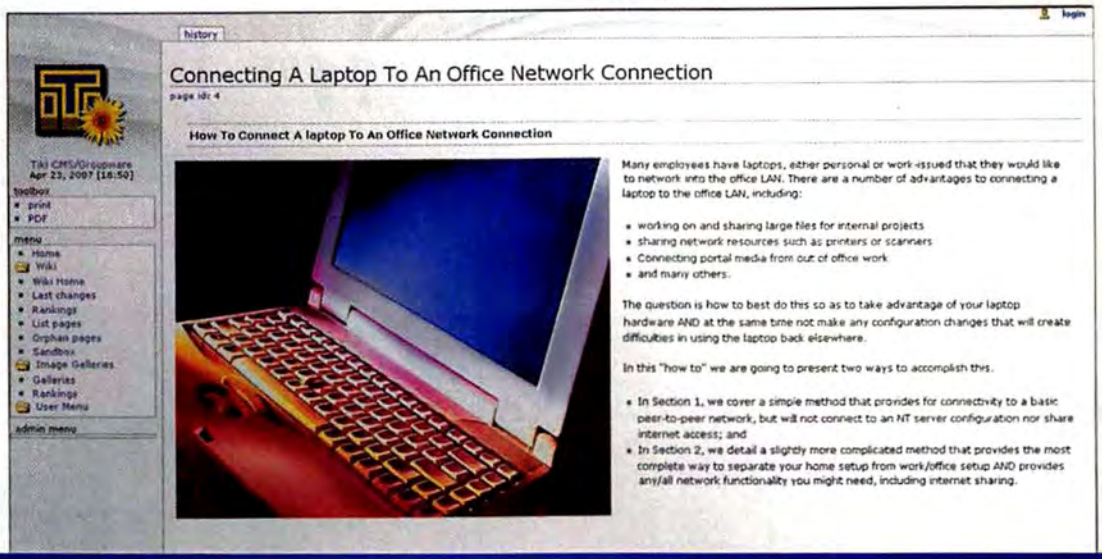


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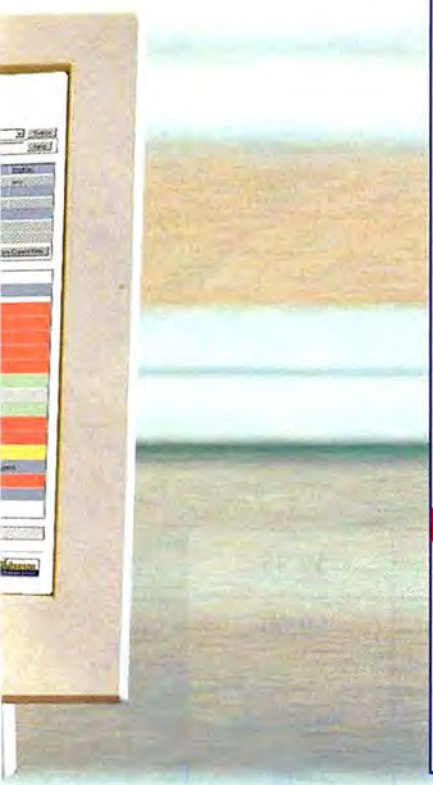

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| Mailbox Size | 2 GB | 2 GB |
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| Website Builder | 25 Pages | ✓ |
| Flash Site Builder | 25 Pages | – |
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Video cameras that record directly onto DVDs or hard drives make shooting and viewing your footage easy. **But our lab tests found some clear differences between the two formats.** ▸

BY ERIC BUTTERFIELD, TRACEY CAPEN, AND JOHN POULTNEY
TESTING BY THOMAS LUONG

# Convenient Camcorders

Best BUY **JVC'S COMPACT EVERIO GZ-MG155 (above) was the top-performing HDD camcorder in our roundup, while Sony's chunkier, DVD-based DCR-DVD408 earned our overall Best Buy award.**

PHOTOGRAPHS BY ROBERT CARDIN

TEST Center

YOU CAN CHOOSE from many recording formats when shopping for a camcorder. Your options include Mini DVD, hard-disk drive (HDD), MiniDV tape, and SD Card—not to mention the hybrid models that record to both an internal hard drive and DVDs.

For this story we tested 10 camcorders that record video to either a Mini DVD disk or to an internal hard drive—two formats that are convenient for playback (one unit does both).

We didn't include MiniDV camcorders in this story, in part because their popularity is waning (see find.pcworld.com/57344 for our reviews of several MiniDV models). Sales of Mini DVD and HDD models, meanwhile, are rising. According to a report issued by IDC, 2007 will be the first year that consumers buy more DVD camcorders than they do MiniDV models.

**JVC'S EVERIO GZ-MG155 provides a one-touch backup button and offers extra controls on the LCD bezel.**

Many video editing applications now let you import MPEG-2 files for editing. But even so, MiniDV content remains easier to edit than MPEG-2 footage because video editing software must rely on an MPEG codec to interpret MPEG-2 files, a process that requires far more computing power than editing DV does.

Mini DVD camcorders let you burn footage directly to a disc that you can finalize in minutes and pop into your DVD player for viewing. With most hard-disk drive (HDD) camcorders, you have to transfer video to a PC so you can burn the footage to a DVD disc; some models, however, provide a dedicated one-touch button for burning video to a DVD disc or backing it up to an external hard drive. The two JVC camcorders we reviewed have both of these capabilities. We chose to rank the two types of camcorders in a single chart because both of them capture video in the same MPEG-2 format and both produce DVDs; HDD models simply require an extra step.

## DISK OR DISCS?

ONE DRAWBACK of Mini DVD camcorders is that recording to a disc limits the length of your video. Most Mini DVD models can record about 35 minutes of high-quality video on a standard disc (on a few units we tested, though, using the highest quality setting limits you to about 20 minutes). Most models we saw support dual-layer discs, which have twice the capacity of standard discs. You must finalize each disc before you can remove it—and completing that minutes-long process could cause you to miss a crucial video opportunity.

Every hard-disk camcorder we tested had a 30GB hard drive—roomy enough to store approximately 7 hours of high-quality footage (or about 14 hours of video shot in normal mode). Some other models available have 60GB drives. If you plan to shoot video in inclement weather or in dusty environments, an HDD camcorder is your best bet, because its sealed compartment is less susceptible to infiltration by foreign substances than is a camcorder that uses removable media.

## THE VIDEO QUALITY QUESTION

OF THE CAMCORDERS we tested, the DVD models delivered better video quality than did the HDD models. The average video quality score was 89 for DVD camcorders and 80 for HDD

PROS AND CONS

### Comparing Consumer Camcorder Formats

EACH CAMCORDER TYPE has its own particular advantages and drawbacks.

| CAMCORDER FORMAT | Pros | Cons |
|---|---|---|
| Mini DVD | • Discs play in most set-top DVD players and PCs<br>• Video quality is better for the price than you get with HDD models | • Recording time is short at high quality settings<br>• Editing MPEG-2 video is more cumbersome than editing DV footage<br>• You can't load discs into slot-loading DVD drives |
| Hard Disk Drive (HDD) | • Recording times are relatively long<br>• Scene location is easier than with MiniDV<br>• You don't need to carry discs or tapes | • Video quality is lower than for DVD models of a similar price<br>• You must use a PC or other external storage for backups<br>• Burning to a DVD disc requires an extra step over DVD models<br>• Editing MPEG-2 video takes more effort than editing DV format |
| MiniDV | • DV format allows most-precise editing<br>• Editing apps recognize DV-format video<br>• DV video requires the least processing power to edit | • You must rewind or fast-forward to locate particular scenes<br>• Burning to a DVD disc requires an additional step over DVD models |
| SD Card | • Lack of spinning drive aids ruggedness<br>• Most models are of pocketable size<br>• Despite small size, cards offer up to 4GB of storage | • Low capacity of memory cards entails frequent swapping out<br>• Burning to DVD disc requires an additional step over DVD models<br>• Features and controls on SD models are few compared to full-size camcorders |

models. The disparity isn't huge, but consider this: Only three units earned a Superior for video quality—and all were DVD camcorders. In particular, DVD models performed very well in low-light conditions, earning an average mark of 91 (Superior), while the HDD models posted an average of just 71 (Fair).

Not only did DVD camcorders tend to produce better-looking video, but they had a significantly lower average price. Of the models we tested, DVD camcorders had a mean price of $548 versus $690 for HDD units. Here's a head-to-head example: The $380 Panasonic VDR-D210 (a Mini DVD model) earned a video quality score of Very Good; the least-expensive hard drive camcorder to match that score was the $600 JVC Everio GZ-MG155.

Though MPEG-2 (the video format that MiniDVD and HDD camcorders use) involves more compression than DV format and supposedly yields inferior-quality video, output from the various models we looked at didn't vindicate this assumption.

We compared output from four camcorders that had scored very well for video quality in our lab tests: two MiniDV, one Mini DVD, and one HDD model. Despite some slight differences among them, none of the four camcorders produced demonstrably sharper video or smoother motion or better color accuracy than the others. For instance, the best low-light video came from the Canon DC50, a Mini DVD model.

Perhaps the biggest surprise in our video quality tests came from the $400 Sanyo Xacti VPC-CG65, which records to an SD Card (see "Inexpensive Camcorder Puts Great Video in Your Pocket" on page 128). This unusually compact model surprised us with its extremely high image quality, earning overall scores of Very Good for video and Superior for photos. And unlike the other units here, the Xacti records video in MPEG-4 format.

## Best Buy 1 Sony DCR-DVD408 DVD Handycam

EASY TO OPERATE, Sony's $630 DCR-DVD408 DVD Handycam produces great-looking movies. The well-placed switches include a smooth, variable-speed lever to control the camcorder's 10X optical zoom, a still-shot button, and a dual-function switch to turn the unit on or off—or to flip from video to still shooting—with one hand. You manage most other settings via the 2.7-inch, wide-format LCD touch screen.

The PC World Test Center awarded the DCR-DVD408 a grade of Superior for video quality, and it earned high audio-quality marks as well. In handheld video clips of kiteboarders who were using a 30-knot wind to skim quickly across water in blazing sunlight, images had crisp details, attractive colors, and outstanding exposure accuracy. The camcorder's electronic image stabilization worked well, too, despite the stiff breeze.

Still shots of flowers came out detailed and colorful, but outdoor photos taken in daylight using the camcorder's automatic white-balance setting suffered from a subtle yet off-putting blue cast. The PC World Test Center awarded the DCR-DVD408 an overall score of Good for its still images.

Another wart is the unit's LCD screen, which has to be positioned at a precise angle to the sun to work at all—and even then most of the colors wash out. The screen's coating did make the menus easier to read, however. The redeeming feature for work in bright sunlight is the DCR-DVD408's bright and sharp eye-level viewfinder, which can tilt upward to about 50 degrees.

Using Sony's extremely limited Picture Motion Browser software, you can download movie clips to your Windows PC before finalizing the disc—a nice feature.

Its limitations notwithstanding, the DCR-DVD408 deserves a place on anyone's short list of camcorder contenders. But for the best finished video, be prepared to buy a good video editing package that can handle DVD files, to go with it.

## 2 Canon DC50

IF YOU ALREADY own a Canon digital camera, you'll feel right at home with the company's DC50 camcorder, thanks to the similar control systems. This $720 model takes outstanding video as well as top-notch still photos, and it makes lots of useful controls available for work in both modes.

In tests performed by the PC World Test Center, the DC50 earned top scores for video quality in standard light and under low-light conditions. Switching on optical image stabilization vastly improved the video. The DC50 did a fine job of capturing kiteboarders zipping around in a roaring 30-knot wind in late afternoon sunlight, despite the difficult lighting conditions and fast action. Its audio scores were about average for the 11 camcorders we tested; though the camera's front-mounted microphone pointed directly into the wind, little noise carried over into the recorded clip, thanks to the DC50's windscreen setting.

A dedicated button lets you jump to Quick Start mode, essen-

tially a sleep status that instantly powers the camcorder up or down; it's even faster than the camera's fairly snappy 3-second cold-start time. A tiny and nearly hidden switch offers access to either Program mode or Full Automatic mode; the latter of these prevents you from adjusting most settings. Four on-screen grids (single or multiple horizontal and vertical lines in gray or white) simplify the task of keeping the horizons level. In addition, you can use the eight scene modes for video or still photography.

Since it can take 5-megapixel still images, you might think that the DC50 could replace a good digital still camera; but when matched against a high-quality 5-megapixel fixed-lens camera, the DC50 fell short on image sharpness, though its color fidelity appeared to be every bit as good. On the other hand, the DC50 does provide most of the manual exposure controls that you'd expect for handling still photography, including shutter- and aperture-priority modes, histograms, and auto-bracketing.

For experienced users, the DC50's image quality and custom settings more than outweigh its slightly awkward controls.

FEATURES COMPARISON

## TEST Center DVD Camcorders Offer Better Video Quality Than HDD Models

THOUGH THEY RECORD using the same file format, the optical disc-based models we tested outpaced hard-disk competitors.

| | CAMCORDER | PCW Rating | Performance | Features and specifications | Bottom line |
|---|---|---|---|---|---|
| 1 | Sony DCR-DVD408 DVD Handycam<br>Best BUY $630<br>find.pcworld.com/57280 | 84 Very Good | • Video/still image quality: Superior/Good<br>• Battery life: Very Good (111 minutes)<br>• Overall design: Very Good | • 10X optical zoom<br>• 2.7-inch LCD touch screen; electronic viewfinder<br>• Mini DVD-R/+RW/+R DL, Memory Stick Pro Duo<br>• 21 ounces | This sturdy, well-designed model offers easy one-handed operation and a touch screen for menu navigation, but it lacks white-balance calibration. |
| 2 | Canon DC50<br>$720<br>find.pcworld.com/57281 | 82 Very Good | • Video/still image quality: Superior/Superior<br>• Battery life: Fair (90 minutes)<br>• Overall design: Good | • 10X optical zoom<br>• 2.7-inch LCD; electronic viewfinder<br>• Mini DVD-R/-RW/-R DL, Mini SD Card<br>• 17 ounces | The DC50 supplies optical image stabilization, top-notch image quality, and many specialized controls, though operation isn't always intuitive. |
| 3 | JVC Everio GZ-MG155<br>$600<br>find.pcworld.com/57150 | 82 Very Good | • Video/still image quality: Very Good/Poor<br>• Battery life: Good (102 minutes)<br>• Overall design: Very Good | • 32X optical zoom<br>• 2.7-inch LCD<br>• 30GB hard drive, SD Card<br>• 12 ounces | This model delivers high video quality and has buttons for burning DVDs without a PC and for copying files to a computer. Photos were disappointing. |
| 4 | Panasonic VDR-D310<br>$630<br>find.pcworld.com/57291 | 79 Good | • Video/still image quality: Superior/Good<br>• Battery life: Good (103 minutes)<br>• Overall design: Good | • 10X optical zoom<br>• 2.7-inch LCD; electronic viewfinder<br>• Mini DVD-RAM/-R/-RW/-R DL, SD/SDHC Card<br>• 17 ounces | This three-CCD DVD-based model has optical image stabilization and supports DVD-RAM, but it lacks a full manual mode and a video light. |
| 5 | JVC Everio GZ-MG555<br>$900<br>find.pcworld.com/57151 | 79 Good | • Video/still image quality: Fair/Superior<br>• Battery life: Fair (87 minutes)<br>• Overall design: Superior | • 10X optical zoom<br>• 2.7-inch LCD<br>• 30GB hard drive, SD Card<br>• 15 ounces | Dedicated buttons make DVD burning and file copying a breeze, and you get a microphone jack. However, for the high price, video quality was subpar. |
| 6 | Panasonic SDR-H200<br>$720<br>find.pcworld.com/57282 | 76 Good | • Video/still image quality: Very Good/Very Good<br>• Battery life: Superior (145 minutes)<br>• Overall design: Good | • 10X optical zoom<br>• 2.7-inch LCD<br>• 30GB hard drive, SD/SDHC Card<br>• 16 ounces | Another three-CCD model, the SDR-H200 scores well with optical image stabilization and a good software package, but it carries a hefty price tag. |
| 7 | Sony DCR-SR42 Handycam<br>$540<br>find.pcworld.com/57283 | 75 Good | • Video/still image quality: Good/Poor<br>• Battery life: Very Good (115 minutes)<br>• Overall design: Good | • 40X optical zoom<br>• 2.5-inch LCD touch screen<br>• 30GB hard drive, Memory Stick Pro Duo<br>• 13 ounces | This camcorder has a touch screen and a powerful zoom, and it offers long battery life; however, you don't get a video light or white-balance calibration. |
| 8 | Canon DC210<br>$380<br>find.pcworld.com/57147 | 74 Good | • Video/still image quality: Good/Poor<br>• Battery life: Good (109 minutes)<br>• Overall design: Good | • 35X optical zoom<br>• 2.7-inch LCD; electronic viewfinder<br>• Mini DVD-R/-RW/-R DL<br>• 18 ounces | This inexpensive model bristles with controls, but even so it's best suited to novices. There is no USB port and no memory card slot. |
| 9 | Hitachi DZHS300A<br>$570<br>find.pcworld.com/57292 | 72 Good | • Video/still image quality: Good/Poor<br>• Battery life: Fair (92 minutes)<br>• Overall design: Good | • 25X optical zoom<br>• 2.7-inch LCD; electronic viewfinder<br>• 8GB hard drive, Mini DVD-RAM/-R/-RW, SD Card<br>• 15 ounces | This hybrid camcorder lets you dub video from its hard drive to a mini-DVD disc without a PC. Low photo quality hurt its standing, however. |
| 10 | Panasonic VDR-D210<br>$380<br>find.pcworld.com/57147 | 72 Good | • Video/still image quality: Very Good/Poor (incomplete)<br>• Battery life: Poor (79 minutes)<br>• Overall design: Good | • 32X optical zoom<br>• 2.7-inch LCD; electronic viewfinder<br>• Mini DVD-RAM/-R/-RW/-R DL<br>• 18 ounces | This budget model offers optical image stabilization, but its battery life is weak, and the lack of a USB port and a memory card slot limits its appeal. |

**CHART NOTES:** All LCD screens are wide-aspect ratio. All video and still image tests were conducted at the camcorder's highest quality setting or resolution.

## 3 JVC Everio GZ-MG155

THE SLEEK AND intuitive Everio GZ-MG155 fits comfortably in your hand, in part because it stores files on a 30GB hard drive rather relying on a bulky DVD drive. This arrangement means you have to offload clips in order to make room for newer video on the camcorder, but that's no problem: The GZ-MG155 supports one-button transfer of video files to your computer. You can also hook it up directly (via USB cable) to a DVD burner to create backups, bypassing the PC entirely.

Switching to manual operation gives you more options, of course, though you must navigate some tricky nested menus to activate that mode. Manipulating a delicate miniature joystick on the LCD bezel lets you adjust white balance, add effects (such as sepia or strobe), manage files, or adjust zoom settings.

This $600 model earned a rating of Very Good for its video quality, with accurate colors under various lighting conditions. Its low-light assist lamp worked extremely well in informal testing when the camcorder moved from bright to low-light areas. The camcorder has five white-balance presets, including a manual calibration setting you can use for difficult lighting conditions. Unfortunately, still-image quality rated as Poor overall.

A nicely designed docking station contains outputs for USB, composite, FireWire, and S-Video, and you can use it to charge the GZ-MG155's battery. (Alternatively you can charge the battery without using the dock.) A handy remote is included, too.

## 4 Panasonic VDR-D310

THE MORE SOPHISTICATED sibling of the company's $380 VDR-D210, Panasonic's $630 VDR-D310 produces better-quality video and still images. It uses three CCDs, each assigned exclusively to detect red, blue, or green wavelengths, whereas the VDR-D210 relies on a single CCD to record all three colors. The three-CCD approach contributed to a Superior score for video quality, and the VDR-D310 earned a top score for color accuracy on still images, though its overall score was just Good. In our lab tests, the VDR-D310 earned high marks for audio quality, too.

You must set the battery in a small charging bay in order to charge it; you can't plug the camcorder into a wall. Also, you have to plug in the camcorder when finalizing a DVD disc. This makes sense—losing power would produce an unreadable disc—but you must plug in to transfer video or stills to a PC, too.

The VDR-D310 lacks full manual control, and there's no built-in assist light for recording in dimly lit settings. But you do get a shoe for attaching the optional $85 VW-DC10 video light, although the light requires a battery pack (also optional).

## 5 JVC Everio GZ-MG555

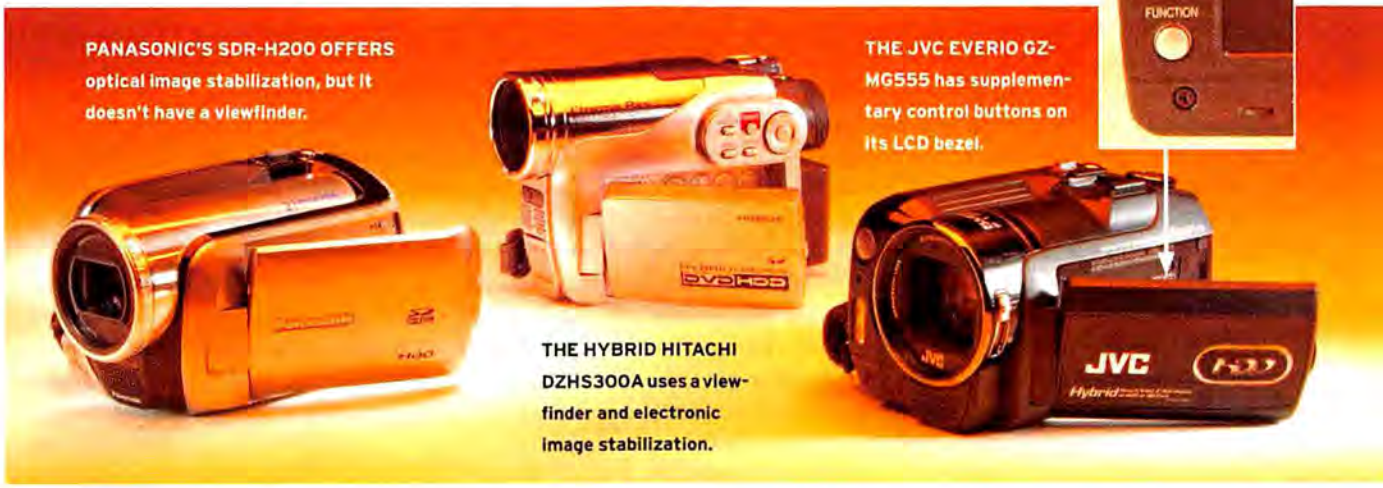
A STURDY DIAL on the $900 Everio GZ-555 provides access to manual settings and scene modes for various lighting conditions—settings that tend to be buried in nested on-screen menus on many camcorders. The dial is reminiscent of corresponding features on old-school, heavy-duty 35mm cameras.

In addition to the aperture and shutter speed adjustments, the GZ-555 has a useful setting for automatic gain control. A telemacro function lets you zoom in on objects without losing focus, and a Nightalive setting supports shooting in very dim light, though with jerky results from the slower shutter speed.

A rudimentary playlist function lets you edit your files in basic ways without transferring them to a PC. The included docking station adds USB, composite, FireWire, and S-Video ports.

The GZ-MG555 earned a rating of Fair for overall video quality in our lab tests, in part because details weren't as sharp as in the output from competing models. Its low-light-mode video looked too dark, earning a score of just 52 versus an average mark of 82. On the other hand, the GZ-MG555 was one of only two models to earn a score of Superior for its still images. The unit's audio quality scores were subpar.

The GZ-MG555's strongest characteristic is an excellent design that affords easy access to the unit's manual controls, but its video quality could stand some improvement. ▶



## 6 Panasonic SDR-H200

THOUGH IT HAS no more in the way of extra features than competing models that cost $100 to $200 less, the Panasonic SDR-H200 is priced at $720. In tests conducted by the PC World Test Center, our jury awarded the SDR-H200 scores of Very Good for both video quality and still-image quality.

Shots outside the lab yielded similar results: The H200 adeptly maintained accurate exposures when moving from brightly lit scenes to areas of shadow and then back into bright light. Colors were accurate, too, if perhaps a bit too vivid for some tastes. Image sharpness was about average, and the camcorder's optical image stabilization—with the 10X zoom extended to its full telephoto setting—produced noticeably steadier video.

As a still camera, the SDR-H200 ranks with the lowest-cost point-and-shoots in sharpness, though it's fine for casual snapshots, delivering pleasing color and accurate exposures. Its three-CCD system has a true resolution of just 2.1 megapixels, so enlargements won't look especially sharp.

The LCD panel displays bright images, even in full sunlight, and a button lets you quickly adjust its brightness—a critical feature because the SDR-H200 has no eye-level viewfinder.

One appealing novelty of this camcorder is its automatic ground-directional standby function, which instantly stops video recording when you point the camcorder straight down. (You can turn this feature off if you like.)

You can't transfer photos or videos off the SDR-H200 without connecting to AC power. Though Panasonic gave it manual focus, this is hard to use in the absence of any on-screen distance-reference scale. You get shutter- and aperture-priority modes, but the latter is a bit idiosyncratic: Instead of seeing the familiar aperture "f" number, you get an obscure "db" gain value.

## 7 Sony DCR-SR42 Handycam

YOU'LL FIND THAT the $540 DCR-SR42 has everything you need for quick and simple videography, including a powerful 40X optical zoom lens. Set the camcorder to fully automatic Easy mode, and nearly all menu options are turned off. (Oddly, in Easy mode, the hard disk formatting selection remains on and the Scene mode option is turned off, instead of vice versa.)

Inevitably, simplicity carries some compromises in its train: The DCR-SR42 lacks a headphone jack, a microphone jack, a built-in low-light assist lamp, and an eye-level viewfinder.

In formal lab tests by the PC World Test Center, the DCR-SR42 earned middling scores of Good and Poor, respectively, for video and still images—results significantly below those achieved by its slightly higher-priced sibling, the Sony DCR-DVD408. Outdoor video captured informally was consistent with the test center's findings—pleasing (though not especially vivid) colors, and details that weren't especially crisp. On the other hand, the SR42's automatic exposure control worked well as scenes changed from shadows to bright areas to a mixture of both.

Even some camera phones do a better job at taking still images. ▶

SD CARD CAMCORDER

## Inexpensive Camcorder Puts Great Video in Your Pocket

THOUGH DVD AND hard-disk drive (HDD) camcorders are quite portable, they're much too big to slip into a coat pocket. I tried the Sanyo Xacti VPC-CG65, which costs $400 and is only slightly larger than a typical point-and-shoot camera, so it would be perfect for carrying inside a ski jacket next winter when you hit the slopes. Because it records video and still images to an SD Card—a storage mechanism with no moving parts—the CG65 should be able to handle hard knocks better than an HDD or DVD camcorder. The CG65's case feels plasticky, however, and not very rugged.

In my informal tests, the CG65 produced generally high-quality video, which it shoots in the MPEG-4 format (all of the other camcorders reviewed for this story employ the MPEG-2 format). In my opinion the video captured under low lighting conditions was especially impressive. Overall, the CG65 received a score of Very Good for video quality. Footage taken indoors at night looked good but not great: Errant pixels danced in shadow areas, and exposure changes occurred with disconcerting abruptness as I moved the camcorder into well-lit areas from darker ones.

THE TINY SANYO Xacti VPC-CG65 records to an SD Card.

The CG65 does a nice job of doubling as a digital camera. It records still images at resolutions of up to 6 megapixels, and it was one of just three camcorders tested for this review that earned a score of Superior for photo image quality.

Its 2.5-inch LCD is slightly smaller than the wide-aspect screens included on most of the other camcorders we tested. Another drawback is the CG65's short battery life (a skimpy 74 minutes), which means that you'll need to carry an extra lithium ion cell with you, since the first one will run out long before you reach the video capacity of a 4GB SD Card (2 hours, 45 minutes at the highest quality setting). You don't get an SD Card in the box either, so purchasing a 4GB card (for example) will run you an extra $45 or so.

*–Eric Butterfield*

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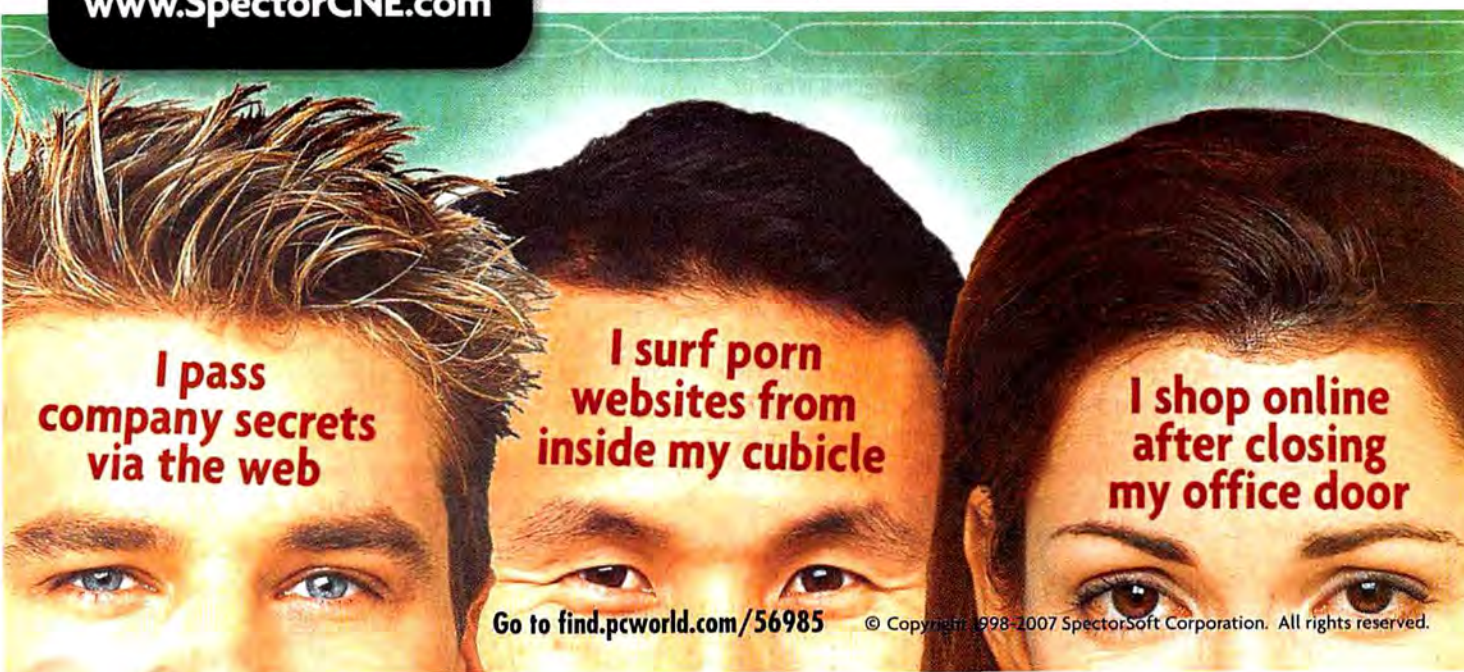


Go to find.pcworld.com/56985

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A series of 640-by-480-pixel photos came out small and extremely pixelated. Sony ships a docking station with the DCR-SR42 that has connections for transferring photos and movies to a PC.

## 8 Canon DC210

CANON RAISES THE bar for learning to use the $380 DC210 by festooning the unit with a lot of buttons, some of which duplicate functions that you could perform by other means. You can zoom, for example, with either the zoom lever atop the unit or the fast-forward and rewind buttons on the LCD's bezel.

The camera's 35X optical zoom works well, and the lens focuses very quickly when you stop zooming (you can zoom up to 5X when shooting stills). At its top setting, the adjustable zoom—which gives you three speed options—is among the fastest we've seen.

The night setting works quite well in low light if you can avoid jittery movement (a potential problem, due to the slow shutter speed). A Bright mode for the LCD monitor is handy when you're shooting outdoors in strong sunlight, but the manual warns you that this setting will drain the battery faster.

Still photos weren't impressive, but the DC210 does let you convert captured images into 3-second MPEG-2 files that you can insert into your movies as scenes. The DC210's Quick Start feature should really be named Standby, because in this mode the camcorder comes to life in about 2 seconds. Battery life in our tests was a respectable 109 minutes, but you still have to plug in the AC adapter to finalize a disc.

If you don't mind mastering many controls, this camcorder has genuine appeal, thanks to its low price and powerful zoom.

## 9 Hitachi DZHS300A

IF YOU CAN'T decide between an HDD camcorder and a DVD model, consider the hybrid Hitachi DZHS300A. It has both a Mini DVD drive and a built-in 8GB hard drive that can store 3 hours of video at the unit's highest quality setting; but it can fit only about 18 minutes of footage on a Mini DVD disc (dual-layer discs aren't supported). Unfortunately, its still images max out at just 640 by 480 resolution—roughly camera phone quality.

The one awkward aspect of using this $570 camera involves having the four-way menu navigation button on the same side of the body as the LCD; with the LCD folded out at a right angle to the thumbwheel, working the control and reading the on-screen menus at the same time can be a bit tough.

Our test center rated the DZHS300A's overall video quality as Fair, with subpar scores for video shot indoors under standard lighting and in low light. Though not great, video captured in an outdoor setting looked attractive enough. Colors seemed a bit oversaturated, and images weren't as sharp as those produced by competing models, but exposure accuracy was quite good.

Dubbing videos from the hard drive to a Mini DVD disc was easy enough, though by no means quick: The unit took about 7 minutes to transfer approximately 5 minutes of video.

In the field of moderately priced camcorders, the DXHS300A may be worth a look—not so much for its dual media support as for its 25X optical zoom and bright, wide-format LCD.

## 10 Panasonic VDR-D210

NOTABLE FOR ITS modest price, the $380 Panasonic VDR-D210 is an easy-to-operate DVD camcorder that doesn't have a huge number of features. The VDR-D210 lacks a USB port, so you can't connect it to a PC to make a copy of the DVD (instead, you'll have to insert the disc in your PC's DVD drive).

**CANON'S LOW-PRICED DC210 offers a viewfinder, but lacks a USB port.**

**THE PANASONIC VDR-D210 has a low price, but includes optical image stabilization.**

The bulbous design necessary to accommodate the 3-inch DVD recording medium requires a bit of finger stretching to control the zoom lever atop the unit. The delete button on the front gives you a convenient way to erase files without having to navigate through lots of menus.

This camcorder has no media card slot, so to retrieve still images you must use third-party software such as WinDVD or PowerDVD, neither of which comes with the VDR-D210. And even with the requisite software, you have to capture the images during playback of the disc and then paste them into another software program, such as Microsoft Windows Paint, in order to save them as JPEG files. Because it can't natively save JPEGs, the VDR-D210 couldn't complete our still-image quality tests.

The VDR-D210 earned a video image quality score of Very Good, thanks to the creditable job it did of reproducing colors. Optical image stabilization improved output noticeably when the camcorder's 32X optical zoom was operating at full tilt.

If you're looking for a no-frills camcorder and don't plan to export still images from it, the VDR-D210 is an adequate choice. ■

*Tracey Capen and John Poultney are freelance writers based in the San Francisco Bay Area, and Eric Butterfield is a senior associate editor for* PC World.

## Legal Notice to Consumers

Consumers May Claim Belkin Wireless Product Settlement Benefits.

**Settlement to provide for full refunds with a sales receipt or 50% discounts for new purchases to eligible consumers of Belkin Wireless Products.**

A proposed settlement has been reached in a class-action lawsuit against Belkin Corporation on behalf of consumers residing in the United States who purchased one or more of 37 specific Belkin wireless networking products from an entity that regularly sold such devices or items, during the period between October 13, 2002, and February 5, 2007. The United States District Court in Los Angeles, California, has preliminarily approved the proposed settlement, and has ordered that Belkin publish notice to class members. A hearing to consider granting final court approval of the proposed settlement will take place on December 10, 2007, or thereafter. This notice is a summary only. Details regarding the settlement are available at the website below.

Eligible purchasers of Belkin wireless products may now complete an online Refund Claim Form to be considered for up to two full refunds for such products if they have an original or legible copy of a sales receipt for the product. The current deadline to submit the Claim Form is October 24, 2007.

If consumers do not have a sales receipt, they may still be eligible to receive up to three 50% discount codes for future online purchases of Belkin wireless products costing up to $300.00 each.

**WHAT IS THIS CASE ABOUT?**
The Plaintiffs in the lawsuit claimed that Belkin Corporation violated California's Consumer Legal Remedies Act, Unfair Competition Law, and False Advertising Law by selling select models of its wireless products that did not achieve the advertised Mbps data throughput or transmission rates and advertised connectivity range(s) under alleged "real-world" operating conditions. Belkin denies these claims. The Court did not decide in favor of the Plaintiffs or Belkin. Instead, both sides agreed to a settlement.

**WHAT CAN YOU GET FROM THE SETTLEMENT?**
You are eligible for a full refund for up to two Belkin wireless products purchased in the United States between October 13, 2002, and February 5, 2007, provided you timely submit a completed online Refund Claim Form and later return a Refund Notice that Belkin will provide if you qualify, along with an original or legible copy of your valid sales receipt. If you do not seek a full refund, you are eligible to receive up to three 50% promotional discounts for future online purchases of Belkin wireless products, selling for up to $300.00 each.

More information is in a detailed notice at www.belkin.com/class_notice/settlement.asp, or you may call 1-800-952-1465 toll-free for more information.

**HOW DO YOU GET BENEFITS?**
Simply go to the website to get a Refund Claim Form and detailed information. For a full refund, fill out and submit the Refund Claim Form online no later than October 24, 2007. For a 50% discount code, you may either register to receive the code by email, or you may simply obtain a code from Belkin's website once the settlement is approved and the lawsuit is finally concluded. You may obtain a second and third code if you qualify, but you must register to receive those no later than October 24, 2007.

**WHAT ARE YOUR OTHER OPTIONS?**
You may notify the Court in writing of any objections you may have to any part of the settlement, and/or your request to be excluded from the settlement no later than the current deadline of October 31, 2007. You may also request an opportunity to appear at the hearing at which the Court will consider finally approving the proposed settlement, including the request by class attorneys for fees and expenses. The detailed notice on the website explains how to send in an objection, request for exclusion, or request to appear at the hearing. The notice on the website also specifies the date, time, and location of the hearing, and may be updated from time to time in the event the hearing is rescheduled.

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# HERE'S HOW

EDITED BY ERIC DAHL AND DENNIS O'REILLY

## WINDOWS TIPS

SCOTT DUNN

# Work Smarter With Vista's New Productivity Tools

WINDOWS VISTA CONTAINS so many new doodads, gizmos, and applets that some of the more useful ones are easy to overlook. Here are the new Vista features that I find particularly nifty.

### BE SAFE WITH SHADOW COPY

WE ALL DELETE files by mistake on occasion, and most of the time it's no big deal: Just restore the lost file from the Recycle Bin. But what if you accidentally save over a critical file and you have no Undo option? Your data's gone, right? Not anymore. While you work, the Ultimate, Business, and Enterprise editions of Vista silently make backup copies of your work files, called shadow copies, that you can restore from earlier versions, copy, or save with new file names.

Windows makes shadow copies only when System Restore points are created, so make sure this feature is on: Click *Start*, type **systempropertiesprotection**, and then press **<Enter>**. (Click *Continue* if you're prompted.) In the list of available disks, check the ones for which you want shadow copies, and click *Apply* (if the only available drive is already checked, Apply will be grayed out). Each drive protected must have at least 300MB of free space for a restore point to be created.

When you need a previous version of a file or folder, right-click it in Explorer and choose *Restore previous versions*. For a full restoration, select the version you want and click *Restore*. If you're not sure which version to choose, select one and click *Open* to see it in read-only form. To copy a previous version, select it, click *Copy*, and specify a location. Or drag the item out of the dialog box and drop it in a desired location (see **FIGURE 1**).

If the file you want to restore was moved or deleted from its original location, or if it has a different name, select the folder that formerly contained the version you want to restore. If the folder no longer exists, select the next highest folder that contained the missing folder. Right-click it and choose *Restore previous versions*. Then double-click to navigate through the folders in the Previous Versions tab to open or copy the older version.

### GET CONNECTED

ALTHOUGH MOST OF XP's impenetrable dialog boxes still lurk just below the surface, Vista's Network and Sharing Center provides genuinely useful information at a glance while furnishing links to your most important network tasks and tools.

Choose *Start•Settings•Control Panel* (or just *Start•Control Panel*)*•Network and Sharing Center* (in Categories view, click *Network and Internet* first). At the top of the window is a diagram of your network connection, indicating any faulty links

ILLUSTRATION: HARRY CAMPBELL

INSIDE


132 WINDOWS TIPS
Work faster and smarter by using the tools hidden in Vista; a free screen-capture utility with extras.

135 INTERNET TIPS
Avoid your ISP's spam traps when sending e-mail to multiple recipients; blind-carbon-copy etiquette.

136 HARDWARE TIPS
Keep an eye–and ear–on your home or small office from afar by creating a Web-based surveillance system.

138 ANSWER LINE
Choose the proper medium for your long-term storage needs; change your default e-mail application; convert a folder into a virtual drive.

140 DIGITAL PHOTO TIPS
Safeguard your camera from bumps, moisture, temperature extremes, and other potential road hazards.

136

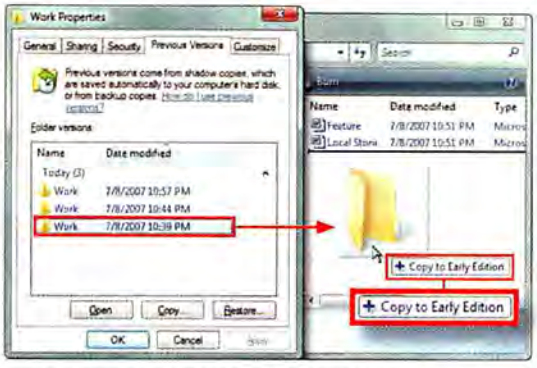


**FIGURE 1: DRAG AND DROP TO RESTORE previous versions of your work using Vista's shadow copies.**

(see **FIGURE 2**). Below that are your network and 'Sharing and Discovery' settings. The latter show your file, printer, and other sharing settings in quick summary format, with buttons on the right for expanding and explaining each.

## SNIP THAT SCREEN

WHEN YOU NEED to capture all or part of a computer screen, try Vista's new Snipping Tool. The program is ready to capture when you click *Start•All Programs•Accessories•Snipping Tool*, so select *Cancel* if your screen isn't ready yet. By default the Snipping Tool shows the area it will capture in a red outline, and it even includes that outline in the final picture. To nix the outline, click the *Options* button and uncheck *Show selection ink after snips are captured* at the bottom of the dialog box (see **FIGURE 3**). Click *OK*.

To capture all or part of your screen, click the *New* button, or choose an option from the button's drop-down menu. The default 'Free-form Snip' is handy if you want to draw a circle or other shape around an area to capture. 'Window Snip' lets you point at a specific window, dialog box, or some other desktop elements to capture them; click when the ones you want are outlined. If the small Snipping Tool window is in the way, minimize it and press **<Ctrl>-<Print Screen>**.

After you grab the shot, you can annotate it with the program's pen or highlighter tools. Click the *Send Snip* button (or choose an option from its drop-down menu) to create an e-mail showing the capture or containing it as an attachment. You can also click *File•Save As* to save the snip as a JPEG, GIF, or PNG.

To save your captures as .bmp files, or if the Snipping Tool doesn't meet your capture needs for some other reason, check out this month's *Windows Toolbox*.

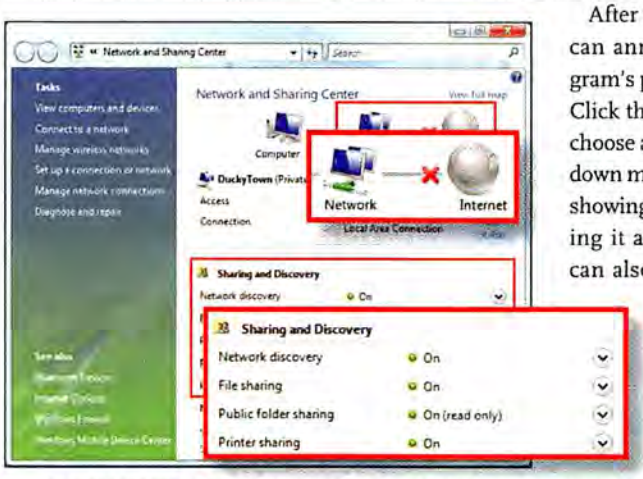


**FIGURE 2: DIAGNOSE POTENTIAL network problems quickly and simply, and see your settings instantly in Vista's new Network and Sharing Center applet.**

## HOLD INSTANT MEETINGS

WINDOWS MEETING SPACE lets you connect with people from a distance; the program is in all Vista editions, but Home Basic users can only join a meeting, not initiate one. Meeting Space even lets you share data via Wi-Fi or Bluetooth with nearby computers when no wireless hotspot or Internet connection is available.

To begin, choose *Start•All Programs•Windows Meeting Space*. Follow the prompts on screen to specify your preferences in the People Near Me dialog box. You may want to uncheck 'Sign me in automatically when Windows starts' (it's selected by default), and you may want to change the default of accepting invitations from 'Anyone' to *Trusted contacts*. (If you need to change these settings later, choose *Start•Settings•Control Panel•People Near Me*.) When you're done, click *OK*. When Meeting Space opens, click *Start a new meeting*, fill out the form to give the meeting a name and password, and press **<Enter>**. Once the ▶

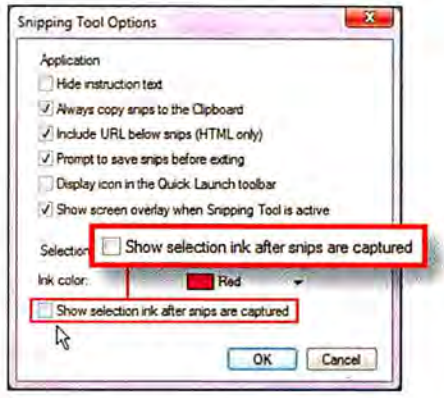


**FIGURE 3: REMOVE THE SNIPPING TOOL'S selection box from your screen capture by unchecking this option.**

meeting is set up, click *Invite people* on the right. If you don't see a participant listed in the 'Invite people' dialog box, click *Invite others* to send an "invitation file" attachment via e-mail; or, to create an invitation file you can send to them via your local network or IM, click *Create*

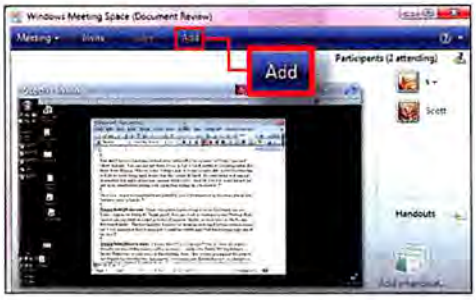


**FIGURE 4: SHARE DOCUMENTS WITH as many as nine invitees by clicking the Add button in Vista's Meeting Space application.**

*invitation file*. The instructions in the e-mail tell invitees to save the invitation file somewhere on their PC and then open it from within Meeting Space itself, but I had no trouble accepting an invite simply by double-clicking the attachment in the e-mail. At present, only Vista users can join a Meeting Space meeting.

As many as nine people can connect at one time to share any application running on the host's system, whether it's a PowerPoint presentation, a Word document, or the entire desktop. To let another participant edit the shared document or take control of the application, the host can use the *Give Control* menu at the top of the screen (outside the Meeting Space window) to grant the necessary permission. A participant can also choose *Request control* from the pop-up menu at the top of the shared window representation (inside the Meeting Space window) to make his or her name flash in the Give Control button of the host's Meeting Space.

If you want more than one participant to have editing control of a document simultaneously, share the document as a "handout": Click the *Add* button at the top of the Windows Meeting Space window (see **FIGURE 4**), choose *OK* to close the warning, and locate and select the file you want to share. On the lower right, participants will see handout icons, which they can double-click to open the document. Changes made by those in attendance do not affect the original file.

Participants can save copies of handouts to their own system by selecting one or more and choosing *Meeting•Save Handouts*.

But what if you want to hold a meeting in an unwired setting, such as a coffee shop with no wireless hotspot? As long as the participants are near one another with their Wi-Fi– or Bluetooth-equipped computers, they can still collaborate through Meeting Space. Each person attending needs to start the Meeting Space app. One person creates the meeting via the *Start a new meeting* button while everyone else clicks *Join a meeting near me*. Everything else works pretty much the same.

One more thing: Meeting Space may cause your firewall settings to change.

## THE MIGHTY STYLUS

YOU DON'T NEED a fancy tablet PC to use many of the pen and tablet features built into all versions of Vista except Home Basic. Vista activates them automatically when you install a touch screen or a writing tablet such as those from Wacom (find.pcworld.com/57078). A pen stylus is great for drawing and photo retouching, as well as for annotating and signing documents in supporting apps.

**Take notes:** Vista's improved Tablet PC Input Panel lets you work in longhand mode (called the Writing Pad), or scratch out one letter at a time in boxes (Character Pad). You can also click keys in the On-Screen Keyboard. The tool learns your handwriting idiosyncrasies over time, but I was amazed at how accurately it read my terrifyingly bad handwriting right out of the box.

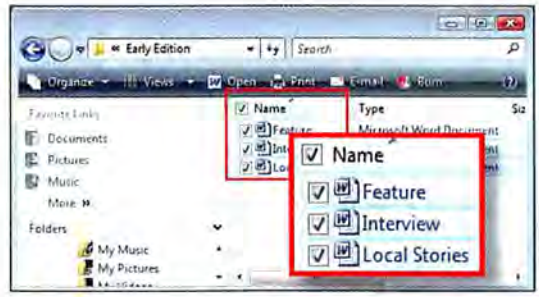


**FIGURE 5: VISTA ADDS CHECK BOXES to selectable items in Explorer whenever a pen tablet is attached to your PC.**

**Start a sticky note:** Choose *Start•All Programs•Sticky Notes* for a pen-friendly version of Windows' note-taker. Unlike the Tablet PC Input Panel, Sticky Notes leaves your notes in handwriting form. It also recognizes the scratch-out feature for deleting text, fortunately: Click *Tools•Options*, and make sure 'Enable Scratch-out Gesture' is checked.

**Check and go in Explorer:** Having a pen product installed on your PC adds check boxes to Windows Explorer, which makes selecting multiple files and folders as easy as tapping your pen (see **FIGURE 5**).

**Select or scroll in IE:** With pen features enabled, Internet Explorer adds a Panning hand button to its toolbar. Tap the button with your pen and then drag in the browser to make the page scroll. Tap it again to turn off pen scrolling so that dragging selects text. ■

*Send Windows-related questions and tips to scott_dunn@pcworld.com. We pay $50 for published items. Visit find.pcworld.com/31607 for more* Windows Tips. *Scott Dunn is a contributing editor for* PC World.

**WINDOWS TOOLBOX**

## Screen Capture Made Easy

**YOU CAN ALWAYS press <Print Screen> to copy an image of your screen to the Clipboard (or press <Alt>-<Print Screen> to copy just the active window). But this usually leaves out the cursor, and you have to paste the image into an image editor. A fast and free alternative is FastStone Capture (find.pcworld.com/57081), which supports bitmap (.bmp) files and other output formats, and provides an editor for you to tweak your capture before saving (with automatic file naming, if desired). I'm particularly fond of the utility's Capture Object option, which lets you press a hot-key and then point to the object (window, menu, toolbar, etc.) to be captured.**

# INTERNET TIPS

SCOTT SPANBAUER

# E-Mail to Many Without Looking Like a Spammer

E-MAIL IS A terrific way to get an important message out to lots of people fast. But spam has made Internet service providers wary of mail addressed to a multitude of recipients. I recently tried to send a communication to several hundred members of a group I'm associated with. My ISP sent the message to a handful of the addressees, dumped the rest, and sent me an error message that listed, incorrectly, who had and who had not received my message. In short, it was a mess.

Most e-mail services limit the number of addresses you can stuff into your outgoing messages' To:, Cc:, and Bcc: fields (the last is the masked "blind carbon copy" option). You may be restricted to as few as 100, 50, or even 25 addresses in these three fields combined. Some companies also throttle your overall e-mail output: Generate more than 1000 messages a day through your Comcast account, for example, and the ISP will freeze it for 24 hours, on the assumption that your PC has been infected by spam-spewing malware.

## MAKE A DISTRIBUTION LIST

YOU CAN CIRCUMVENT these limitations. If you communicate primarily with people in your e-mail program's contacts list or address book, split the entries into mailing-list groups whose numbers stay under your service's limits. In Outlook 2003 and 2007, for example, select *Contacts*, and choose *Actions•New Distribution List* to create such a list. To do the same thing in Outlook Express 6, click *Addresses* to open the Address Book, and select *File•New Group*. In Mozilla Thunderbird 1.5, choose *Address Book•New List* (see **FIGURE 1**). One simple way to split up lists is to group them alphabetically—A to L and M to Z, for example.

**FIGURE 1: SEND MASS E-MAILINGS without appearing to be a spammer by using Thunderbird's options for distribution lists.**

If your e-mail blast is too massive for a distribution-list workaround, consider creating a separate Gmail account (www.gmail.com) just for group mailings. Not only does this allow you to create a more descriptive e-mail address ("GlenEllynSoccerParents@gmail.com", for example, versus "JoeSchmoe@gmail.com"), but Google's free Web-based e-mail service also lets you place up to 500 addresses in the To:, Cc:, and Bcc: fields combined. (In contrast, Yahoo Mail limits you to 100 addressees, with a maximum of 10 in the Bcc: field; and Windows Live Hotmail limits you to 100 messages per day.)

My Gmail account let me get around my ISP's limitations on e-mail addressees, but this solution is clunky. I keep my group's e-mail addresses in a separate database. Managing address changes, vacation stoppages, and other updates was hard enough, but copying and pasting several hundred addresses into the message every time I wanted to send an e-mail was more work than I bargained for.

Fortunately, the free Google Groups (groups.google.com) and Yahoo Groups (groups.yahoo.com) services do this grunt work for you, sending out your missives to as many mailing-list members as you want, and giving list members the ability to update their own addresses and delivery options. All you do is send a message to the group's single e-mail distribution address. In addition to working as one-way e-mail distribution lists, both services let you turn the list into an online forum. But that's a topic for another column. ■

*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.

## PRIVACY 101: THE ETIQUETTE OF BLIND CARBON COPIES

SENDING E-MAIL TO hundreds of contacts via Gmail is easy—just paste the list of addresses into the message's To: field and click *Send*, right? Sure, but put on your flame-retardant reading glasses. Though your e-mail recipients may have given you their addresses, that doesn't mean they want them shared with everyone. Good manners dictates putting one address in the To: field (your own will do fine) and the rest in the Bcc: field. (Some e-mail programs and services may require an additional step to activate this field.) E-mail servers strip the Bcc: addresses out before forwarding the message, protecting recipients' privacy.

# HARDWARE TIPS

KIRK STEERS

# Do-It-Yourself Surveillance Protects Home or Business

IS THAT SUMMER downpour flooding your basement? Did Rover get into the garbage again? Is your 50-inch flat-panel TV still in place? Find out from anywhere by using your PC to create an affordable home surveillance system that you can access over the Internet, or even over your cell phone. A professionally installed surveillance system costs at least $2000, but you can set up an uncomplicated USB-connected Webcam such as Logitech's QuickCam Chat (find.pcworld.com/57103) for $30, a wireless camera that can be placed almost anywhere for less than $200, or a complete PC-based monitoring system for under $1000.

A basic surveillance system requires three things: a camera; motion-sensing software to activate the camera and to store its video or still images; and software to send the images over the Internet. Adding a wired or wireless network expands your home-surveillance capabilities.

If you're on a tight budget or you don't want to deal with installing remote cameras, an inexpensive Webcam can serve as a bare-bones surveillance device. Many Webcams come with motion-sensing and remote-access software, but paying extra for a full-featured program may be worthwhile, especially if you want to use several Webcams of different makes (for two software recommendations, see "Cameras With Swivel," farther on).

**FIGURE 1: THE PAN-AND-TILT capability of D-Link's DCS-5300G wireless IP camera lets it cover much more area than a stationary unit.**

The biggest drawback of a Webcam, of course, is that it's tethered by a USB cable to your PC. Powered USB hubs and USB active repeater cables allow you to double or triple USB's 5-meter length limit. Or you can wait for the convenience of wireless USB products, which should arrive soon. In fact, Belkin's CableFree wireless USB hub (find.pcworld.com/57093) may be available by the time you read this.

IP cameras, on the other hand, can be placed anywhere there's a network connection, making them ideal for homes or offices that already have a wireless network. Since they connect directly to your router rather than through your PC, you don't need to keep the machine on to view the camera's image in a browser. Prices for cameras with such features as night vision, remote-control positioning (pan-and-tilt controls, for instance), and zoom lenses can quickly escalate past $1000, but less expensive wireless cameras like D-Link's DCS-5300G (about $500 online; find.pcworld.com/57094; see **FIGURE 1**), Linksys's Compact Wireless G Internet Video Camera (about $100 online; find.pcworld.com/57096), and 4XEM's WLPTG Wireless Pan/Tilt IP Network Camera (about $390 online; find.pcworld.com/57095) have many of these extra features.

## CAMERAS WITH SWIVEL

THE PAN-AND-TILT CAPABILITY of the 4XEM and D-Link units let me monitor my living room, kitchen, and yard (through a window) with one camera whose view I controlled remotely, rather than having to use two or three stationary cameras. If you have pets, attach a speaker to let them hear your voice from afar.

I installed three different wireless cameras on my wireless network, and though I struggled with the setup, after 5 hours I was monitoring my dog's water bowl, my front door, and my vegetable garden from my cousin's house across town.

Of course, your network camera will only be as useful as the surveillance software that runs it. If the software bundled with your camera is difficult to use, has too limited a set of features, or is impossible to install, you can ditch it and try one of the many third-party alternatives, such as DeskShare's $50 WebCam Monitor (free trial available at find.pcworld.com/55689) or iCode's $79 i-Catcher Sentry (find.pcworld.com/57097). I found both apps much easier to configure and more useful than the programs that came with several of the cameras I tried out. ■

*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 contributing editor for* PC World *and is author of* PC Upgrading and Troubleshooting QuickSteps *from McGraw-Hill/Osborne Press.*

## PRINT, BUT SAVE GREEN

**IF YOU PRINT something every day, you probably waste a little something every day as well. The GreenPrint utility lets you cut down on wasted paper and ink by making it fast and easy to identify and delete unwanted pages, text, or graphics in print jobs. GreenPrint installs as a printer, so if you designate it as your default, it automatically pops up each time you print. At $35 (with a free 14-day trial; find.pcworld.com/57102), the program isn't cheap—but given the price of ink and paper, it can pay for itself pretty quickly.**

PHOTOGRAPH: ROBERT CARDIN

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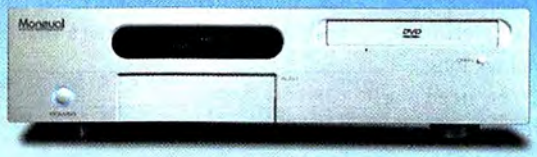


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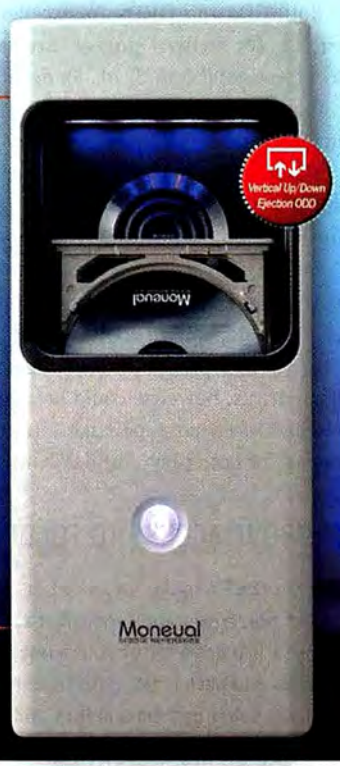


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# ANSWER LINE

LINCOLN SPECTOR

# What's the Best Media for Archiving Important Data?

HOW SHOULD I archive files—on CDs, DVDs, floppies, flash drives, or a hard drive?

*Gerhard Staufenberg, Gold Canyon, Arizona*

I WISH I could give you a definitive answer, but no one knows how long specific media will last. You need confidence that hardware and software that can read your archive files will be around, too. I'd stick with popular, nonproprietary file formats, such as .bmp, .jpg, .mp3, .htm, .txt, and .pdf. And make sure any computer you buy can read your archives before you bag the old system.

Both CDs and DVDs are excellent choices for archival storage. Browse to find.pcworld.com/57105 for details.

Floppy disks, though, caught a train to Obsolescentville several years ago.

Flash drives and SD Cards have withstood teething puppies and trips through the wash, but no one expects them to last for more than about ten years. They support a limited number of writes and connections, depending on the type of memory they use. One of the new ruggedized flash drives, however, could be a good—albeit somewhat expensive—archiving option for both photos and documents; a package of 100 4.7GB DVD-Rs costs less than a single 4GB flash drive.

Your hard drive can be a convenient and reliable data repository, though you could accidentally overwrite a vital file.

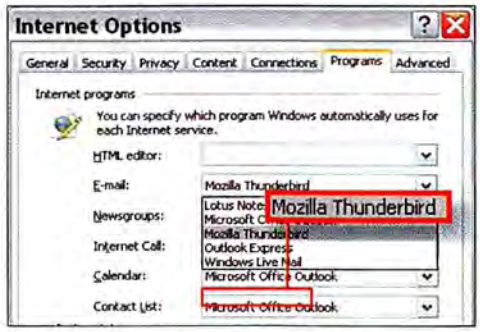


**FIGURE 1: CHANGE THE DEFAULT e-mail program in XP via this drop-down menu in Internet Explorer.**

## SET YOUR DEFAULT E-MAIL

I DON'T USE Outlook Express, but when I click an e-mail link on a Web page, Outlook Express opens. How do I change that?

*Ben Petkus, Newnan, Georgia*

YOUR DEFAULT E-MAIL setting affects not only e-mail links on Web pages but also such mail-aware applications as Microsoft Word and WinZip. To change your default e-mail program in Windows XP, open Internet Explorer 7, select *Tools•Internet Options*, and click the *Programs* tab; then choose your preferred program from the 'E-mail' drop-down menu, and click *OK* (see **FIGURE 1**). In Vista, click *Start•Default Programs•Set your default programs•Windows Mail*, select the program that you want to serve as the default for e-mail, choose *Set this program as default*, and click *OK*. Alternatively, you can specify which links and files the program should open by default. To do this, click *Choose defaults for this program*, make your selection, click *Save•OK*, and close the Default Programs applet. Under this arrangement, you could, for example, set Thunderbird as the default for mailto: links in Web pages, and Windows Mail as the default for .eml files.

Will your preferred client be among the selections? Any e-mail program installed on your computer should appear in the 'E-mail' list. But Web-based e-mail services may not be, and you have no way to set your default e-mail to a URL. Here are workarounds for Yahoo and Gmail.

**Yahoo:** Download and install Yahoo Instant Messenger (messenger.yahoo.com), and then follow the instructions above. (If you're performing a custom installation, don't deselect 'Yahoo Browser Services'—this is what makes the tip work.) You'll find that 'Yahoo' now appears on the list.

**Gmail:** Download and install the Gmail Notifier (find.pcworld.com/57106). Once the program is loaded, right-click the Notifier icon in your system tray (the area near your clock on the desktop) and select *Options*. Check *Use Gmail for internet mailto: links*, select your browser, and click *OK*. Issuing this set of instructions won't change your applications' default e-mail client, but it will redirect the browser mailto: links you click to open a new message in your Gmail account. ■

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## IMPROVE ACCESS TO FOLDERS BY CREATING VIRTUAL DRIVES

TO CONVERT A folder into a virtual drive, select *Start•Run* and type **subst *x*: *path***, where *x* is a drive letter you're not using already and *path* is the path to it—for instance, **subst g: c:Documents and Settings\Lincoln\My Documents**. After you press <Enter>, you'll have a new G: drive in Explorer. To make the change permanent, right-click the desktop and select *New•Shortcut*. Type your **subst *x*: *path*** command into the location field, and give it a name. Now drag the shortcut over to the Start button's *All Programs•Startup* folder (*Programs•Startup* in Windows 2000). Finally, delete the copy of the shortcut that you left on your desktop.

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# DIGITAL PHOTO TIPS

DAVE JOHNSON

# Five Ways to Safeguard Your Digital Camera

BACK WHEN DISPOSABLE cardboard cameras were a popular vacation accessory, an unexpected disaster meant losing only your $15 investment in film and processing. But these days, a digital camera mishap can set you back hundreds of dollars—not to mention the value of all the photos locked on your precious memory card. If your camera is equipped properly, though, you can take it out in the rain, over treacherous trails, and even underwater. Whatever your lifestyle, accessories are available for your camera that will let you snap photos almost anywhere, without worrying about whether your camera is tough enough.

**Prevent lens scratches:** Scratch or scuff your lens, and your photos will suffer—regardless of how well you care for the rest of your camera. That's why many photographers attach a protective Skylight filter to the front of their camera. Such filters are available at any photography store for as little as $10. And if you ever ding it, just replace the filter—it's a lot cheaper than buying a new lens. Not all digital camera lenses will accept screw-on filters, but all interchangeable lenses for digital single-lens reflex models will.

**Protect the LCD:** Your camera's other prime danger zone is its display. Delkin's Pop-Up Shade ($20 to $40, find.pcworld.com/57083) is a protective cover that shields your camera's display, preventing damage that might otherwise break the screen. In addition, it pops up to provide shade from direct sunlight, improving the screen's visibility. Pop-Up Shades come in a range of sizes that are suitable for many popular camera models.

**FIGURE 1: PROTECT YOUR camera when underwater with Aquapac's airtight bag.**

**Add a second skin:** If you put your camera in harm's way—such as by taking it on hiking trips through the mountains—consider encasing it in a protective skin. Camera Armor ($50 to $80, find.pcworld.com/57085) completely envelops select camera models (including Canon and Nikon Digital SLRs) in a rugged, rubberized, shock-absorbing covering. In the package you also get an LCD shield and a flexible, elastomeric lens hood.

If you can't find Camera Armor for your model, try a Snug-It camera skin ($15, find.pcworld.com/57086). Designed with point-and-shoot cameras in mind, Snug-It coverings protect the camera body and the lens—whether it's retracted into the camera body or extended for use.

**Keep the water away:** Digital cameras and water don't get along. If you're trekking outdoors and want to shoot in any weather, consider dressing your camera in a rain cape. Ewa-marine offers various capes for large and small cameras that protect the body but leave the lens exposed ($20 to $200, find.pcworld.com/57087).

A rain cape will deflect drizzle away, but it won't help you if your camera takes a plunge while you're kayaking or snorkeling. If you want your camera to survive short- or long-term submersion, get a watertight enclosure. Traditional watertight camera housings cost hundreds or even thousands of dollars, but Aquapac sells an inexpensive, flexible, plastic bag case ($30 to $120, find.pcworld.com/57088; see **FIGURE 1**) that keeps your camera safe to a depth of about 10 feet.

**Safeguard your photos:** No matter how careful you are, accidents can happen. Though you might lose your camera at the end of a long trip, you can make sure that your photos aren't a casualty as well. For extended journeys where lots of photos are at risk, consider using a pocket-size external hard drive to back up your shots. One of my favorites is Digital Foci's Photo Safe ($149 with 40GB, find.pcworld.com/57089; also in 80GB and 120GB capacities). The device's multiformat USB 2.0 memory-card reader supports all common formats. And you can carry fewer memory cards, because you can transfer each day's images from a single card. ■

*Browse to find.pcworld.com/57090 to read Dave Johnson's* Digital Focus *columns.*

## WHEN IS IT TOO HOT OR TOO COLD FOR YOUR CAMERA?

DIGITAL CAMERAS DON'T like temperature extremes—especially those on the toasty side of the spectrum. Never leave your camera in your car during the summer, when temperatures inside the vehicle can exceed 140 degrees: You can damage the batteries and possibly even such electronic components as the image sensor. Cold weather is less likely to hurt your camera, but taking it indoors too rapidly can result in moisture damage when condensation forms. To avoid having that happen, seal your camera in a zip-lock bag before going indoors and don't open the bag until the camera has warmed up to near room temperature.

PHOTOGRAPH: ROBERT CARDIN

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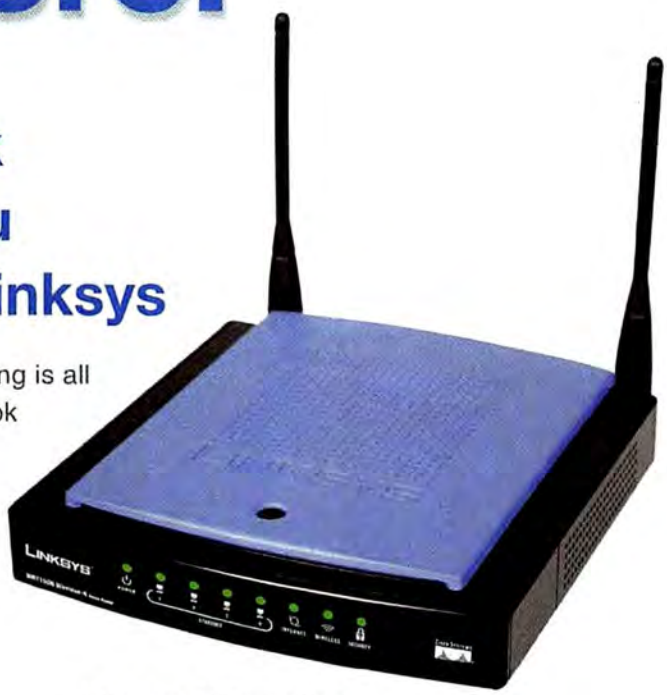


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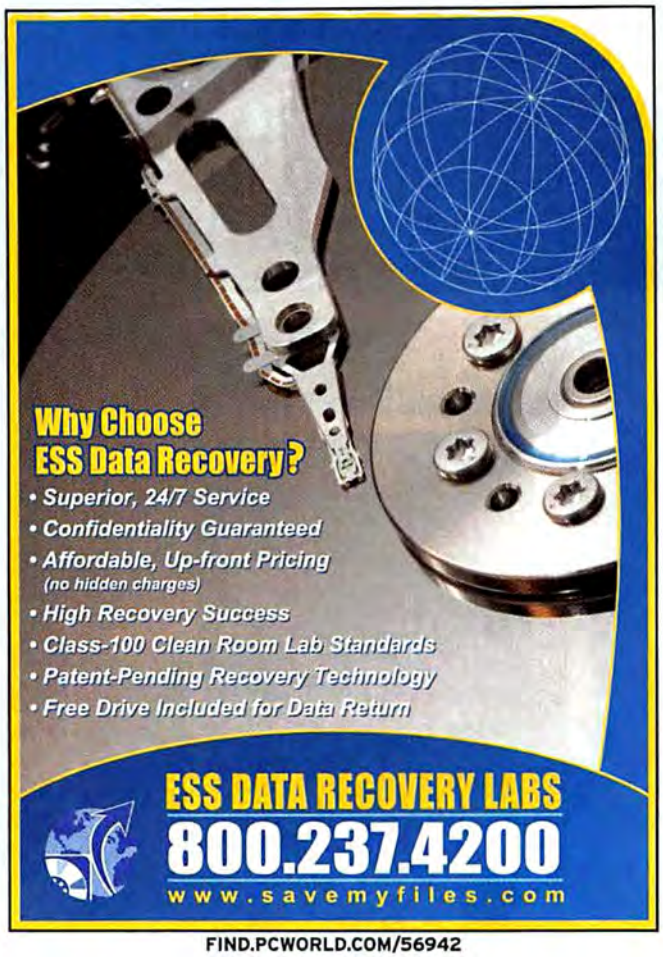


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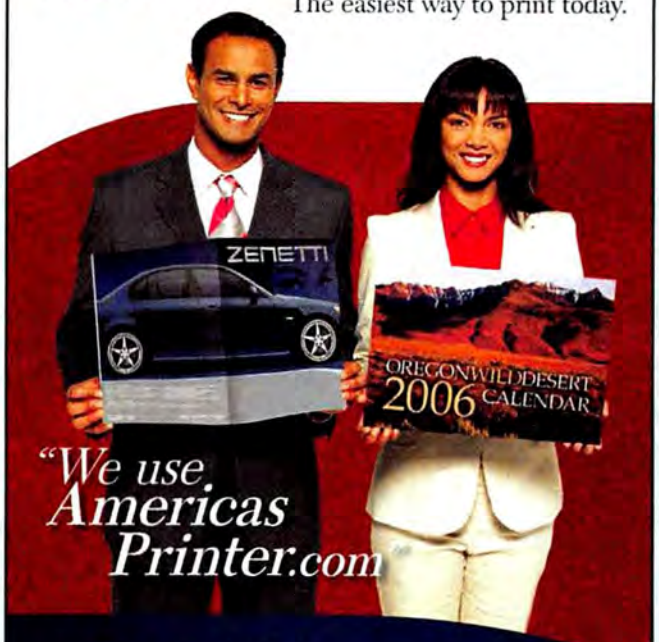


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STEPHEN MANES

# The Power of Negative Thinking

IT'S GUARANTEED: WHENEVER I say mean things about some third-rate bloatware that doesn't remotely live up to its hype—like, say, Windows Vista—I get a batch of e-mail berating me for being negative. And I'm not the only one: In online forums, fans of whatever item is under the microscope enjoy dissing "whiners" who pick apart the failings in products and services, from high-end hotels to nose-hair trimmers.

Sorry, Pollyannas, but you're missing the point. To borrow a phrase from Spiro Agnew's speechwriters, nattering nabobs of negativism—including professional complainers like me and savvy online amateurs—are all that keep us from a world where marketing and public-relations messages are the only ones that matter.

Vendors often give professional reviewers access to new products and services before their release, but many companies have adopted the clever strategy of announcing products long before they actually exist. The idea is to garner plenty of positive buzz before negative hands-on reviews can show up. When you read a report that "this slim device delivers driving directions throughout the U.S." without any evidence that the writer tried it, you can be sure that this bland information came directly from the company's literature. Only later will you learn that the unit takes forever to lock on to the satellite signals, is unreadable on sunny days, eats batteries, and takes a perverse pleasure in sending you the wrong way down one-way streets.

Hands-on experience is the difference between information and hype. Those of us who test products for a living often hear from vendors who don't like it when we point out the drawbacks of what they sell. But is Microsoft going to take out full-page ads to proclaim "Lots of incompatibilities remain"? Is your cellular provider going to erect a billboard trumpeting "New phone: Minor improvement, if that!" or "Entering dropped-call zone"?

**Accentuating the positive doesn't make products better.**

And the Internet's ability to give every frustrated customer a soapbox has ushered in a Golden Age of Negativity—for which I am supremely grateful. When a recent Windows update led my audio software to deliver an error message every time my machine booted up, a ticked-off Slashdot post from another victim of the same glitch pointed the way to a fix. When you google an error message, the solution often comes from some sadder but wiser user rather than the offending company's support database.

Before I go on vacation, I head straight to TripAdvisor (tripadvisor.com) for the truth about the hotel room that's too small to turn around in or the "luxury resort" whose renovation means jackhammers at 6 a.m. Before shelling out for home theater components, I turn to AVS Forum (www.avsforum.com) to see what the unhappiest buyers are saying about devices whose HDMI connectors don't always connect. Before I buy a car, I seek out the least-satisfied customers I can find on sites like Edmunds.com to flesh out my worst-case scenarios.

Amazon.com customers who bestow five-star ratings on tech products can be worth reading, but first I want the no- and one-star reviews. Sometimes they come from outright cranks, but more often they're written by experts who snicker at the glowing notices from novices who think "640 by 480" is tech talk for high resolution—and then point out the flaws the newbies missed.

Everyone wants high-quality, high-value products and services. The truth is, you don't discover and encourage them by dwelling on the bright side. ■

*Contributing Editor Stephen Manes was 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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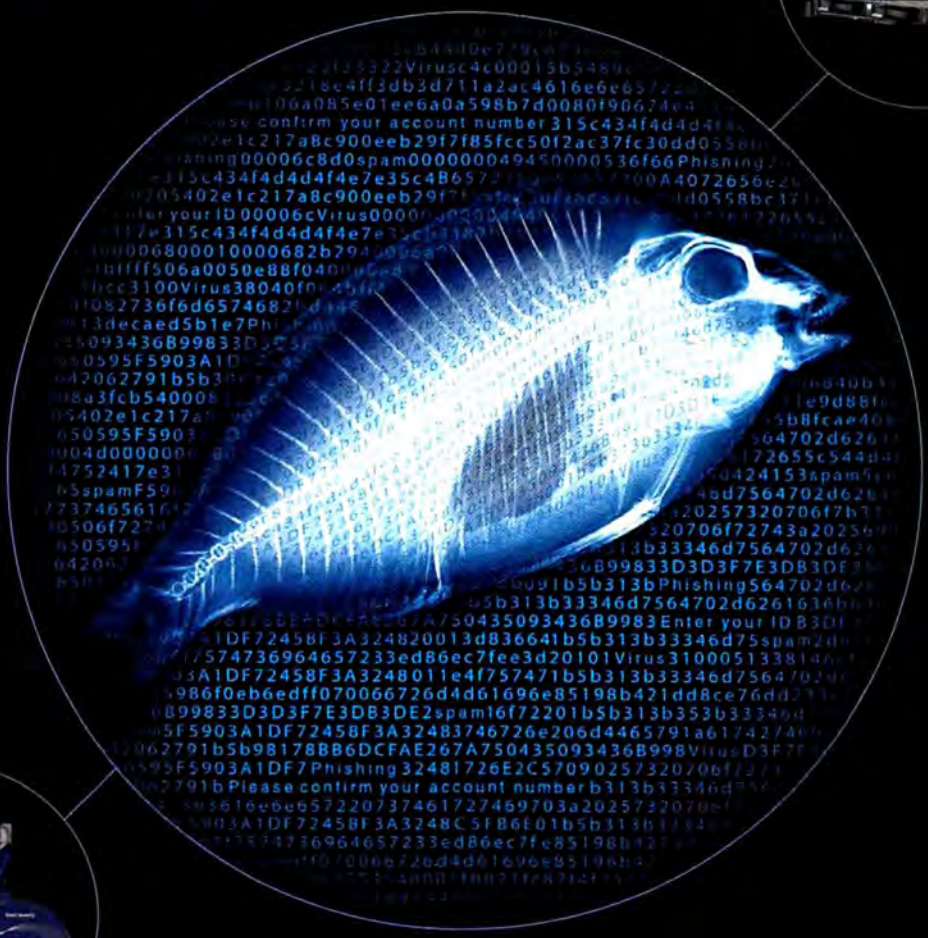

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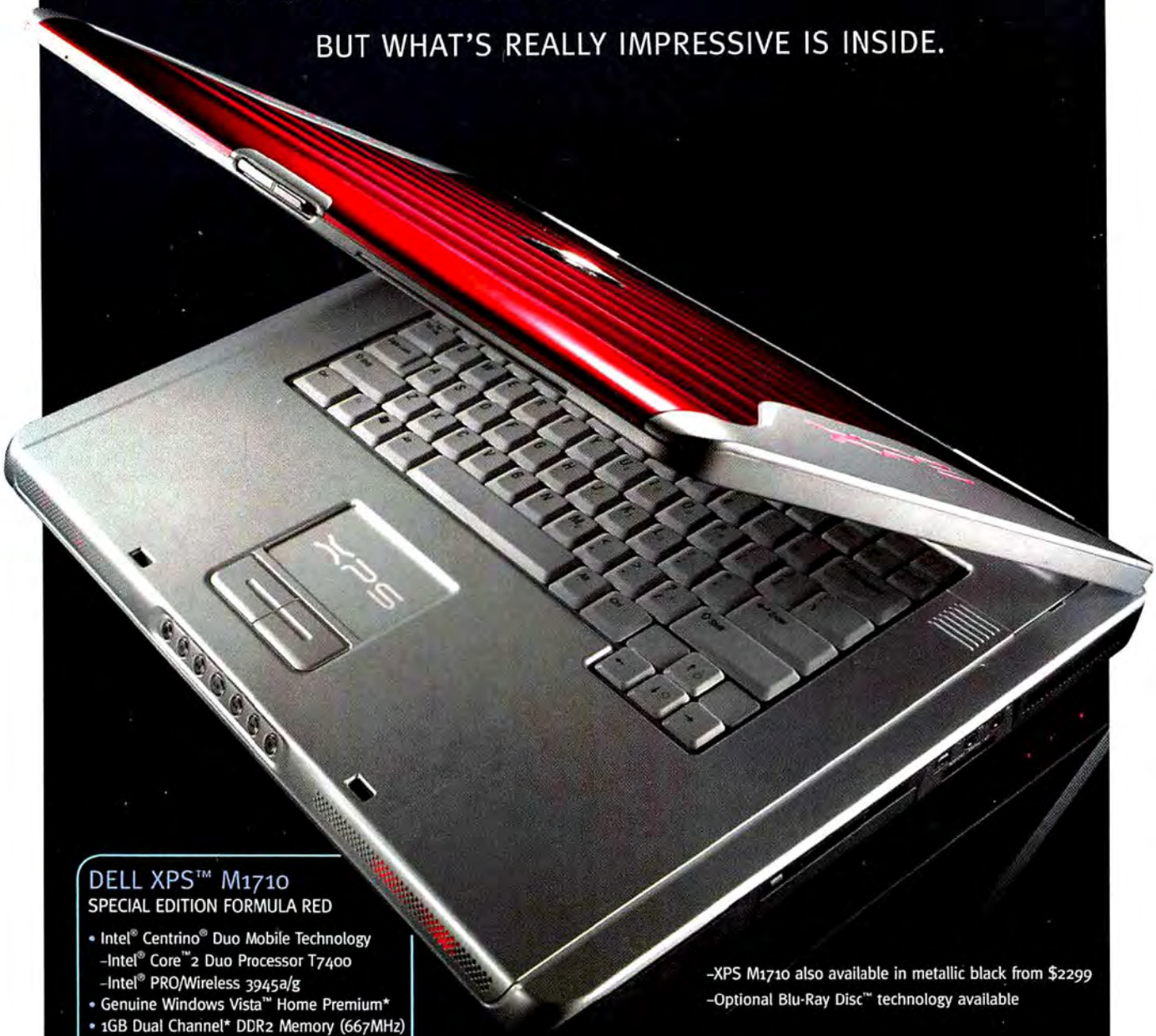


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