

**101 MUST-OWN APPS**

**FOR ANDROID,  
BLACKBERRY  
& IPHONE** p. 91



# PCWorld

**The truth behind technology's  
biggest lies, tall tales  
& misconceptions** p. 72

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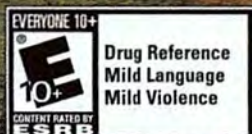
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72

# PCWorld

OCTOBER 2010

Volume 28 • Number 10 • [pcworld.com](http://pcworld.com)



56

## » FEATURES

### 72 Technology's Biggest Myths

We take a hard look at some of the tech world's most notorious nuggets of conventional wisdom to find which are urban legends.

### 82 The Perfect PC: Don't Buy It, Build It

Technology may be getting more complex, but assembling a PC to your specs is surprisingly easy. Here's how to put it all together.

### 91 101 Essential Apps for Android, BlackBerry, and iPhone

Wondering what to download for your smartphone? Start with this collection of the best productivity tools, utilities, and games.



104

## » DEPARTMENTS

7 Techlog

9 PCW Forum

112 The Back Page

## » FORWARD

12 The E-Reader Price War  
Amazon, Barnes & Noble, and Sony struggle for dominance.

18 Beta Watch

20 GeekTech

## » CONSUMER WATCH

23 Tech Support Face-Off  
Apple Genius vs. Best Buy Geek.

24 Skeptical Shopper

26 On Your Side

## » BUSINESS CENTER

29 Set Up a Virtualization Server  
You can reduce operational costs and simplify administration.

30 Net Work

32 Tech Audit

## » SECURITY ALERT

41 ID-Theft Protection Services  
How well do these services work, and what alternatives do you have?

42 Bugs and Fixes

44 Privacy Watch

## » REVIEWS AND RANKINGS

46 High-Definition Webcams  
We rate models from FaceVision, Freetalk, Logitech, and Microsoft.

54 Top 10 Inkjet MFPs

56 Samsung Captivate & Vibrant

58 Acer Aspire TimelineX 1830T

60 Top 10 Performance PCs

64 Top 10 All-Purpose Laptops

70 Download This



58

## » HERE'S HOW

100 Leave Work Early  
These steps will have you heading for home instead of staying late.

107 Answer Line

109 Rick Broida's Hassle-Free PC





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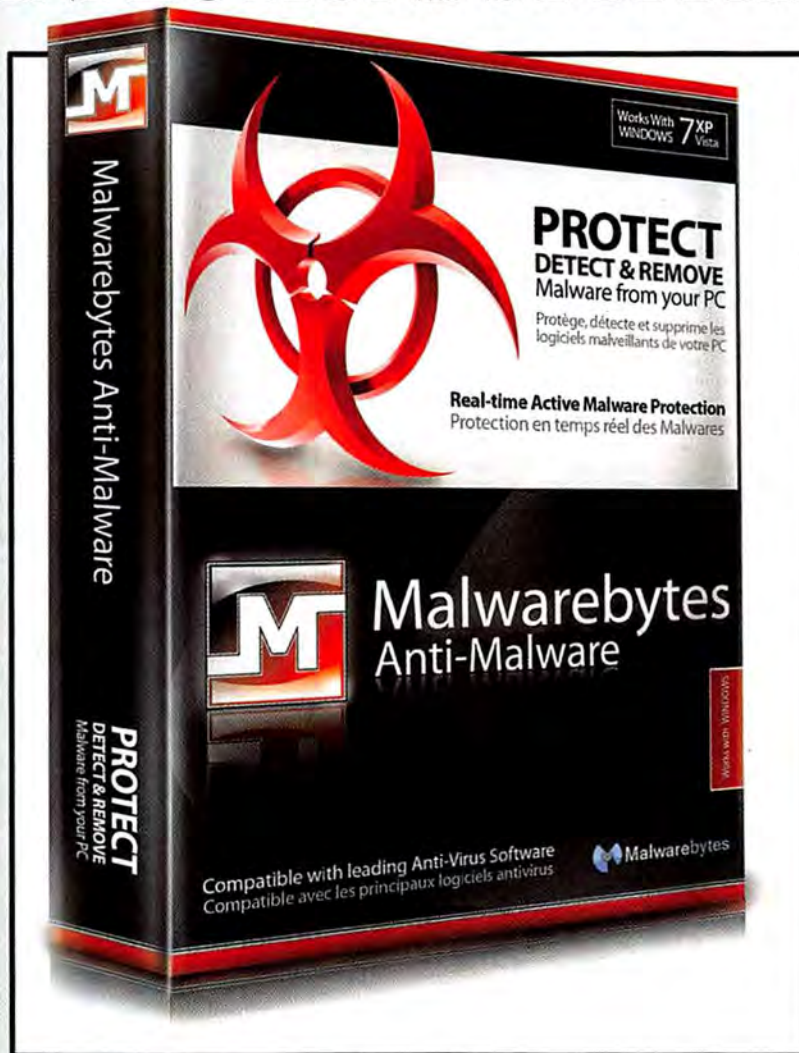
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## Why I Want a Robot at My Next Meeting

A FEW WEEKS back, we welcomed an unusual visitor to the *PCWorld* offices. QB—a full-size, two-wheeled robot—roamed our halls, participated in editorial meetings, and generally made himself at home with the staff. Admittedly, there's something disorienting about a 6-foot-tall, vaguely humanoid robot chatting up employees in the hallways or rolling between offices, cubicles, and conference rooms.

Needless to say, QB (on loan from Silicon Valley startup Anybots) wasn't the master of his own destiny. He, or rather it, was being operated via a Web browser from off-site by frequent *PCWorld* contributor Harry McCracken. He controlled all of QB's movements; and when he spoke, his words came rolling out of a speaker in QB's slightly anthropomorphic face.

Despite the geeky, science-fiction thrill of sharing an office with a robot, McCracken wasn't engaging in a frivolous exercise. Anybots claims that QB can make interactions between off-site and office-bound workers much more productive. We decided to verify that claim with a one-week test drive.

### Misery of the Conference Call

Consider the standard conference call. It's an exercise in frustration. The unfortunate soul calling in frequently can't make out lengthy stretches of conversation and has no idea when to jump in to make a point. And without being able to see facial expressions and body language, you can forget about nuance. Understanding about half of what's

How can off-site workers interact more effectively with their colleagues in the home office? Consider a 'personal avatar.'

said is often the best-case scenario. It is a poor experience for the folks on the other end of the line, too.

That brings us to videoconferencing, which lets participants interact more naturally. Businesses can choose from among many excellent dedicated video-

remote workers stay in the loop. "If a robot comes up to you," he says, "you have little choice but to respond."

My own experience with QB during a meeting to discuss plans for the online story about QB ([find.pcworld.com/70505](http://find.pcworld.com/70505)) was largely positive. I was initially skept-

tical, even dismissive, of the concept. But within minutes, I had essentially forgotten that I was talking business with a robot.

For all the parties involved, the meeting was as productive as if McCracken had been there in person. That's a rare outcome that should be worth big bucks in our no-room-for-miscommunication business culture.

Not everyone felt as comfortable as I did

with QB, although McCracken believes that most would eventually have come around. A bigger issue: The robot was a buggy beta unit that had its share of technical problems. The bugs will need to be squashed by the time the unit ships in the fall, especially given the robot's hefty \$15,000 price tag.

Still, QB could potentially save real money on travel. Plus, having a robot is just plain cool. It might even impress a potential customer hoping to work with a business from afar. If QB could translate into even one additional client, the high cost wouldn't matter.

At least that's the story I'm giving my boss. And I'm sticking with it. ●

Steve Fox is editorial director of *PCWorld*.



SENIOR EDITOR MARK Sullivan (he's the one with hair) acted as an escort for QB, the robot that represented writer Harry McCracken at *PCWorld* meetings.

conference rigs (which require loads of pricey equipment) or simpler solutions that rely on low-cost Webcams attached to a video-chat app such as Skype. (See "HD Webcams for Videoconferencing," page 46, for a review of five top units.)

Unfortunately, videoconferencing gets you only partway to meeting nirvana. The remote user, up on the big screen, can't make eye contact, can't turn to see who's talking, and risks missing critical nonverbal cues.

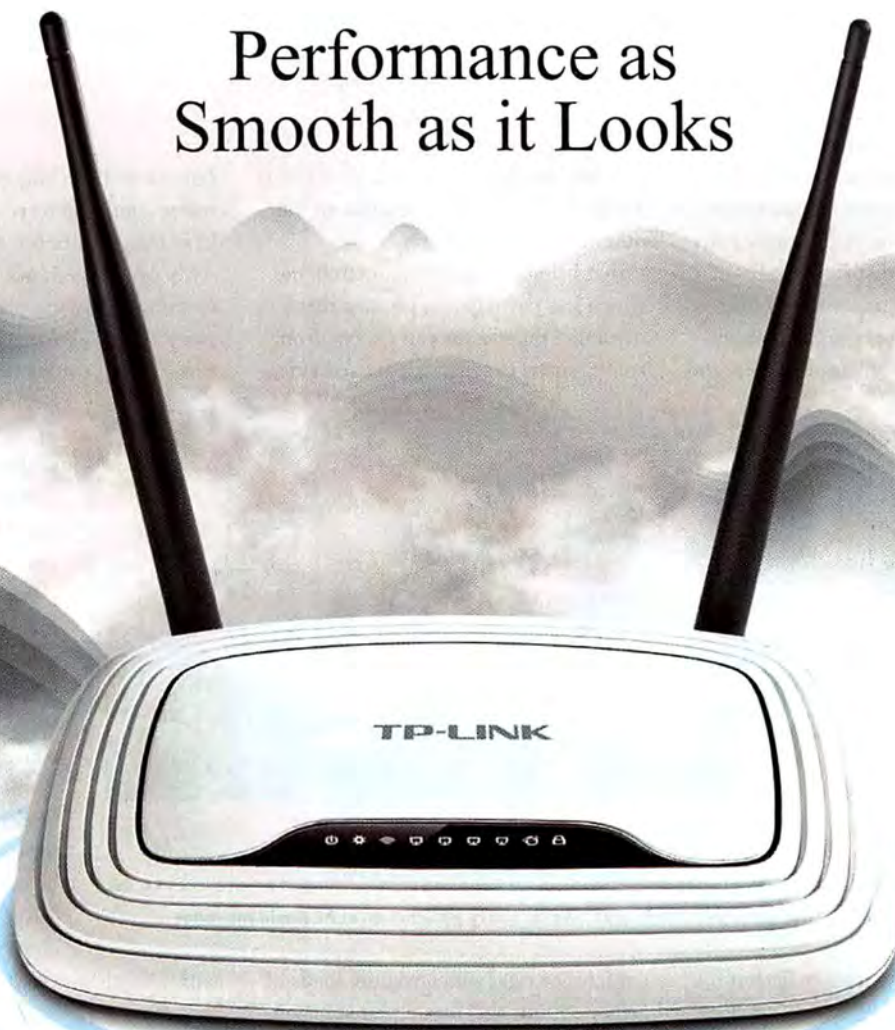
On the other hand, an on-site robot that can move about and swivel its head makes it easier for an off-site participant to converse effectively. In addition, "many decisions get made in hallways, not just conference rooms," notes McCracken. A robot can help



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The August *Techlog* ("When Friends Ask You for Tech Support") sparked some passionate comments about the mess that many users' PCs all too often become—and who is to blame. If you have an opinion, feel free to add your two cents at [forums.pcworld.com](http://forums.pcworld.com) or [facebook.com/PCWorld](https://facebook.com/PCWorld).

## Is It Us or Is It the PC?

Reading the August *Techlog*, I thought I was reading an article about my life. As an IT professional, I cannot go to a party or run into friends on the street without someone asking me to stop by and fix their computer. Family? I am the family computer doctor, always on call—and, unlike real doctors, I make house calls. And 99 percent of the time, I am fixing a Windows computer. I am proficient in both Mac and Windows. I am not a Mac fanboy; but I have to say, if the majority of typical computer users owned a Mac, I would have a lot less work to do.

*Andrew Klafier, Oakton, Virginia*

The August editorial was good, but it missed the main issue. Very few pieces of software are problem-free—and whose fault is that? The public would never, ever put up with all this nonsense with any other electronic device. Imagine having to go through such headaches with a new HDTV, a digital video recorder, or, heaven help us, our automobiles: "Sorry, but you can't start the engine because there is a memory error, and we must shut down and reboot the system!" Absurd. But the PC mess is so ingrained that it has be-

come an acceptable way of doing business in today's world. What a shame.

*Bob Kruppa, Bluffton, South Carolina*

Microsoft, for one, does not make it easy to have a safe and efficient system. Microsoft thinks its operating systems are so simple that no instruction manual is needed or even suggested. And the company practically requires users to buy a new computer whenever a new Windows version comes out. Many PC owners just want to be able to do work on their computer, not to spend all their time making the computer work.

*Ed Parker, Jr., Spokane*

I was surprised that Steve Fox was surprised that most people's Windows computers are a mess. I guess he would be shocked out of his shoes to learn how many of us have malware, and then run Norton software, Clary utilities, and/or a slew of other products, yet we still can't keep our computers running fast, smooth, and crap-free. It doesn't matter how many programs we buy or how many *PCWorld* tips we use—based on my own experience, a computer inevitably turns out to be the worst investment of all household items.

*Joe N. Norman II, Springfield, Georgia*

## Why We Keep Obsolete Tech

Dan Tynan's pseudo-humorous piece about older technologies "that should be dead and buried" ["10 Technologies That Should Be Extinct (But Aren't)," [find.pcworld.com/70434](http://find.pcworld.com/70434)] misses a lot of points, including these:

*Why use the telegraph instead of electronic mail?* For one thing, you know the recipient has a piece of paper in hand, as opposed to electronic mail that may have been snagged by a spam filter and is much less personal anyway.

*Why use typewriters when we have computers?* Maybe because we can have a short message typed up and the envelope addressed in the time it takes to power up a computer, have the bloated operating system up and running, and have the printer ready to go as well?

*Why use landlines?* Makes life less stressful, as people don't expect me to

Re: "Don't Look Now, but Google's Following You" ([find.pcworld.com/70431](http://find.pcworld.com/70431)): I don't blame technology per se, but rather these big businesses. They seem to have no concept of personal privacy, and there's no line most won't cross if a buck is to be made.

*mb56, PCWorld.com forums*

be at their beck and call every hour of every day via an electronic leash. Oh, and the sound quality is a hell of a lot superior to that of many cell phones.

And so on. So, yeah, "new" doesn't always mean "improved." In fact, depending on the situation, something new can be a step backward.

*Jim Harris, Ottawa*

## Megazoom Hype?

Regarding "Zoom, Zoom, Zoom" [August]: Not much camera work is "high zoom." Most people use cam- ➤



eras to shoot other people in the same room, almost all the time. A wide-angle lens works *much* better for getting people and other subjects into the frame at a comfortable distance.

Unfortunately, we as consumers are bombarded by ads for superhigh-zoom and superhigh-megapixel cameras, when all we really need in most real-world photo situations is "adequate"

megapixels (5 megapixels is way more than enough) and a decent lens.

*Evildave, PCWorld.com forums*

## Sideways? No, Thanks

PCWorld is my favorite computer magazine, but I just want to comment that the landscape-oriented pages of "Chip Showdown" in the August issue were awkward and annoying to read, because

I had to turn the magazine and then became unable to prop it up in the slanted book/magazine holder that I keep on the kitchen table.

When you buy a magazine, you do not expect to have to turn it so that the binding is at the top, and I can't see the reason for your having done this. Even the "Phone CPUs and Specs" chart would have fit onto a regular portrait-oriented page, if you put the little sidebar explanation above it.

I hope you won't be changing the orientation again without having a very good reason for doing so.

*J. Fukushima, Chula Vista, California*

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## CORRECTIONS

IN SEPTEMBER'S "Save Money With These Penny-Pinching Printers," we should have said that the HP Officejet Pro 8000 Wireless inkjet printer has just one standard input tray and that the cost of the Oki C610dtn color printer is \$799. Also, one product mentioned, the Lexmark Prestige Pro805, has been discontinued.

In the August *Rick Broida's Hassle-Free PC*, the tip "Restore the Classic 'All Programs' Menu" should have noted that by following the tip (which involves making a change in the Windows 7 Registry), you'll change other settings, such as Favorites for IE, which some users may not want to do. PCWorld regrets the errors.



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# Forward

## The E-Reader Wars

BY MELISSA J. PERENSON

THE BATTLE FOR tech-savvy bookworms is on, with Amazon, Barnes & Noble, and Sony competing to sell e-book reader hardware. And as the major players struggle for better position in the electronic-publishing industry, recent months have seen price drops, new devices, and defeats.

Competition stepped up in June when a price war broke out. First Barnes & Noble slashed the price of its Nook by \$60, down to \$199; the company also started selling a Wi-Fi-only Nook for \$149. Within hours Amazon dropped the price of its Kindle by \$70, to \$189. And ten days later, Sony cut the price of each of its three Reader products by \$30, bringing its most expensive 3G version down to \$229.

What's sparking e-reader price drops? Thank Apple's iPad, the dominant multi-purpose tablet available today—and the juggernaut that has the major single-purpose e-reader makers



E-reader prices are tumbling, but is it enough for stand-alone e-book devices to stay alive?

quaking. In the face of this competition, other e-reader manufacturers have thrown in the towel. Plastic Logic

dumped plans to launch its QUE e-reader in August, and says that it will instead focus on creating a next-generation

ProReader. Samsung delayed its e-readers indefinitely.

The e-reader is at a crossroads. Amazon and other firms must make the case that their dedicated products have a place in a world filled with multipurpose devices that can display e-books, such as smartphones, tablets, and netbooks. Each e-reader maker also wants to ensure that its product becomes the de facto standard for reading e-books. After all, repeat sales of e-books look to be where the real money is. Selling e-reader hardware with hooks to e-bookstores is more critical now than ever.

Market research firm The Yankee Group forecasts that 6 million e-readers will ship in 2010; that number is expected to grow to 19.2 million by 2013. And experts say e-book sales will follow the same growth curve.

E-books represent a fraction of overall publishing sales, but it's a growing share: The Association of American Publishers says that though e-book sales for



the month of May totaled just \$29.3 million, sales grew by 163 percent that month and have already increased by 207 percent in 2010 compared with 2009.

Amazon has said that 80 percent of its Kindle-book buyers own a physical Kindle; the other 20 percent are using one of Amazon's apps for Android, BlackBerry, iPad, iPhone, Mac, or PC.

### Single-Purpose vs. Multipurpose

The number one threat to e-readers is Apple's wildly popular, \$499 iPad. And as Android tablets surface, you can expect even more pressure on dedicated e-readers, which usually have a monochrome E Ink screen in lieu of tablets' color LCDs.

Amazon has fired back, beefing up its software to include simple word games, and even providing an API for developers to create Kindle apps. In late July Amazon revealed its third-generation e-reader, still simply named Kindle, which has an enhanced display, faster navigation, and an entirely redesigned chassis. Though the 3G/Wi-Fi device costs \$189, the Wi-Fi-only version is priced at an affordable \$139.

Despite feature and application creep, Amazon and Barnes & Noble's main arguments are sound ones to serious book lovers. First, black-and-white e-reader hardware provides a better environment for book reading than do color-LCD-based tablets. Second, whereas Apple's iPad gets 10 hours of battery life, Amazon's new Kindle is rated for up



**AMAZON'S NEWEST KINDLE** is lighter than its predecessors, but retains a 6-inch screen.



**THE BARNES & NOBLE Nook** now comes in both Wi-Fi-only and 3G/Wi-Fi versions.



**IN ADDITION TO e-books, the pricey Sony Daily Edition** gives access to major newspapers.



**THE VALUE-PRICED Kobo eReader** has a friendly user interface and easy-to-read text.

to three weeks of life with the 3G radio on. And the E Ink displays of e-readers are viewable in bright sunlight, unlike the iPad's LCD.

Though Amazon has never shared hardware sales numbers, the company said this summer that its e-book sales have outpaced hardcover sales by 80 percent. It has also claimed that it owns 70 to 80 percent of the e-book sales market (an estimate that other market data supports; for example, author James Patterson sold 1.14 million e-books, of which 867,881 were Kindle books).

Barnes & Noble claims to be at 20 percent, and Apple says it has 22 percent of the

e-book market. Though those numbers don't add up, they do show that—for all of the players—the focus is less on hardware and more on the opportunity for ongoing e-book sales.

### War Far From Over

Amazon may have solidified its leadership role among dedicated E Ink devices (the newest Kindle sold out within a week of its preorder offering), but the company still faces challenges from Barnes & Noble, Sony, and tablets such as Apple's iPad and current and future Android tablets by Archos, Dell, Samsung, Velocity Micro, Verizon, and others.

What is clear at this point is that Amazon's new Kindle will put pressure on the bevy of lesser-known e-reader brands (nearly a dozen, led by Aluratek, Bookeen, and Kobo) to respond with price drops. But none of these companies have done so yet—and given how tight their profit margins seem to be, smaller e-reader makers may not be able to match the aggressive pricing of Amazon and Barnes & Noble.

More competitors have promised e-readers of their own. The newest comes from Sharp: Later this year the company will introduce an e-book reader device that can read a new, proprietary e-publishing file format. Sharp says the device will be available in Japan first; sometime afterward, Sharp and its partner Verizon Wireless will launch the e-book reader in the United States.

The debut of the \$139 Wi-Fi Kindle raises one key question: Does the value proposition of lesser-known, budget e-readers still exist? The short answer is no. Smaller brands have little to offer: Their hardware (as is the case with the \$139 Kobo) is often inelegant and harder to use, they lack Wi-Fi or 3G connectivity, and they make acquiring books more difficult than it is on the Amazon, Barnes & Noble, and Sony devices, each of which has built-in bookstore access.

The third-gen Kindle reshapes the e-reader landscape. Considering its features, one potential e-reader vendor's spokesperson said off the record: "At that price, who can compete?"



## Vampire Hunters: Devices Reduce Energy Waste

IT'S 1 A.M., and everyone is asleep. The TV is off. The PCs are off. Your cell phones and MP3 players are plugged in but no longer charging. And all these products are still sucking electricity.

"Vampire power" (aka "phantom power") accounts for a surprising amount of U.S. electricity consumption. According to a Lawrence Berkeley National Laboratory report, "A typical American home has forty products constantly drawing power. Together these amount to almost 10 percent of residential electricity use." Some items, such as a desktop PC, consume about 5 watts even when turned off and plugged in. (For more on how businesses can manage energy consumption, see page 32.)

To slay vampire-power suckers, people are turning to a new class of surge protectors and rechargers. I looked at several. Although I found their usefulness limited, trying them beats going around your house each night yanking plugs from the walls.

### Surge Protectors

When used correctly, green surge protectors cut off power to devices that don't need it. One of the outlets is the control outlet; when the wattage on it drops below a certain level, the device kills the power on several of the remaining outlets. Still other, always-on outlets continue to receive power.

The protectors make sense in a setup where one device dominates the others, such as the computer in an office

Specially designed surge protectors and gadget chargers promise to cut standby power drain.



THE HP MONSTER Digital PowerCenter 800G takes huge AC adapters.

or the TV in a home theater. If your PC is off, you likely don't need the monitor, for example. The always-on outlets are for devices that must remain on, such as a router.

I tried the Belkin Conserve Smart AV, the HP Monster Digital PowerCenter 800G, and the TrickleStar PC TrickleStrip, and all three worked as advertised. But the devices don't cover everything. For instance, my DVR needs to stay on, and it burns a frightening 53 watts in standby, refreshing the program guide, downloading software, monitoring the satellite for changes to channel lineups, and standing ready to record at any time.

Even so, a green surge protector cuts usage in my home theater by about 22 watts when the TV is off, for a savings of 14,000 watt-hours a month (assuming the TV is on 3 hours a day.)

The \$80 (street price) HP Monster is big enough to accept huge AC adapters, or "wall warts," in each of its eight outlets. With a 3140-joule rating, it promises

substantial energy-spike protection. It also protects phone, ethernet, and coaxial cables. But it pulls about 1.6 watts with nothing plugged into it—at least in part because of its pretty but useless LEDs. That made it a bit of a power vampire itself.

The \$30 (list price) Belkin is the Monster's opposite. You can't plug a wall wart into any of its eight outlets without blocking at least one other. It doesn't support phone, ethernet, or coaxial cables, and it has a reasonable but unspectacular 1080-joule rating. With nothing plugged in, it drew so little power that the meter I used, a Watts Up Pro, said it was consuming none at all.

The \$40 TrickleStar PC TrickleStrip (street price) has six outlets. The always-

**BELKIN'S CONSERVE SMART AV is an affordable choice at \$30.**



on outlets are spaced apart, making one of them wall-wart-friendly. It can protect a phone line, but not ethernet or coaxial (a similar TV TrickleStrip handles coaxial but not phone). It safeguards your gear up to 2160 joules. With nothing plugged into it, the device barely registered on my Watts Up Pro, sipping 0.0 to 0.1 watt.

One issue you shouldn't worry about is the power threshold, the point at which a protector shuts off or turns on the switched outlets. All three protectors handled this job perfectly.

### Smart Chargers

Regular battery chargers and AC adapters don't know when to stop. When an attached device needs power, they provide it. When the device is charged or turned off, they still give it some juice—and even when the device is gone, the plugged-in adapter or charger continues to draw electricity. A smart charger, in contrast, knows when it's needed and shuts down when it isn't.

Smart chargers usually support the two most common standards: USB and the iPod/iPhone connector. Of course, since you can charge an iPod or iPhone on a USB port, only one standard really needs to be supported.

But iPods, iPhones, and USB-chargeable devices are already somewhat smart about power, and draw very little after a charge finishes. If you don't keep multiple chargers plugged in around the clock, smart chargers >>



## OVER 6 BILLION DEVICES CONNECT WITH USB

USB is everywhere, worldwide. And there's a reason it's so popular—its simplicity, speed and ease-of-use are unmatched. In the world of computers, peripherals and mobile devices, USB inspires confidence as the most widely-accepted, reliable form of connectivity out there, delivering speed, effortless charging and plug and play simplicity. Now that's a technology the world can agree on.

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will not save you much.

I looked at three: Belkin's Conserve Valet, and the iPod and mini-USB versions of the Ventev EcoCharge.

The \$17 EcoCharge is a handy portable charger. It plugs into an outlet without crowding other devices. The 62-inch cord ends in a mini-USB, micro-USB, or iPod connector, depending on the model. The device also has a hidden USB port, which lets you power any USB-chargeable device in addition to the one you bought the charger for.

The \$40 Belkin Conserve Valet (not yet available as I write this) is a 9-by-6-inch station with four USB ports. You plug cables (either standard USB or special ones



**BELKIN'S CONSERVE VALET** neatly holds four USB cables.

such as USB iPod connectors) into the ports, wind up excess cable, and plug the Valet into a wall socket. To charge something, you plug it into the proper USB cable and then press the Valet's on button. It's convenient, assuming you charge your devices only in one location.

These surge protectors and chargers can help cut your power bill, but don't expect miracles. In fact, conventional surge protectors—placed where you can easily reach the power switch—will save you more, provided that you cultivate a few good habits.

—Lincoln Spector

## Hands-On With BlackBerry 6 OS

THE RECENTLY released BlackBerry 6 OS, while not a complete overhaul, adds improvements and overall refinement to Research In Motion's mobile operating system. Here's a look at what's new, what works, and what doesn't. (For our review of the Torch 9800, the first handset to carry 6 OS, see page 58.)

### Interface

Even though 6 OS has a spruced-up interface, BlackBerry users will feel at home. Icons and text appear sharper and smoother than in previous versions, but the overall look is BlackBerry.

Reminiscent of pre-2.0 Android, BlackBerry 6 OS has a vertically sliding apps drawer that can show all of your apps or none of them; or you can notch it to view one or two rows at a time. If you prefer, you can slide horizontally and view apps filtered by categories such as Favorites, Media, Downloads, and Frequent.

At long last, the BlackBerry OS has universal search. It searches contacts, apps, music—just about everywhere. You can tweak it to search specific parts of the phone. I found it quite fast, however, and I relied on it to find what I needed. Most competing platforms offer universal search, but BlackBerry's version is the most powerful and comprehensive.

### Web Browser and Multimedia

Until now, the BlackBerry platform's biggest pitfall was its shoddy Web browser. The new WebKit-based browser isn't perfect, but it is light years ahead of the older one. You get pinch-to-zoom multitouch support, tabbed browsing, and auto-wrap text zoom (when you zoom in to a block of text, the font wraps in a column so that none of it cuts off).

Pinch-to-zoom wasn't entirely smooth, but it worked fine in my hands-on tests. Auto-wrap text functioned well, too. Regrettably, on the Torch 9800 the browser was sluggish, especially in dealing with media-heavy sites.



**YOU CAN SLIDE** your apps horizontally to view them filtered by category.

The browser also crashed a few times in my tests.

Can a BlackBerry be an entertainment device? The upgrades in 6 OS definitely help. The music player gains a Cover Flow-like interface that nicely showcases album art. You'll also find a brand-new YouTube app with a fairly straightforward interface, as well as a BlackBerry Podcast app.

### Messaging and E-Mail

E-mail is where RIM shines, and 6 OS adds features that solidify the company's status as the master of messaging. You can of course sync with your company's BlackBerry Enterprise Server with support for Exchange, Lotus Domino, or Groupwise for real-time e-mail delivery. With BlackBerry Internet Service, you can access up to ten personal/business POP3 or IMAP4 e-mail accounts.

Here's where things get confusing. You have a universal Messages inbox, which contains your SMS items, e-mail messages, and BlackBerry Messenger, and then you have your dedicated e-mail (in my case, Gmail) inbox. In the dedicated Gmail inbox, you get archiving, threaded conversations, labeling, and starring—an arrangement that's just about as close to the Gmail desktop setup as possible. In the catch-all inbox, however, you don't have access to any of these features. This is a bizarre oversight on RIM's part.

### BlackBerry Fans Will Be Pleased

BlackBerry 6 OS has more positives than negatives, and BlackBerry users will be happy with it, but it lacks the freshness necessary to keep up with the competition. The result isn't quite on a par with what you can find in various Android versions and overlays. RIM is playing catch-up rather than innovating, which is disappointing considering the contributions it has made to the phone world.

—Ginny Mies



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## Reasons to Jailbreak Your iPhone (and Not To)

JAILBREAKING AN iPhone became simple with the latest release of JailbreakMe ([www.jailbreakme.com](http://www.jailbreakme.com)), which exploits a flaw in the Safari browser's PDF viewer that grants freedom from Apple's locked-down policies.

Jailbreaking via various methods is a popular practice. Here are some of the pros and cons. (For more, see [find.pcworld.com/70501](http://find.pcworld.com/70501).)

### Why Jailbreak?

**T-Mobile's GSM network:** Many people are wary of buying a phone tied to the problematic AT&T network. But the latest jailbreak gives you access to T-Mobile's GSM network, which works overseas

and may be more robust than AT&T's in your area.

**Cool apps:** Jailbroken iPhones can use lots of creative and quirky apps not approved by Apple. Access to Cydia—the hub of “illegitimate” apps—is a huge motivation.

**Fully reversible:** If you're scared of the consequences or you don't like the results, JailbreakMe is reversible. But beware: If you upgrade past iOS 4.0.1 (see page 42), there may be unknown outcomes.

### Why Avoid It?

**Bricking:** Anytime you tamper with your iPhone, you run a risk of “bricking” it, which



renders it unusable and requires a wipe and restore to make it functional again.

**Voiding warranty:** Though it's now legal to jailbreak, doing so still voids the warranty. Apple won't cover

THE JAILBREAKME Web-based tool promises to help make the process simple.

damages or other malfunctions of your phone.

**Bugs:** Sometimes digging into your iPhone just doesn't work, and “comex,” the person responsible for JailbreakMe, doesn't have a solution. But loyalists devoted to the cause may find solutions themselves.

**Security concerns:** MacRumors discovered a flaw in the process that lets hackers plant malware on a phone via the PDF viewer (see [find.pcworld.com/70450](http://find.pcworld.com/70450)).

—Brennon Slattery

## BETA WATCH

EDWARD N. ALBRO



### Chrome to Phone: Easy Transfers

It's a thoroughly modern dilemma: Finding information on the Web is easier with your PC—but for bringing that data with you, nothing beats a smartphone. Google has come up with a great way of moving the info you need from your computer to an Android handset. Download the Chrome-to-Phone extension for the Chrome browser and the matching app for your Froyo-powered smartphone (both programs are free), and then follow the instructions to link the app to your Google account. The next time you discover a Web page, phone number, map, or YouTube video that you want to access on your phone, simply click a button in the Chrome toolbar. Within seconds, the data shows up on your phone. [find.pcworld.com/70499](http://find.pcworld.com/70499)

### Ranker: List-o-mania!

There's something about a list that the average Web surfer just can't resist. Those numbered nuggets of snarky opinion

draw us in every time. Ranker, in fact, has built a whole site around lists. You can browse lists created by other users (“Top 10 Muppet Mashups,” “Literary Classics You Should Pretend You've Read,” and “Most Selfish Professional Athletes” are just a few choices), or you can use Ranker's free tools to create your own list. [ranker.com](http://ranker.com)

### Gantto: Keep Projects on Track

Coming up with new ideas takes creativity. Making those ideas a reality, however, takes hard work and lots of organization. If you need to keep a complicated project on schedule, the free Gantto online service is worth a try. As its name implies, the site helps you produce detailed Gantt charts with bars tracking the progress of your project's individual tasks. Gantto's interface is a little clunky and requires more clicks than I would like, but it allows you to track an impressive amount of detail in depth. [gantto.com](http://gantto.com)



RANKER LETS ANYONE create a list, from the informative (“Fortune 100 Firms on Twitter”) to the wacky (“Bizarre Sex Ed Videos”).





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The first account you sign in to for multiple-account browsing becomes the default account. To add a second account, click your e-mail address to get a drop-down menu that will allow you to sign in to it. Repeat this step for a third account.

Afterward, to switch accounts, click your e-mail address to activate the drop-down and select an account.

—Ian Paul

## GEEKTECH

### Hard Drive vs. RAM: Which Boosts Speed More?

YOUR SYSTEM IS due for a hardware upgrade, but your budget won't bear the burden of both a blazing new hard drive (or solid-state drive) and an extra injection of Kingston RAM. So it's decision time: If you're looking to improve general performance on the cheap, do you shell out for a high-end drive or more memory?

PCWorld Labs analyst Thomas Luong has an obsession with optimization that borders on clinical, and during a recent day off he found himself idly running performance tests on his home PC just to see what would happen.

He ran a full suite of WorldBench 6 performance tests using two different hard-drive configurations doubled up to run in RAID 0, first using a fast new Samsung 128GB SATA solid-state drive and then using his older Western Digital VelociRaptor 300GB WD3000HLFS SATA hard drive, which spits bytes at 10,000 rpm. To make things interesting, he ran each test using two different RAM configurations, first with a 3GB DDR3 1600 loadout and later with a hodgepodge of memory he found lying around that added up to 12GB of DDR3 1066.

The results Thomas brought in to work the next morning were surprising, and not just because 9 a.m. is far too early to be writing about RAM-versus-hard-drive performance upgrades. (To view a chart of his results, see [find.pcworld.com/70456](http://find.pcworld.com/70456).) When he examined the results, he found virtually no appreciable performance difference between his old VelociRaptor setup and the superfast Samsung SSD drive. Though some hard-drive hogs like Nero Ultra 7 (which steadily streams data from the drive) did register a reliable 10- to 15-second improvement with the SSD in his speed testing, common consumer applications such as Autodesk 3ds Max and WinZip scored equally well running from either the Samsung SSD or the Western Digital drive.

What was more startling was the comparatively drastic performance improvement afforded by a RAM upgrade that cost about the same

Our analyst's informal tests illustrate which upgrade offers better performance and value.

as a new drive. The Nero Ultra 7 tests ran an average of 95 seconds with a memory upgrade, and the overall WorldBench 6 score for both drive configurations leaped 15 points after Thomas added about \$200 worth of extra RAM. If you're not familiar with our testing methodology, that jump indicates roughly a 15 percent improvement in the performance of common programs like Photoshop, Firefox, and WinZip.

Though applications that make heavy use of a hard drive (such as Roxio's Video-Wave Movie Creator) may benefit from the faster read/write performance of a new high-speed drive, Thomas has always had the need for speed, and his after-hours optimization tests prove that adding more RAM has the potential to shave the time you spend on workday tasks such as slinging spreadsheets and editing video. In the eternal battle between performance and price, upgrading your rig with 8GB of DDR3 RAM garners far more bang for your buck than trading up to a boutique high-speed drive like the 128GB Samsung SSD.

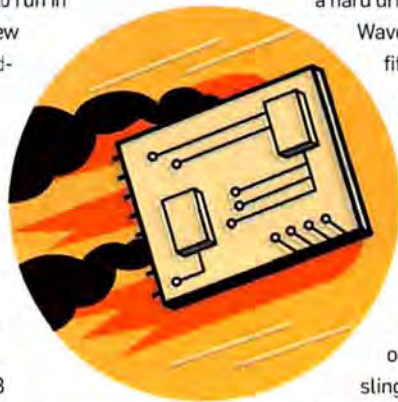
—Alex Wawro

### GPS in a Pair of Glasses

Japanese engineers have created a prototype device that places GPS navigation technology into a pair of wearable, seemingly everyday glasses. The glasses have integrated LEDs positioned in a circular fashion around the frame. The LEDs, which are visible in a user's peripheral field of vision, then change their color and placement in order to show you which direction you should be walking. Visit [find.pcworld.com/70475](http://find.pcworld.com/70475) for the full story.

—Chris Brandrick

For more hardware news, visit the GeekTech blog at [go.pcworld.com/geektech](http://go.pcworld.com/geektech).





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# Consumer Watch

## Who's Smarter: Apple Genius or Best Buy Geek?

BY ZACK STERN

MANY OF US have turned to in-store support from the Best Buy Geek Squad or an Apple Store Genius for help with a technology bind. People who have talked to both quickly notice that they employ different styles and approaches—but which has the better tech chops? I set out to determine anecdotally (not through any formal survey) the answer to this question.

Though the Best Buy Geeks aren't geared toward face-to-face drop-by questions as the Apple Geniuses are, nearly all of the Geek Squad desks I approached said that they could help me for 10 or 15 minutes at no charge if I brought in the troublesome computer.

The Apple stores I visited were crowded with people waiting for tech support at the free Genius Bar. You may need to make a reservation—even if you have just a quick question.

At Apple stores, I learned to flag down a blue-shirted employee who would either check me in for my appointment or usher me to a different employee to begin that process.

I devised a series of platform-agnostic questions based on real issues that people I know have encountered. I designed the problems to plumb a range of tech-support knowledge while being applicable to a Mac or a PC. I posed the questions to the Geeks in the context of Windows 7 and to the Geniuses in relation to Mac OS X 10.6. In each of eight trips to various Best Buy and Apple stores in the San Francisco Bay Area, I followed my script as closely as I could. (See [find.pcworld.com/70459](http://find.pcworld.com/70459) for a longer version of this article.)

### Questions, Answers, and Comments

**Q:** I can't play certain online video files. On my Windows 7 PC, that seems to happen on Apple's movie-trailer site. On my OS X Mac, I can't see high-def files on the Microsoft site.

**Geek [answers about the PC]:** If you're getting video from the Apple site, it's going to need QuickTime. There should be an error message telling you that.

We asked each of them the same platform-neutral support questions to find out.



**Genius [answers about the Mac]:** The video should say what the requirements are. Those videos should be in Windows Media; you'll need to get the Windows Media codec. You could also download Perian, a multicodec tool. Perian works for all kinds of Internet video.

**Comment:** Both answers solved the problem, but I give the edge here to the Genius, for suggesting a multicodec package that could allay similar issues from other video sites.

**Q:** A friend installed Windows XP for me on a second hard disk—but how do I switch back and forth?

**Geek:** It should come up when you boot; you select it there. If not, something isn't set up right. I'd have to check it out.

**Genius:** Hold down the <Option> key—if you're using an Apple keyboard—when you start up, and choose the operating system. Or, in OS X, go to the System Preferences Start-up Disk to select the OS. Or boot into OS X while in Windows: Click on the black diamond in the lower-right corner.

**Comment:** Both answers were correct, but the Genius's >>

Calling a company's tech support line is something no one looks forward to—so before the time comes when you have to do it, read our "Top Tech Support Survival Tips" at [find.pcworld.com/70458](http://find.pcworld.com/70458).





## SKEPTICAL SHOPPER GINNY MIES

response was the more thorough.

**Q:** I just set up a new e-mail account. I can get mail on my iPhone and computer. But if I read a message on my computer, I can't see it on my phone.

**Geek:** I'd have to see it in person. Is it getting mail properly? It's definitely not something that should be happening.

**Genius:** It's POP [an older mail system that doesn't keep messages available to different clients]. Make sure that you turn off 'delete messages from server' in the account settings. Otherwise, with POP, if you read items in one place, they won't show up in the other.

**Comment:** The Genius nailed the issue.

**Q:** I have an old Linksys 802.11g wireless router, and my network feels slow. I'm running various wireless devices, including an old iBook. Do you have any suggestion to speed things up?

**Geek:** Upgrade your router. Yours goes only 54 mbps. A Wireless-N one is faster.

**Genius:** Turn on Network Utility. You'll see how fast the link speed goes. If you're going to transfer a lot, connect ethernet instead of going wireless. Some routers do gigabit speeds and are much faster than Wi-Fi.

**Comment:** Both answers would help improve the network—but seem like workarounds. Neither tech asked which signal my old iBook used. (My 802.11b device was slowing down the wireless 802.11g network.) Here we have a draw.

**Q:** My Wi-Fi link seems to slow down if I move my laptop a few rooms away from the router. Is that really happening?

**Geek:** Yes, speed depends on the distance away from the router. A Wireless-N router will help the range, too.

**Genius:** It will be slower if you move farther. (Network Utility shows your connection speed.)

**Comment:** Both answers were good, but both could have suggested repositioning the router. Score: Draw.

**The overall winner:** Geniuses

For the five questions here, the final score was Geniuses 3, Geeks 0, with 2 ties. Despite this result, the Geeks offered great advice in most situations and were always happy to help.

## The Risks and Rewards of Deal-Hunter Apps

STILL HAVEN'T embraced the Foursquare fad or Loopt's "check-in" feature? Me neither. I don't under-

stand the point of letting everybody on my Twitter feed know where I'm ordering a meal or what stores I'm hitting up on my lunch hour. Though the trend may seem silly and pointless right now, national retailers see this check-in model as a way to track—and increase—store foot traffic. But will consumers play along?

For anyone unfamiliar with the hype, Foursquare and Yelp use GPS to find stores, restaurants, and landmarks close to where you happen to be at any given time. You can then "check in" to that place and share your location with your Facebook friends or Twitter followers.

At first, check-ins were worth bragging rights, and that's about it. Now, Foursquare is working with local businesses to reward loyal customers.

For example, if you check in to a bar in Kalamazoo five times, you're rewarded with one free draft beer. Sweet!

Two apps, Shopkick and LooptStar, are taking this model to a corporate level and offering even bigger and better deals.

Unlike Foursquare and other location-based apps, Shopkick doesn't use GPS or Wi-Fi triangulation to get your location. When the app is open, it automatically recognizes your presence in a store once you enter. Shopkick has installed "Shopkick Signal" sensor technology into Best Buy and other partner stores, enabling the app to do some neat things. The app could direct you to a section of the store, such as Home Entertainment, where the app announces that you've earned a discount for a specific product in that area—say, 20 percent off on a Blu-ray player.

You can also earn points, called "kick-

**New mobile apps reward consumers for simply walking into a store—but be aware of the information you're sharing.**

bucks," that you can redeem for Facebook credits, Napster downloads, and immediate in-store cash-back rewards at partner stores. Shopkick is a free app and is currently available only for the iPhone (the developers say that they are working with other mobile platforms as well).

LooptStar is similar to Foursquare in many ways: You earn "achievements" rather than badges and become the "Boss" rather than the mayor of an establishment. Like Shopkick and Foursquare,

LooptStar rewards loyal customers after they've checked in to a business a certain number of times.

LooptStar doesn't install sensors, but the company tells me that the location technology behind the app is precise enough to know when you've entered a store.

Like Shopkick, LooptStar has teamed up with other companies, such as the Gap, to provide exclusive discounts to customers. LooptStar is available only for the iPhone at this time, but the company plans to expand to the Android platform.

### Privacy Concerns

The main drawback of these apps is the threat to privacy: They essentially broadcast your location and shopping habits to others on the app network or to your Facebook or Twitter feed. You can turn off the sharing feature in your account settings, but you can't score deals without sharing your location within the app. Before you shop, look at your account settings to know who can see your check-ins. These apps can let you score some exclusive deals, but be aware of how much personal information you might be sharing.





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# Consumer Watch

## ON YOUR SIDE

MARLA MIYASHIRO



I HAVE BEEN an AT&T customer for over five years and have used or upgraded the company's services much more than the average person. My wife and I moved to northwest Arkansas and discovered that the cell phone service in our area is very poor. I've contacted AT&T many times, and the company says that it is unable to guarantee service in any location. I realize that AT&T didn't ask me to move to an area that had poor service, but you would think they could give me, a good customer, some consideration when I have a problem. I'd like to switch carriers, but I'm stuck in a contract. Is there anything you can do?

*Brian Allen, Eureka Springs, Arkansas*

**OYS responds:** After we contacted AT&T about Allen's problem, a company representative called Allen and offered to waive the early-termination fee (ETF), the charge (usually steep) that AT&T and other carriers apply when customers cancel their cell phone service before their contract expires. Allen accepted the company's offer and saved \$190.

Early-termination fees vary, and even prorated fees can be high. For example, a new Verizon customer with a smartphone and a two-year contract would still have to pay an ETF of \$120 after 23 months of service. Before signing up with a carrier, do some research on cell phone coverage in your area (simply enter "cell phone coverage maps" in a search engine) and read the contract carefully.

We found one carrier, Credo Mobile ([credomobile.com](http://credomobile.com)), that will give you a credit covering the cost of the ETF from your previous carrier if you switch.

### Rejected Rebate Request

James Greenlee of Glendale, Arizona, contacted us when he had trouble getting a rebate. Greenlee bought an Adobe Photoshop bundle from Fry's Electronics; it was eligible for a \$30 rebate. He submitted his rebate request to Adobe, including all the necessary information and the proof-of-purchase tab off the product box. Adobe rejected his request. The problem? Advised by Fry's, Greenlee had used a rebate form he downloaded from Fry's Website. Adobe didn't consider this form to be valid even though, according to Greenlee, it looked identical to the form that was provided in the box.



We attempted to contact Adobe about Greenlee's issue but didn't receive a direct response. Shortly afterward, however, the company got in touch with Greenlee and sent him his \$30.

When trying to get a rebate, submit the official request form from the manufacturer if possible. Also, make copies of anything you send in so that you'll have the required documentation should you need to submit your request again.

### Tekkeon Laptop Battery Recall

Tekkeon, in cooperation with the U.S. Consumer Product Safety Commission, has recalled about 500 MyPower All Plus external rechargeable batteries used to power portable devices (specifically battery models MP3450, MP3450i, and MP3750). The battery cell can short-circuit and overheat, posing a fire hazard. Consumers should immediately stop using the recalled batteries and contact Tekkeon to obtain a free replacement. For more information, call Tekkeon toll-free at 888/787-5888 or visit the company's Website at [www.tekkeon.com/recall](http://www.tekkeon.com/recall). ●



# A COMPLETE GUIDE TO WEBROOT'S NEW FEATURES, AND AN ALL-NATURAL SLEEP AID.

Webroot® Internet Security Complete is the first security solution designed to protect the individual, not just the computer. Webroot utilizes a hybrid desktop/Web-based model and multilayered, best-of-breed technologies to ensure your personal information is secure, no matter where or how you go online. It begins with protecting your passwords. With AES-encrypted passwords transmitted over 256-bit SSL, the Password Manager tracks hundreds of different passwords, license keys, and registration codes. Webroot also generates unique, hacker-proof passwords that securely and easily log you in from anywhere. Your credit card and bank account numbers can be encrypted and filled in for you, preventing keyloggers and phishers. Next, Webroot Internet Security Complete protects all that digital data you couldn't bear to lose. Secure Online Storage lets you back up critical documents to the cloud, so even if your computer dies, your financial records won't be lost. Your files are securely transferred using SSL encryption, and stored in an encrypted format using 128-bit AES — the same level of protection used by major financial institutions. Two geo-redundant, carrier-grade data centers store an encrypted copy of your data in case of a major disaster. Webroot Internet Security Complete includes 10GB of online storage, but the true advantage is what you get beyond mere file storage. For example, let's say you need to work on a file that you left at the office. You can securely access it online, and all changes will be automatically synchronized. You can even share the file with colleagues using Secure Online Storage. Okay, now let's talk about Webroot's malware protection. *PC Magazine* named Webroot AntiVirus with Spy Sweeper® their 2010 Editors' Choice — for the tenth time. Not to mention the dozens of accolades and certifications from West Coast Labs, ICSA, Top Ten Reviews, Virus Bulletin, and other experts. Webroot Spy Sweeper and antivirus technologies are integrated into Webroot Internet Security Complete to deliver the best malware protection on the market. More than a dozen shields prevent malicious files from harming your computer, and the engine can clean even a badly infected system. The direct disk scanning component detects Windows rootkits, even when Windows itself has no idea they're installed. Which is probably why Webroot earned the highest score yet from PCMag.com for removing commercial keyloggers. During scans, the engine checks all processes running in memory first and terminates any malicious files immediately. The Startup Items Shield alerts you if any program — malicious or not — adds a reference to itself, and lets you choose whether you want to prevent it from loading at boot time. The Execution Shield checks any file against Webroot's database of known malware as soon as you double-click it. If the file is malicious, the engine automatically quarantines it before it can do any damage. IE Hijack Shield prevents Trojans from changing your homepage. The Communications Shield checks all DNS lookups against a list of websites known to host malware or domain names used for command-and-control of botnets, and black holes any site even before a browser can load the page, or before a running piece of malware can retrieve its payloads. If a malicious program tries to bypass this protection by changing the Hosts file, the Hosts File Shield will stop it dead in its tracks. The Email Attachments Shield scans your POP3 mail as it downloads. An advanced spam-scanning engine automatically analyzes your incoming email and filters out spam and email scams. The File System Shield scans files as they are written to the hard drive; preventing Trojan horses. The registry scan finds and disables malware based on the characteristic changes a particular file makes to the Windows Registry. Additionally, Webroot's Threat Research team tracks and updates detections for hundreds of commercial keylogging programs. Malware that loads itself using an Alternate Data Stream will be thwarted by the ADS Shield. In this latest version, the anti-malware engine has been rewritten from the ground up. It works faster, using fewer resources, so you can work simultaneously. The engine's heuristic detection algorithms identify unknown malware based on known characteristics of malicious files. Webroot maintains a record of every file it has checked and only searches new files on subsequent scans. ActiveX Shield and BHO Shield prevent malware from hooking the browser using two commonly exploited plug-in architectures. Online, Webroot tracks hundreds of thousands of websites and warns you about visiting any known to steal passwords, host malware, or engage in drive-by downloads. Search engine results show a security rating next to each search result. A two-way firewall monitors traffic traveling into and out of your computer ports, denying access to hackers or intruders. Webroot Internet Security Complete also includes an award-winning system cleaner that removes Internet traces such as your online history, address bar history, cache, cookies, and more. It can also permanently delete sensitive files and folders, making them completely unrecoverable. If you think all this sounds complex, you're only half right. While the work Webroot does behind the scenes is extraordinarily complex, the experience from your seat is simple. All this technology is seamlessly integrated in one product, wrapped up with a streamlined, user-friendly interface, and includes a multitude of convenient features like idle-time scanning, one-click malware removal, color-coded security alerts, automatic threat updates, Gamer Mode, and even a Magic Briefcase. Finally, personal security can be effective yet truly hassle-free.

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# Business Center

## How to Set Up a Virtualization Server

BY PAUL VENEZIA

BY USING A single physical server to run many virtual servers, you can decrease operational costs and get far more bang for your buck. The best part? You can do it cheaply and easily.

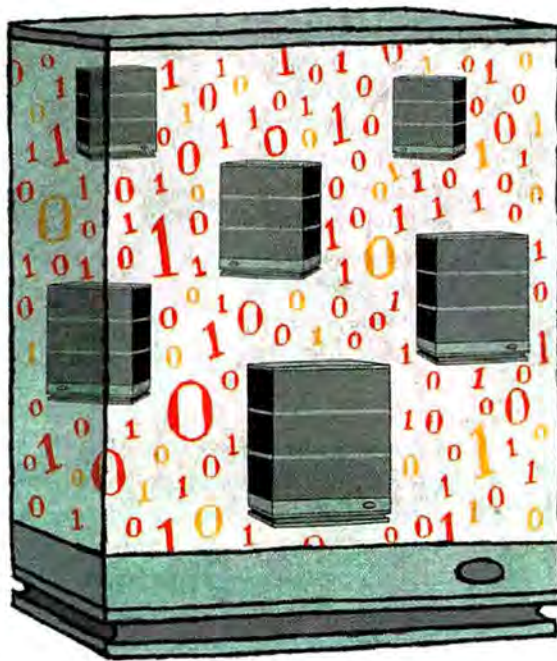
It's impossible to buy a server today that isn't multicore, but many small-business requirements don't call for that much horsepower. The end result is a relatively expensive physical server that does little but consumes power and generates heat. That's why using a multicore server—one with 4, 6, or 12 processing cores on a single CPU—to host several virtual servers makes sense, no matter what size your company is.

### Choosing a Host

The key to successfully virtualizing servers in a smaller environment starts with the physical host server. Though it will be responsible for hosting possibly dozens of virtual servers, it will require far fewer CPU resources than you may think.

Depending on the virtualization software (aka the *hypervisor*) that you use, you will likely be able to run a surprising number of virtual servers on a four- or six-core CPU. The reason for this is that generally most servers run near idle a large portion of the time. When they are tasked with work, their resources tend to be spread out among the CPU, RAM, disk, and network input/output, with only a subset of the virtual servers requiring significant CPU resources. By taking advantage of this law of averages, you can consolidate multiple physical servers onto a single host server.

Virtualizing simplifies administration and reduces costs. Here's what to look for in a host server and in virtualization software.



That isn't a hard-and-fast rule, however. Some servers, such as database servers, run heavier loads more consistently, and may not be suitable candidates for virtualization in a smaller infrastructure. It all depends on the hardware resources available to the host server, on the virtualization software fea-

tures, and on the requirements of the virtual server. Fortunately, setting up and testing these requirements beforehand isn't difficult.

In choosing the hardware, a good rule of thumb is that having more cores in the host server trumps having higher clock speeds; if your choice is between, say, a 4-core CPU running at 2.93GHz and a 6- or 12-core CPU running at 2.4GHz, you'll be better off with the latter. The capability to spread the virtual-server load across more CPU cores typically translates into faster, more consistent performance across all the virtual machines.

Virtualization hosts can always use more RAM, so be sure to get as much as you can, and to select the fastest type available. It is relatively straightforward to oversub-

scribe CPU resources—to allocate more virtual CPUs to the virtual servers than physically exist within the host server—but it's far more difficult to oversubscribe RAM. The more RAM you have, the more virtual machines you can run.

In smaller environments you may not have a storage area network or a network-attached storage device to hold the virtual server images, so the host server will be responsible for the task. In that case, more disks are better, within reason.

For general purposes, SATA drives in a RAID 5 or RAID 6 >>

Though virtualization can help to reduce data centers' power and cooling demands, industry experts are looking for other ways to accommodate IT needs. Read more at [find.pcworld.com/70455](http://find.pcworld.com/70455).



array will suffice, although SAS (Serial Attached SCSI) drives will always provide increased performance.

## Virtualization Software

As for the software, you have some free choices. The free VMware Server runs atop Windows or Linux. It isn't a "bare-metal" hypervisor in that it relies on the underlying OS to provide key requirements for operation. It isn't as fast or as fluid as other types of hypervisor, but it is usually easy to install and use. For a completely cost-free approach, consider installing Linux on the server and running the Linux version of VMware Server. Otherwise, installing a licensed copy of Windows Server 2003 or 2008 and running the Windows version of VMware Server is an alternative.

VMware also has a free, bare-metal hypervisor, VMware ESXi. It's built on the same baseline as VMware's larger, expensive offerings and provides stable and responsive virtualization, but it has some constraints as to the hardware it can run on; check hardware compatibility at [find.pcworld.com/70448](http://find.pcworld.com/70448).

Microsoft's Hyper-V may be a good fit for Windows-oriented networks. Technically it isn't free, as it requires purchasing Windows Server 2008 R2, but it has a simple interface and is well integrated into the OS. If the virtual servers that will run on the host are Windows Server 2008 as well, you may find the licensing attractive. Buying one copy of Windows Server 2008 R2 permits the running of up to four virtual Windows Server 2008 servers, for the price of a single license.

You'll also find other options, such as Citrix's XenServer. The free version has features that may not be in VMware's free offerings, such as multiserver management. XenServer isn't as mainstream as the others, but it can be downloaded and installed for free, and it does not need an underlying OS or OS license.

For more, including a discussion of your server's network interfaces and power supply, see the expanded version of this article at [find.pcworld.com/70447](http://find.pcworld.com/70447).

## NET WORK TONY BRADLEY



### Four Ways IPv6 Will Save the Internet

THE WORLD IS almost out of IP addresses—or, at least, it's almost out

of the IPv4 addresses that IT administrators and users are most familiar with. Fortunately, to address issues with the IPv4 protocol and to add features to improve the protocol for the future, the Internet Engineering Task Force (IETF) introduced IPv6 (Internet Protocol version 6), which exponentially expands the pool of available IP addresses while also providing other benefits. Here are a few ways in which IPv6 will come to the rescue and save the Internet. (For more on how to prepare your business for IPv6, see September's *Business Center* or go to [find.pcworld.com/70407](http://find.pcworld.com/70407).)

As the IPv4 address supply dwindles, the world needs to embrace IPv6.



#### Benefits of IPv6

**1. More addresses:** Rather than the current 32-bit addresses, IPv6 uses 128-bit addresses, allowing for an exponential increase in the number of IP addresses available. Network routing experts have been aware of the limitations of IPv4 addressing since the 1980s—before most of the world knew the Internet existed, and before the Web became ubiquitous.

IPv4 allows for about 4.3 billion IP addresses. But since every Web-connected device—servers, desktops, laptops, smartphones, tablet PCs, and more—must have an IP address, and since the Web has exploded in countries such as China and India, the world is rapidly consuming the available pool of IPv4 addresses.

With 128 bits to use for creating unique addresses, IPv6 is capable of an insane number of addresses that far exceeds the demands of today's Internet- and Web-connected devices. IPv6 provides enough IP addresses that every single person on the planet could have billions upon bil-

lions assigned to them personally.

**2. Backward-compatibility:** IPv6 is backward-compatible with IPv4, so different networks or hardware manufacturers can upgrade at different times without disrupting the current flow of data on the Internet. Given the world's dependence on the Net for news, com-

merce, public safety, national security, and more, this is an important feature of IPv6.

Eventually all IPv4 equipment will be replaced by attrition, and IPv6 will be the only address protocol in use. That transition could take decades.

however, so backward-compatibility will be crucial for the foreseeable future.

**3. Better security:** IPv6 was designed with encryption and authentication in mind. IPsec, an optional security component of IPv4, is mandatory in IPv6. With IPsec, each individual data packet is encrypted and authenticated, making many of the malicious attacks plaguing the Internet today impossible—or at least substantially more difficult.

**4. Better performance:** The creators of IPv6 have made changes to the way IP packets and headers are formed, and to the way IPv6 routers process the packets to improve performance—resulting in fewer missed or dropped packets, as well as more-reliable and more-efficient connections. With more people and devices sharing the Internet, and with demands for VoIP (Voice over IP) and video streaming on the rise, performance will be absolutely critical.

The IPv4 address crunch, in the making for more than two decades, is becoming very real. Expect to see a spike in IPv6 adoption in the near future.



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## TECH AUDIT ELSA WENZEL

### Save Serious Money by Conducting a Business Energy Audit

CUTTING ENERGY WASTE can bring a big payoff to a small company. An energy audit outlines the energy demands that matter to your operations—as well as those you can do without—and it can lead to skinny electricity bills and fat tax breaks.

"We all have incentives to manage our utility bill, but many people don't try because they don't know how," says Geoff Overland, who runs IT and data-center programs for Wisconsin's statewide Focus on Energy program. "By efficiently managing our energy, we have an immediate impact on our bottom line."

If your headquarters is at home or in a similarly small space, free online tools for residential audits will walk you through the process. Utility companies, Energy Star and similar programs, and groups such as the Residential Energy Services Network ([www.resnet.us/standards](http://www.resnet.us/standards)) offer checklists and online calculators.

Pacific Gas & Electric on the West Coast, Duke Energy in the South, and other utility companies also provide Web-based audit tools for small businesses operating in spaces ranging from an apartment complex to a small warehouse. If your business has multiple locations, dozens of employees, or specialized needs, seek a professional auditor through your local utility.

A comprehensive energy-audit checklist takes into account the structure of the workplace, the lighting, and all machines, from the boiler room to the workstations. The Federal Energy Management Program checklist ([find.pcworld.com/70408](http://find.pcworld.com/70408)) should suffice for performing an in-house audit at a small company.

#### Put Your Electronics on an Energy Diet

Electronics account for one-fifth of home energy use, according to government studies, but no hard-and-fast figure exists for small businesses. The more your company relies on hardware, the more energy it tends to use. "The IT workload is growing almost as fast, if not faster, than any other workload in the U.S.," Overland says.

Devices such as the Watts Up ([find.pcworld.com/70409](http://find.pcworld.com/70409)) or the Kill-a-Watt ([find.pcworld.com/70410](http://find.pcworld.com/70410)), which measure how much each gadget and appliance costs in watts and dollars, are priced around \$100; Belkin's Conserve line ([find.pcworld.com/70411](http://find.pcworld.com/70411)) is affordable, too. Some utility companies will lend watt meters to small businesses for free.

Studies show that, in a home, electronics waste up to one-fifth of their energy consumption on standby power, plugged in but not in use—an easy opportunity for savings. (For more about power strips and chargers that can curb energy "vampires," see page 14.) A typical PC can use 500 kilowatt-hours of electricity or more per year, Overland says. If you pay 8 cents per kilowatt-hour, that's \$40 per year. Multiply that by two or three if you leave the PC on at night.

Take a minute to crank up each PC's power-saving settings. In

Whether your business is based at home or in a high-rise, plugging energy leaks can lower costs.



THE WINDOWS 7 OS features updated power-saving settings.

Windows 7's Control Panel, choose *Power Options* and pick *Power saver* to turn off a display after 5 minutes of inactivity and then put the PC to sleep after 15 minutes (or even 5 minutes). Advanced options give more controls, such as setting a laptop to sleep when you close its lid. Apple Mac OS X Snow Leopard has similar options on the Energy Saver pane under System Preferences.

Switching out old gear, such as CRTs for flat-screen LCDs, may cost more up front but can bring long-term savings. Look for the Energy Star label. In addition, EPEAT ratings of energy and environmental design rank desktops, displays, thin clients, and laptops.

Businesses that have large storage needs or run a data center have additional energy concerns. For them, virtualization (see page 29) is a blessing. To optimize a data center for efficiency, you should consolidate equipment, establish proper airflow management, improve power distribution, and use efficient power supplies and protocol data units (PDUs).

#### Energy and Money Saved

A business renting 2000 square feet of office space in San Francisco could save \$1360 a year by optimizing its electronic devices' power settings, buying Energy Star equipment, and using fluorescent lighting, according to PG&E's SmartEnergy Analyzer. Commercial-building owners can enjoy federal tax breaks of \$1.80 per square foot if they halve their yearly energy costs.

Some states offer other efficiency incentives and rebates.

If you're an IT consultant serving small to midsize businesses, and you'd like to learn how you can contribute to Tech Audit, e-mail [techaudit@pcworld.com](mailto:techaudit@pcworld.com). For more advice, read the Tech Audit blog ([find.pcworld.com/64147](http://find.pcworld.com/64147)) and follow us on Twitter (@TechAudit). ●



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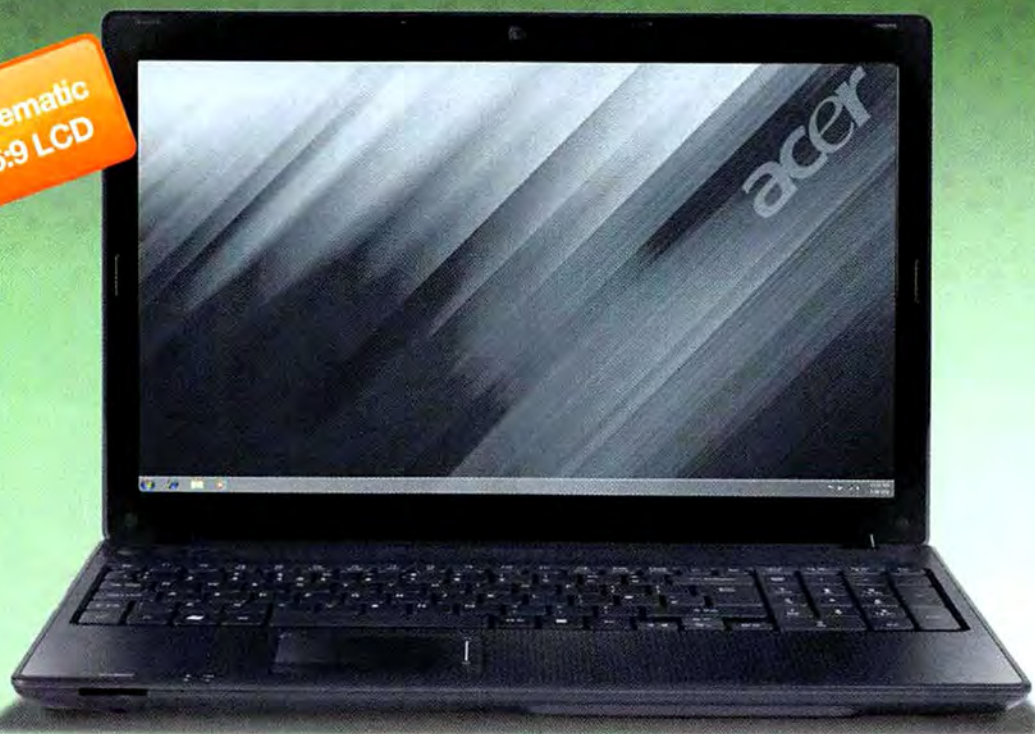
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- Genuine Windows® 7 Home Premium
  - Intel® Pentium® Processor P6100
  - 3GB DDR3 SDRAM
  - 320GB<sup>1</sup> hard drive
- AS5742Z-4601 (LX.R4P02.001)

\$529

### Acer Aspire 5742

- Genuine Windows® 7 Home Premium
  - Intel® Pentium® Processor P6100
  - 2GB DDR3 SDRAM
  - 250GB<sup>1</sup> hard drive
- AS5742Z-4200 (LX.R4P02.002)

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## Acer® TravelMate® 8572

- Genuine Windows® 7 Professional
- Downgrade right to Windows® XP Professional<sup>3</sup>
- 15.6" display, 1366 x 768 resolution
- 4GB DDR3 SDRAM
- Integrated Super-Multi drive
- 5-in-1 card reader
- 802.11b/g/n WLAN, Bluetooth®, gigabit LAN, V.92 modem
- Integrated webcam
- Fingerprint reader
- Optional port replicator available
- One-year limited warranty<sup>2</sup>

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BUY



### Acer TravelMate 8572

- Genuine Windows® 7 Professional
- Intel® Core™ i7-620M Processor
- 500GB<sup>1</sup> hard drive

TM8572-6779 (LX.TW603.021)

\$999

### Acer TravelMate 8572

- Genuine Windows® 7 Professional
- Intel® Core™ i5-520M Processor
- 320GB<sup>1</sup> hard drive

TM8572-6592 (LX.TW603.022)

\$899

## Acer GD235HZ bid

- 23.6" wide TFT LCD
- 3D ready<sup>4</sup>
- 1920 x 1080 maximum resolution
- 80000:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, DVI, HDMI™ (HDCP) signal connectors
- 300 cd/m<sup>2</sup> brightness
- 2ms gray-to-gray response time
- Tilt adjustment
- Three-year limited warranty<sup>2</sup> (ET.UG5HP.001)

\$399





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Acer recommends Windows 7.

## Acer® Aspire® One D255

- Genuine Windows® 7 Starter or Genuine Windows® XP Home Edition
- 10.1" display, 1024 x 600 resolution
- 1GB DDR3 SDRAM
- 160GB¹ hard drive
- Multi-in-one card reader
- 802.11b/g/n WLAN, 10/100 LAN
- Integrated webcam
- Up to eight hours battery life⁵
- One-year limited warranty²

### Acer Aspire One D255

- Genuine Windows® 7 Starter
  - Intel® Atom™ Processor N450
- AOD255-2520 (LU.SDE0D.126)

\$315

### Acer Aspire One D255

- Genuine Windows® XP Home Edition
  - Intel® Atom™ Processor N450
- AOD255-2333 (LU.SDE0B.095)

\$289

LED  
Backlight





## Acer® Aspire® 5553

- Genuine Windows® 7 Home Premium
- Acer CineCrystal 15.0" display, 1366 x 768 resolution
- 4GB DDR3 SDRAM
- 320GB<sup>1</sup> hard drive
- Integrated Super-Multi drive
- 5-in-1 card reader
- 802.11b/g/n WLAN, gigabit LAN
- Integrated webcam
- One-year limited warranty<sup>2</sup>

Portable  
Theater



### Acer Aspire 5553

- Genuine Windows® 7 Home Premium
- AMD Turion™ II Dual-Core Mobile Processor P540 AS5553G-5881 (LX.PUA02.071)

\$649

### Acer D240H bmidp

- 24" wide TFT LCD
- Digital photo-frame function
- 1920 x 1080 maximum resolution
- 80000:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP), HDMI™, USB signal connectors
- 300 cd/m<sup>2</sup> brightness
- 2ms gray-to-gray response time
- Two 2.0W integrated speakers
- 1GB<sup>1</sup> storage
- CompactFlash®, Secure Digital card reader
- Tilt adjustment
- Three-year limited warranty<sup>2</sup> (ET.FD0HP.001)



\$325

### Acer B243HL bmdrz

- 24" wide TFT LCD
- White LED backlight
- 1920 x 1080 maximum resolution
- 8,000,000:1 dynamic contrast ratio
- 170°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP), four USB signal connectors
- 250 cd/m<sup>2</sup> brightness
- 5ms response time
- Two 2.0W integrated speakers
- Height, pivot, tilt and swivel adjustments
- Three-year limited warranty<sup>2</sup> (ET.FB3LP.002)



\$299



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**Acer recommends Windows 7.**

## Acer® Aspire® easyStore H340

- Genuine Windows® Home Server
- 2GB DDR2 SDRAM
- 256MB flash ROM
- Gigabit LAN
- McAfee® Total Protection Service (six-month trial)
- One-year limited warranty<sup>2</sup>

### Acer Aspire easyStore H340

- Genuine Windows® Home Server
  - Intel® Atom™ Processor 230
  - 2TB<sup>1</sup> SATA hard drive
- AH340-U2T1H (PG.T170W.022)

**\$450**



### Acer Aspire easyStore H340

- Genuine Windows® Home Server
  - Intel® Atom™ Processor 230
  - 1TB<sup>1</sup> SATA hard drive
- AH340-UA230N (PG.T170W.007)

**\$350**

## Acer S243HL bmii

- 24" wide TFT LCD
  - White LED backlight
  - 1920 x 1080 maximum resolution
  - 8,000,000:1 dynamic contrast ratio
  - 170°/160° horizontal/vertical viewing angles
  - VGA, two HDMI™ (HDCP) signal connectors
  - 250 cd/m<sup>2</sup> brightness
  - 2ms gray-to-gray response time
  - One 2.0W integrated speaker
  - Tilt adjustment
  - Three-year limited warranty<sup>2</sup>
- (ET.FS3LP.001)



**\$279**

## Acer P5271

- DLP® 3D-ready professional projector<sup>4</sup>
  - XGA (1024 x 768) native resolution
  - 4,000-hour lamp life (economy mode)
  - 3100 ANSI lumens (standard mode)
  - 3000:1 contrast ratio
  - 2X digital zoom
  - One-year limited warranty<sup>2</sup>
- (EY.J8701.008)



**\$849**



## Acer® Veriton® X498G

- Genuine Windows® 7 Professional
- Downgrade right to Windows® XP Professional<sup>3</sup>
- Super-Multi drive
- Gigabit LAN
- PS/2®-style keyboard and optical mouse
- 4.0" W x 15.6" D x 10.5" H
- Three-year limited warranty<sup>2</sup> with limited on-site service during first year<sup>6</sup>

### Acer Veriton X498G

- Genuine Windows® 7 Professional
  - Intel® Core™ i5-650 Processor
  - 4GB DDR3 SDRAM
  - 500GB<sup>1</sup> SATA hard drive
- VX498G-Ui5650C (PS.VAW03.002)

\$699

### Acer Veriton X498G

- Genuine Windows® 7 Professional
  - Intel® Core™ i3-540 Processor
  - 2GB DDR3 SDRAM
  - 320GB<sup>1</sup> SATA hard drive
- VX498G-Ui3540C (PS.VAW03.001)

\$599



## Acer T230H bmidh

- 23" wide TFT LCD
- Touch-screen capable<sup>7</sup>
- 1920 x 1080 maximum resolution
- 80000:1 dynamic contrast ratio
- 160°/160° horizontal/vertical viewing angles
- VGA, DVI (HDCP), HDMI™ signal connectors
- 300 cd/m<sup>2</sup> brightness
- 2ms gray-to-gray response time
- One 1.5W integrated speaker
- Height, tilt and swivel adjustments
- Three-year limited warranty<sup>2</sup> (ET.VT0HP.001)

\$349





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Acer recommends Windows 7.

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# TravelMate

## TIMELINE

### TRAVELMATE TIMELINE

#### WORK SMARTER, TRAVEL LIGHTER

#### Acer® TravelMate® 8172

- Genuine Windows® 7 Professional
- Downgrade right to Windows® XP Professional<sup>3</sup>
- 11.6" display, 1366 x 768 resolution
- 2GB DDR3 SDRAM, upgradeable to 4GB
- 250GB<sup>1</sup> hard drive
- 5-in-1 card reader
- 802.11b/g/n WLAN, Bluetooth®
- gigabit LAN
- Integrated webcam
- Fingerprint reader
- Up to eight hours battery life<sup>5</sup>
- Optional port replicator available
- One-year limited warranty<sup>2</sup>

GENIUS  
BUY

UltraThin

#### Acer TravelMate 8172

- Genuine Windows® 7 Professional
- Intel® Core™ i3-330UM Processor  
TM8172T-3519 (LX.TWN03.006)

\$649



### Protect Your Investment with an Acer Notebook Service Upgrade

The Acer notebooks and netbooks featured in this insert come with a one-year standard limited warranty.<sup>2</sup> For extra protection and peace of mind, consider the Total Protection Upgrade, which covers the cost of a replacement unit if, as determined by Acer, your covered notebook or netbook cannot be repaired. On-site service is available, too, for TravelMate notebooks.<sup>6</sup>

**2-Year Extension of Limited Warranty (146.AB820.EX2)**  
For Acer Notebooks and Netbooks with 1-Year Limited Warranty  
\$99

**2-Year Extension of Limited Warranty + 3-Year Total Protection Upgrade (146.AD077.002)**  
for Acer Notebooks and Netbooks with 1-Year Limited Warranty (Total Protection Upgrade runs concurrently with limited warranty and limited warranty extension.)  
\$199

**2-Year Extension of Limited Warranty + 3-Year Limited On-Site Service (146.AD362.001)**  
for TravelMate Notebooks with 1-Year Limited Warranty (On-site service runs concurrently with limited warranty and limited warranty extension.)  
\$149

**2-Year Extension of Limited Warranty + 3-Year Limited On-Site Service + 3-Year Total Protection Upgrade (146.AD362.002)**  
for TravelMate Notebooks with 1-Year Limited Warranty (On-site service and Total Protection Upgrade run concurrently with limited warranty and limited warranty extension.)  
\$299

<sup>1</sup> When referring to storage capacity, TB stands for a thousand gigabytes and GB for one billion bytes. Some utilities may indicate varying storage capacities. Total user-accessible capacity may vary depending on operating environments.

<sup>2</sup> 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 76703.

<sup>3</sup> The alternate operating system can be installed in place of, not in addition to, the pre-loaded operating system.

<sup>4</sup> 3D content, 3D glasses and an appropriately equipped PC are also required to display 3D images.

<sup>5</sup> Depending on model configuration. Actual battery life varies by usage, settings, and operating conditions.

<sup>6</sup> On-site service applies to the continental U.S. and Canada only and may not be available in all locations. In those areas where on-site service is provided, a technician will be dispatched, if necessary, following efforts to resolve the problem by telephone support.

<sup>7</sup> Touch-screen capability requires appropriate software installed on the PC connected to the display. This software does not come with the display.

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# Security Alert

## Do Identity-Theft Protection Services Work?

BY NICK MEDIATI

TODD DAVIS, CEO of identity-theft protection company LifeLock, used his own Social Security number in his business's ads as a sign of his confidence in the service. In May, it was widely reported that Davis's identity had been stolen at least 13 times. The controversy over LifeLock's advertising ultimately cost the company \$12 million in fines.

Are online identity-protection services worthwhile? Can you trust them? Do more-effective alternatives exist? We did some digging to find out.

### Losing Your Identity

You can make it harder for crooks to steal your identity by watching for phishing tactics, running antimalware utilities, and shredding documents.

One thing you can't prevent is a data breach against a company (a bank, say) you do business with. The Identity Theft Resource Center says 498 such breaches occurred in 2009. Criminals sell personal information harvested from data breaches to other crooks on online black markets; the buyers then use the stolen identity for anything from opening bank or credit card accounts to seeking medical care in your name.

To make matters worse, laws requiring companies to disclose data breaches are spotty: Some states have tough reporting laws, but no national standard exists. You could do everything right and still have your identity stolen. No wonder there's a market for identity-theft protection services.

Identity-theft protection services typically monitor your credit or public records for any suspicious charges, or offer

other identity-theft safeguards, for a monthly fee. They may also help clean up the mess that identity theft leaves in its wake, and assist in rebuilding your credit. Many banks supply some identity-theft protection to their customers, as well.

If you decide to sign up for identity-theft protection, weigh your options carefully. Find out what each company provides, and evaluate whether its services fit your needs.

According to Privacy Rights Clearinghouse, identity-theft

protection services don't monitor Social Security number fraud (a point of contention with the LifeLock advertising), debit/check card fraud, criminal identity fraud (where a criminal assumes your identity when arrested), medical fraud, or prior instances of identity theft. As Paul Stephens, director of policy and advocacy at Privacy Rights Clearinghouse, notes, these crimes "are more difficult to recover from than financial identity theft."

### What to Look For

Privacy Rights Clearinghouse maintains a list of services ([find.pcworld.com/70500](http://find.pcworld.com/70500)) that you should check for in an ID-theft protection service. Learn what credit-monitoring services the company provides (which credit

bureaus it gets reports from, how often it obtains reports, how much access you have to your reports and scores), whether the company provides services you can't perform yourself or get elsewhere, and what extra services and insurance it offers.

Do the services do more than monitor your credit? If so, "then maybe they're worth some value," says Jay Foley, executive director of the Identity Theft Resource Center.

As for reputation, Foley advises consumers to check on- ➤

Here's what you should know about identity-theft protection services—and alternative options—before you decide to sign up for one.



Should you be concerned about the security of open-source software? We have the answer at [find.pcworld.com/70480](http://find.pcworld.com/70480). Also, find out how to keep your Android smartphone secure, at [find.pcworld.com/70481](http://find.pcworld.com/70481).



line for complaints filed against a company with the Federal Trade Commission. The Better Business Bureau tracks problems that people have had with a given company, and any action the government has taken against the company.

Identity-theft protection companies do little that you couldn't do yourself for free, says Foley, but they help you avoid some legwork. Keeping tabs on your identity yourself can be a time-consuming, labor-intensive process.

## DIY Identity Protection

As the FTC notes, you can shield yourself from identity theft in a number of ways without paying for a service.

First, pay attention to your bank and credit card statements. Scrutinize the charges, and call your bank or credit card provider about suspicious items.

Be sure to get a credit report from each of the three major credit bureaus every year. Doing so is free at [AnnualCreditReport.com](http://AnnualCreditReport.com). If you think your identity has been stolen, placing a fraud alert on your credit report may deter the thieves from opening credit card accounts in your name. A regular fraud alert persists for 90 days; an extended fraud alert lasts for seven years. If your credit has been compromised, you can put a freeze on your report to "lock" it.

Many financial institutions offer credit-monitoring services that are more cost-effective than using an ID-theft protection service, Stephens notes.

One proactive measure is to use virtual credit card numbers—one-time-use numbers that you enter in place of your actual credit card information—for on-line payments. Many banks offer such numbers, which are useless to thieves. For more, see [find.pcworld.com/70403](http://find.pcworld.com/70403).

Beyond credit reporting, watch for medical benefits payouts for treatments you haven't received, as well as for phone or utility accounts you haven't opened; the FTC advises filing a police report in such a case. The FTC's identity-theft microsite ([find.pcworld.com/70404](http://find.pcworld.com/70404)) has additional information on how to avoid or recover from identity theft.

## BUGS & FIXES

JAMES MULROY

### Microsoft, Mozilla, Apple in a Patch Parade

THIS MONTH, Windows and Office got off fairly lightly with just 4 patches,

compared to last month's whopping 34. Mozilla didn't fare as well, issuing fixes for 15 security bugs in its products.

Holes plugged in Windows and Firefox. Plus: Apple fixes an iPhone weakness.

#### Microsoft Corrections

The July edition of Microsoft's Patch Tuesday fixes includes four new security updates, three of which are rated Critical and one of which is rated Important.

The first two updates address vulnerabilities in Microsoft Windows. The MS10-042 patch ([find.pcworld.com/70465](http://find.pcworld.com/70465)) corrects a weakness in the Windows Help and Support Center feature in supported editions of Windows XP and Windows Server 2003 that might allow an attacker to gain control of your PC if you click on a specially crafted link. The fix is rated Critical for all supported editions of Windows XP, and is rated Low for all supported editions of Windows Server 2003.

The second Windows patch, MS10-043 ([find.pcworld.com/70464](http://find.pcworld.com/70464)), seals a hole in the Canonical Display Driver (cdd.dll—the generic display driver for Windows) in 64-bit editions of Windows 7 and Windows Server 2008 R2. An attacker could use the hole to hack your system, maybe gaining control or (more likely) causing the computer to crash. The fix is rated Critical for x64-based editions of Windows 7 and Important for Windows Server 2008 R2.

MS10-044 ([find.pcworld.com/70466](http://find.pcworld.com/70466)) corrects a flaw in ActiveX controls that might allow an attacker to remotely run code on your PC (and commandeer your system so that they can do whatever they want with it) if you open a specially crafted Office file. This bug is considered Critical for Access 2003 Service Pack 3

and for Office 2007 Service Packs 1 and 2.

The final security update for the month, MS10-045 ([find.pcworld.com/70467](http://find.pcworld.com/70467)), is rated Important for Outlook 2002, 2003, and 2007. This vulnerability could allow cybercrooks to run code on your PC if you open a tainted attachment.

As usual, you should use Windows Update to install these updates as soon as possible. To learn more about each one—and to download them manually—visit [find.pcworld.com/70468](http://find.pcworld.com/70468).

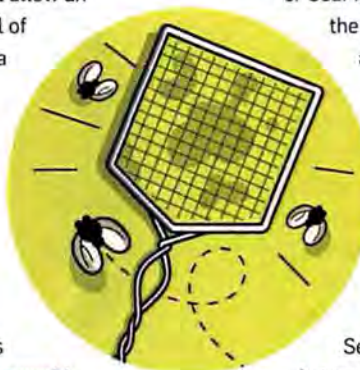
#### Mozilla Advisories

If you use Mozilla Firefox, Thunderbird, or SeaMonkey, be sure to snag the latest version of each, as Mozilla recently patched 15 vulnerabilities affecting these programs. The easiest way to ensure that you are currently running Firefox 3.6.8, Thunderbird 3.1.2, and SeaMonkey 2.0.6 is to use Automatic Updates: Go to **Help** ▶

**Check for Updates**. For additional details from Mozilla about the latest versions, visit [find.pcworld.com/70469](http://find.pcworld.com/70469) (Firefox), [find.pcworld.com/70470](http://find.pcworld.com/70470) (Thunderbird), and [find.pcworld.com/70471](http://find.pcworld.com/70471) (SeaMonkey).

#### iPhone Fixes

Just as we were going to press, Apple released the iOS 4.0.2 and 3.2.2 updates for the iPhone and the iPad, respectively. Both updates fix a vulnerability in the way iOS handled PDF viewing that had allowed hackers to easily "jailbreak" their iPhones and iPads (see page 18). For more on the fixes, visit [find.pcworld.com/70472](http://find.pcworld.com/70472) and [find.pcworld.com/70473](http://find.pcworld.com/70473); and consult [find.pcworld.com/70474](http://find.pcworld.com/70474) for information about the "JailbreakMe" hack.





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WHAT'S *the* BUSINESS PROBLEM?

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FALLING SHORT ON COMPLIANCE

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## Browser 'Privacy Modes' Not So Private After All

A TRIO OF researchers—Gaurav Aggarwal and Dan Boneh of Stanford University, and Colin Jackson of Carnegie Mellon University—have found that private-browsing modes fail to purge all traces of a Net surfer's activities.

Mozilla Firefox's "custom handler protocol," for instance, creates URLs that linger after a user leaves privacy mode.

Firefox, Internet Explorer, and Safari support the use of SSL client certificates. A Website, via JavaScript, can instruct a browser to create an SSL client public/private key pair, which the browser retains even after the privacy session ends. If a site uses a self-signed certificate, IE and Safari will store it locally in a Microsoft certificate vault, where it persists in the aftermath of a privacy session. So anyone who knows where to look for it can find it and have a glimpse of a user's Internet browsing.

IE exposes a user in privacy mode when it initiates SMB requests with a Web server, because SMB connections identify the user to the remote site. The SMB flaw may be negligible, however, because many ISPs filter SMB port 445.

The researchers noted the potential for browser add-ons to undermine privacy modes, since such apps may retain a record of the user's travels afterward.

The bottom line from the trio's research: Don't do anything in privacy mode that you wouldn't do with your boss looking over your shoulder.

—John P. Mello, Jr.

## PRIVACY WATCH ERIK LARKIN



### Privacy and Location in Apple's iOS 4

IOS 4, APPLE'S new operating system for iPhone 3G and above, pays close attention to your location,

in good and maybe not-so-good ways.

First, the good. The iPhone's ability to track your location and share it with installed apps allows for conveniences such as Google Maps-powered directions from your current location to a destination, or a Yelp search for nearby restaurants. But until iOS 4, privacy-minded users who didn't want to share their location data had only one control option in the iPhone settings: all on or all off.

You can still turn off Location Services (as Apple calls them) for all apps in iOS 4's updated controls. Or you can allow or deny access to your location app-by-app; to do so, select **Settings** • **General** • **Location Services**. A small purple arrow will appear next to the On/Off setting of any app that has polled your location in the past 24 hours. (Note that location-aware apps can continue to track your location when running in the background.)

The purple arrow will also appear at the top of the screen (next to the battery indicator) when an app is tracking your location. Both the arrow indicator and the more-granular controls are good moves.

#### Collecting and Sharing

More troubling, Apple has updated its privacy policy ([find.pcworld.com/70451](http://find.pcworld.com/70451)) to state that "to provide location-based services on Apple products, Apple and our partners and licensees may collect, use and share precise location data." The new policy adds that "this location data is collected anonymously in a form that does not personally identify you," but the text prompted a congressional inquiry from

The company's mobile OS is smart and flexible, but some users may find that it keeps track of them a little too well.

Representatives Joe Barton (R-Texas) and Edward J. Markey (D-Massachusetts).

In response, Apple listed the ways it collects location data (see [find.pcworld.com/70452](http://find.pcworld.com/70452)), which include gathering the data along with diagnostic information and pinpointing the location of a phone that's searching for a cell connection if the device has location services turned on.

Apple hasn't said how it ensures that such data can't be traced back to individual iPhone users. As

was made clear in the snafu involving Google's snarfing up Wi-Fi traffic from its Street View cars ([find.pcworld.com/70453](http://find.pcworld.com/70453)), private data can slip through without careful controls.

iAd, Apple's new ad network, can deliver

interest-based ads that might note your recent purchase of a movie on iTunes, or location-aware ads touting deals at nearby stores. To opt out of interest-based ads, head to <https://oo.apple.com> on your iPhone or iPod Touch; unless you disable Location Services completely, though, your phone will send your location to Apple, for conversion into a zip code.

Apple says it doesn't normally share zip codes or other data it captures to deliver mobile ads, but advertisers may request your specific location. If so, you will see an allow/don't allow dialog box.

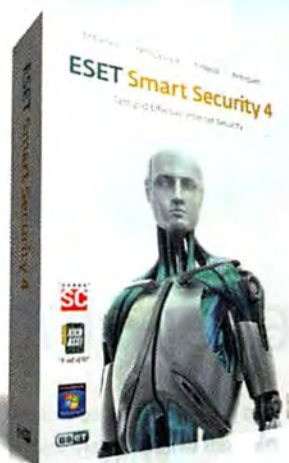
I've argued (at [find.pcworld.com/70454](http://find.pcworld.com/70454)) that properly handled location-based ads aren't necessarily bad, but Apple should be clear about how it safeguards data.

One final word on iOS 4: If you have an iPhone 3G, don't try to install iOS 4 on it. Previously zippy tasks may become dog-slow after upgrading. It's not worth it. ●





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# Reviews & Rankings



## HD Webcams for Videoconferencing

AS BUSINESS videoconferencing has gained popularity, and as video chat clients like Skype and G-chat have become simpler, interest in stand-alone, high-definition Webcams has grown.

I test-drove six HD Webcam models—one each from FaceVision, Freetalk, Genius, and Logitech, and two from Microsoft—comparing their video and sound quality, adjustment settings, and overall video-chat performance with various chat clients. The Genius eFace 2050AF ([find.pcworld.com/70496](http://find.pcworld.com/70496)) lagged behind the rest, but here are my impressions of the other five.

We tested six high-definition Webcams to see which ones make the leap from casual video chat enhancement to practical business tool.

### Logitech HD Pro Webcam C910

The long, sleek, rectangular Logitech HD Pro Webcam C910 (\$100) shoots in full 1080p high def at 30 frames per second and captures 10-megapixel still photos with its Zeiss optics lens.

The C910 has a depth of less than an inch. The unit fits snugly on the top or side of your monitor, and the attached adjustable arm keeps it nicely in place.

If your PC has video-call

software (such as Skype or Logitech Vid) already installed on it, the camera is ready to go as soon as you plug it in via its attached USB cable. The Webcam works nicely with the new Logitech Vid HD service, and it's Skype-certified, too.

Vid HD is more intuitive to use than Skype, with larger video boxes so you can see your chat partner better. Snap a portrait of yourself, search for friends, click the portrait icon of the

**THE TOP-RANKED** Logitech HD Pro Webcam C910 (left) and the FaceVision TouchCam N1 come equipped with dual microphones.

person you want to converse with, and begin chatting.

For HD video chat, you'll need an Internet connection with an upload speed of at least 1 mbps. Minimum requirements for 720p HD video calling and 1080p full HD video recording are Windows XP, a 2.4GHz Intel Core 2 Duo CPU, 2GB of RAM, 200MB of hard-drive space, and a screen resolution of 1280 by 720.

The Logitech Webcam's





**58 ACER ASPIRE**  
TimelineX 1830T



**66 PANDIGITAL NOVEL**



**67 DELL STREAK**



**68 SONY ALPHA NEX-5**

on-screen controls made it easy to zoom in and out and then pan in any direction to focus on specific objects. In my tests, the camera captured motion best when it was zoomed all the way out.

In calls made via Skype and Vid HD, the C910 produced no visible pixelation. In the standard Windows video-shooter program, I saw slight pixelation and a higher sensitivity to changes in light.

The C910 handled changes in light extremely well. The autofocus adjusts to different light settings and provides great color representation, though in my tests the color was sometimes slightly distorted and softer in tone under bright light. The camera stayed in focus during normal seated use, and it adjusted to movements or fast action so subtly that I scarcely noticed it changing.

The dual microphones in the C910 picked up voices and other sounds flawlessly. My video-chat partners reported that my voice sounded loud and clear, even when I stood away from the device.

The C910 also lets you easily upload video to YouTube and Facebook. The Webcam comes with Magix photo- and video-editing tools, so

# PC WORLD TOP 5 HIGH-DEFINITION WEBCAMS

MODEL	Rating	Features and specifications
<b>1</b>  <b>Logitech HD Pro Webcam C910</b> <b>\$100</b> <a href="http://find.pcworld.com/70492">find.pcworld.com/70492</a>	<b>★★★★★</b> <b>SUPERIOR</b>	<ul style="list-style-type: none"> <li>• 1080p resolution</li> <li>• Optimized for Logitech Vid HD chat</li> <li>• Designed for desktop PCs</li> <li>• Frame rate in high definition: 30 fps</li> </ul>
<p>► Logitech's HD Webcam provides crystal-clear, high-quality 1080p video with vivid color and fluid motion capture.</p>		
<b>2</b>  <b>FaceVson TouchCam N1</b> <b>\$120</b> <a href="http://find.pcworld.com/70491">find.pcworld.com/70491</a>	<b>★★★★☆</b> <b>VERY GOOD</b>	<ul style="list-style-type: none"> <li>• 720p resolution</li> <li>• Skype-certified</li> <li>• Designed for desktop PCs</li> <li>• Frame rate in high definition: 22 fps</li> </ul>
<p>► Though the TouchCam N1 HD is a bit hefty, it packs a lot of power into its 720p high-definition video images.</p>		
<b>3</b>  <b>BEST BUY</b> <b>Microsoft LifeCam HD-6000</b> <b>\$80</b> <a href="http://find.pcworld.com/70493">find.pcworld.com/70493</a>	<b>★★★★☆</b> <b>VERY GOOD</b>	<ul style="list-style-type: none"> <li>• 720p resolution</li> <li>• Optimized for Windows Live Messenger chat</li> <li>• Designed for laptops</li> <li>• Frame rate in high definition: 30 fps</li> </ul>
<p>► The Microsoft LifeCam HD-6000 has an extremely smart design, and its software includes an array of extra features.</p>		
<b>4</b>  <b>Microsoft LifeCam HD-5000</b> <b>\$50</b> <a href="http://find.pcworld.com/70494">find.pcworld.com/70494</a>	<b>★★★★☆</b> <b>VERY GOOD</b>	<ul style="list-style-type: none"> <li>• 720p resolution</li> <li>• Optimized for Windows Live Messenger chat</li> <li>• Designed for desktop PCs</li> <li>• Frame rate in high definition: 30 fps</li> </ul>
<p>► The Microsoft LifeCam HD-5000 delivers good-quality high-definition video capture at an excellent price.</p>		
<b>5</b>  <b>Freetalk Everyman HD</b> <b>\$50</b> <a href="http://find.pcworld.com/70495">find.pcworld.com/70495</a>	<b>★★★☆☆</b> <b>GOOD</b>	<ul style="list-style-type: none"> <li>• 720p resolution</li> <li>• Skype-certified</li> <li>• Designed for desktop PCs</li> <li>• Frame rate in high definition: 22.5 fps</li> </ul>
<p>► The compact Everyman HD is good for casual Skype video chatting, but its microphone and autofocus are mediocre.</p>		

CHART NOTES: Ratings are as of 8/9/2010. Frame rates are expressed in frames per second (fps).

once you shoot a video blog, a mini movie, or a message for a friend, you can spruce it up a bit before uploading.

## FaceVson TouchCam N1

The Skype HD-compatible FaceVson TouchCam N1 (\$120) supports 720p high-def video calling at 22 fps and comes with an adaptive H.264 encoder, an autofocus

wide-angle lens, and a dual microphone system.

This slightly bulky, rectangular Webcam measures 3.9 by 1.8 by 2.4 inches, and weighs 2.1 ounces. Its flexible base and arm attachment anchor it firmly to the top of your monitor, though its weight makes attaching it to the monitor's side a bit iffy. You can't tilt the Webcam once it's in place; to adjust

its angle, you must unclip and reseat the entire unit. The Skype software doesn't let you zoom in or pan from side to side, either.

To set up the TouchCam N1, you plug it in via its attached USB cable, open Skype, and start calling. The Webcam is designed specifically to run Skype software, so you can't use it with other video chat clients. And »



the only way to change elements such as contrast, brightness, hue, and backlight composition is with Skype's manual settings (loaded through Windows).

Minimum system requirements for running the Webcam in high def are pretty steep: a 2.0GHz Intel Core 2 Duo CPU, 1GB of RAM, and 200MB of hard-disk space. You also need 1.2-mbps upload and download speeds, Windows XP or higher, and Skype 4.2 or later.

The TouchCam N1 provided fluid motion capture during a videoconference, without any noticeable drag or delay. The camera kept my face in focus no matter how much I moved, and the autofocus lens made subtle adjustments quickly. The picture remained bright under all sorts of lighting conditions; in environments with high overhead lighting, however, white objects appeared blindingly bright. Manually adjusting the brightness setting via Skype, or dimming the overhead lights may help.

Though the Webcam captures its primary subject very sharply, objects in the background often looked a bit grainy. Colors were vibrant and true to hue on the standard setting in natural light.

Thanks to the TouchCam N1's dual microphones, my chat partners never had trouble hearing me.

## Microsoft LifeCam HD-6000

Square and lightweight, with a wide-angle lens, Microsoft's LifeCam HD-6000 (\$60) is ideal for laptop use. It swivels across a full 360 degrees

and can tilt slightly upward or downward. A clip on the unit's base attaches it tightly to the top or side of your open laptop, but it won't fit most freestanding LCD monitors. A button at the top turns on the Webcam and activates Windows Live Messenger (the HD-6000 works with other video services, such as Skype, as well).

Installation starts with loading Microsoft LifeCam and Windows Live Messenger software from the in-



**MICROSOFT'S LIFECAM HD-6000 (left) and LifeCam HD-5000 have a jumpy autofocus, but otherwise deliver good high-definition video.**

cluded CD-ROM. When setup is complete, the software will prompt you to plug in the HD-6000 via the attached USB cable.

To support high-def video chat with the HD-6000, your PC must run Windows XP with Service Pack 2 or higher, a 1.6GHz Intel dual-core or higher CPU, and at least 1GB of RAM. Since it lacks an onboard video processor, the Webcam can't support HD video chat via Skype.

The only way to adjust the Webcam's settings is with

Microsoft LifeCam software. The Webcam shoots at various sizes and levels of image quality, from 160 by 120 to 1280 by 720 HD.

The HD-6000 automatically adjusts to the amount of light present to provide the most vivid color possible; alternatively, you can turn off the TrueColor feature and manually adjust brightness, contrast, saturation, sharpness, white balance, and background composition. You can also use the desktop controls located in the main window of the Life-



adjust the brightness scale to a level considerably below the default setting.

The autofocus on this Webcam updated and re-focused in response to every subtle movement. The people I chatted with found this to be very annoying: One moment I would look well-defined and normal, and the next I would be fuzzy and bright blue, even if I remained seated and scarcely moving the whole time.

My chat partners could hear me clearly when I sat directly in front of the camera, but audio quality deteriorated if I turned my head or moved slightly to the side.

## Microsoft LifeCam HD-5000

Microsoft's other high-def LifeCam, the HD-5000 (\$50), captures 720p HD wide-screen video at 30 fps and can snap still images in HD if your computer runs Windows XP with Service Pack 2 or higher, a 1.6GHz Intel dual-core or higher CPU, and 1GB or more of RAM. Otherwise, the Webcam takes 4-megapixel still images.

The HD-5000, like the HD-6000, has a button at the top to power the camera on and launch Windows Live Messenger. In my tests, the Webcam's gripping device couldn't latch onto the top of thinner laptops tightly enough, but it stayed nicely in place when attached to a desktop monitor. The compact, rectangular device comes with autofocus and a noise-canceling microphone. You can swivel the HD-5000 slightly from left to right, but its range of motion is >>





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nowhere near the HD-6000's 360-degree rotation, and you can't tilt it up or down.

As with the HD-6000, you must install Microsoft LifeCam and Windows Live Messenger on the HD-5000 from the included CD-ROM.

For video chat in high def over the HD-5000, Microsoft recommends (aside from the system requirements noted above) a broadband Internet connection. The HD-5000 lacks an onboard video processor, so it doesn't support HD video chat via Skype, but it works nicely in tandem with Skype in standard definition: You can access the program's special effects while chatting via Skype, and the zoom and pan settings work, as well.

The Microsoft LifeCam software's TrueColor feature adjusts to ambient light to provide optimum color. As with the HD-6000, you can manually adjust various settings after turning TrueColor off; with the feature switched on, you can adjust only brightness manually. The desktop controls for zooming and panning in the main window of the LifeCam software work on the HD-5000 as on the HD-6000, too.

You must use the Microsoft LifeCam software window to adjust the HD-5000's settings, so choose the settings you prefer before you initiate a chat. The Webcam captures video in a range of

resolutions, from 160 by 120 to 1280 by 720 HD.

The unit's motion capture was fairly fluid, but pixelation and graininess were major problems, even in video captured at 720p HD. I also noticed a slightly greenish tint at the standard brightness setting, which I corrected by adjusting the scale. If you set the brightness level too low or too high manually, the camera automatically adjusts to provide a more accurate setting.

The camera seemed to be refocusing continually—even when I didn't move much. When I moved too quickly, the image flickered, as though the auto focus were adjusting to capture both the movement and the correct light setting. A button in the LifeCam software is supposed to minimize image flicker, but I didn't notice any improvement when I pressed the button on the control panel.

The noise-canceling microphone had no trouble picking up my voice from a variety of angles and distances away from the camera. My video-chat buddies always heard me clearly.

On a nonbusiness note, the LifeCam software's special effects settings—wigs, face morphing, clown faces, and more—are entertaining. The software accurately places the image over your face, proving that the camera recognizes what it should focus on, and the effects work effortlessly with other video chat clients. If you use Win-

dows Live Photo Gallery, you can tag photos and videos shot with the HD-5000 for uploading to Facebook or other photo-sharing clients.

## **Freetalk Everyman HD**

Sold through Skype's online store, the Freetalk Everyman HD (\$50) works in tandem with Skype HD using a built-in H.264 hardware encoder.

Setup is a snap: Once you have Skype downloaded to your PC, just open the



**THE FREETALK Everyman HD is a natural match for Skype calls.**

program and then plug in the Webcam via its attached USB cable. As soon as you answer or initiate a video call, the Webcam will switch on.

In my hands-on testing, I noted crystal-clear color capture (due to the device's 24-bit true color depth); the Everyman HD's 720p video capture (at resolutions up to 1280 by 720 at 22.5 fps) performed well, too. The Webcam's autofocus capability focused on me instead of on objects behind me, and the unit supports auto-exposure and auto-white balance to fix color and contrast. As my

calls progressed, however, I found a couple of issues that prevented me and my call recipients from fully enjoying the experience.

First, the camera has a wide-angle lens that slightly distorts the subject's facial features. You can adjust the camera manually and clip it to the top or side of your monitor at the best possible angle, but doing so doesn't correct the face-widening problem. The camera's clip works with all sorts of displays, but getting it to remain stationary can be difficult. The Everyman HD is so light that it doesn't stay anchored well; I had to readjust the position of the camera repeatedly as it shifted slightly throughout my calls.

The camera continually refocused in response to even a simple hand wave or head movement. My Skype partners found the shifting image that resulted very distracting. The unit also had trouble handling sudden changes in light: The screen would display bright-blue hues for a few seconds when I switched on bright overhead lights in a dim room.

Another disappointment is the Everyman HD's lack of a built-in microphone. Other Webcams in the same price range—perhaps most notably, the \$60 Microsoft LifeCam HD-6000—include a microphone and delivered better overall performance. With the Everyman HD, you'll have to purchase an external microphone separately to complete your video chatting upgrade.

—Leah Yamshon

## **MORE ONLINE**

For complete reviews and test reports of the HD Webcams we tested for this story, go online to find [pcworld.com/70507](http://pcworld.com/70507).



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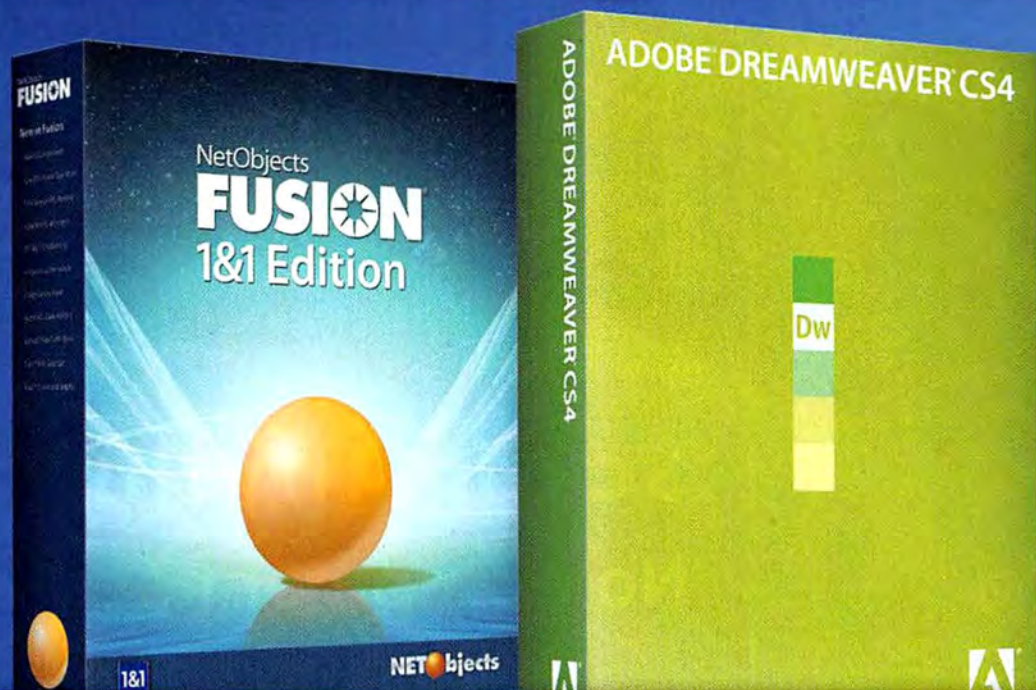


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## Top 10 Inkjet Multifunction Printers

HP's Photosmart Plus, which nicely combines quality and speed, continues to lead the field.

MODEL	Rating	Performance	Features and specifications
<b>1</b>  <b>BEST BUY</b> <b>HP Photosmart Plus</b> <b>\$149</b> <a href="http://find.pcworld.com/63563">find.pcworld.com/63563</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Very Good</li> <li>Tested speed (ppm): 8.9 text/4.0 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, wireless connectivity</li> <li>125-sheet input (plus 20 photo), manual duplexing</li> <li>4800-by-1200-dpi maximum true color resolution</li> </ul>
▶ A true bargain, the Photosmart Plus offers impressive speed and print quality—plus Wi-Fi—for its modest price.			
<b>2</b>  <b>HP Officejet Pro 8500 Wireless All-in-One</b> <b>\$400</b> <a href="http://find.pcworld.com/62494">find.pcworld.com/62494</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Good</li> <li>Tested speed (ppm): 10.7 text/4.5 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>250-sheet input, automatic duplexing</li> <li>4800-by-1200-dpi maximum true color resolution</li> </ul>
▶ A small office that wants it all can get it in the Officejet Pro 8500 Wireless, including features galore and really inexpensive inks.			
<b>3</b>  <b>HP Officejet 6500 Wireless</b> <b>\$199</b> <a href="http://find.pcworld.com/62945">find.pcworld.com/62945</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Very Good</li> <li>Tested speed (ppm): 7.6 text/3.5 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>250-sheet input, automatic duplexing</li> <li>4800-by-1200-dpi maximum true color resolution</li> </ul>
▶ This midpriced multifunction printer delivers solid performance, features, and print quality, with few compromises.			
<b>4</b>  <b>HP Photosmart Premium Touchsmart Web All-in-One</b> <b>\$400</b> <a href="http://find.pcworld.com/63998">find.pcworld.com/63998</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Good</li> <li>Tested speed (ppm): 7.8 text/3.7 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>100-sheet input (plus 20 photo), automatic duplexing</li> <li>9600-by-2400-dpi maximum true color resolution</li> </ul>
▶ Accessing Web apps from a printer is an intriguing idea, but the execution on this MFP shows that there's still some work to be done.			
<b>5</b>  <b>Lexmark Platinum Pro905</b> <b>\$399</b> <a href="http://find.pcworld.com/63602">find.pcworld.com/63602</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Good</li> <li>Tested speed (ppm): 7.0 text/2.5 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>Two 150-sheet inputs, automatic duplexing</li> <li>4800-by-1200-dpi maximum true color resolution</li> </ul>
▶ Web capabilities and generous features make the Pro905 worth considering for a small office, although it's average in other respects.			
<b>6</b>  <b>Canon Pixma MX870</b> <b>\$200</b> <a href="http://find.pcworld.com/69542">find.pcworld.com/69542</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Very Good</li> <li>Tested speed (ppm): 6.2 text/1.7 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>Two 150-sheet inputs, automatic duplexing</li> <li>9600-by-2400-dpi maximum true color resolution</li> </ul>
▶ This well-balanced MFP has great output, good performance, and low ink costs, making it suitable for a small office or a busy family.			
<b>7</b>  <b>Lexmark Pinnacle Pro901</b> <b>\$300</b> <a href="http://find.pcworld.com/70031">find.pcworld.com/70031</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Good</li> <li>Tested speed (ppm): 6.3 text/1.8 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>150-sheet input, automatic duplexing</li> <li>4800-by-1200-dpi maximum true color resolution</li> </ul>
▶ You pay more for the machine but less for its ink, which is a reasonable trade-off—especially considering the plentiful features it offers.			
<b>8</b>  <b>Canon Pixma MG5220</b> <b>\$150 NEW</b> <a href="http://find.pcworld.com/70444">find.pcworld.com/70444</a>	★★★★★ GOOD	<ul style="list-style-type: none"> <li>Text quality: Good</li> <li>Graphics quality: Very Good</li> <li>Tested speed (ppm): 7.8 text/2.3 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, wireless connectivity</li> <li>Two 150-sheet inputs, automatic duplexing</li> <li>9600-by-2400-dpi maximum true color resolution</li> </ul>
▶ The sleekly designed Pixma MG5220 provides good speed and print quality, and its replacement ink costs are reasonable.			
<b>9</b>  <b>Canon Pixma MX350</b> <b>\$150</b> <a href="http://find.pcworld.com/69541">find.pcworld.com/69541</a>	★★★★★ GOOD	<ul style="list-style-type: none"> <li>Text quality: Very Good</li> <li>Graphics quality: Very Good</li> <li>Tested speed (ppm): 5.7 text/1.7 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>100-sheet input, manual duplexing</li> <li>4800-by-1200-dpi maximum true color resolution</li> </ul>
▶ The Pixma MX350's higher-than-average ink costs reduce the appeal of this otherwise versatile and affordable multifunction printer.			
<b>10</b>  <b>Epson WorkForce 520</b> <b>\$130 NEW</b> <a href="http://find.pcworld.com/70360">find.pcworld.com/70360</a>	★★★★★ GOOD	<ul style="list-style-type: none"> <li>Text quality: Fair</li> <li>Graphics quality: Good</li> <li>Tested speed (ppm): 12.6 text/1.8 graphics</li> </ul>	<ul style="list-style-type: none"> <li>USB, ethernet, wireless connectivity</li> <li>100-sheet input, manual duplexing</li> <li>5760-by-1440-dpi maximum true color resolution</li> </ul>
▶ The 520's speed and cheap inks address two small-office needs, but its text quality on plain paper falls short of another.			

CHART NOTE: Ratings are as of 8/9/10. Speeds are in pages per minute (ppm); resolutions are in dots per inch (dpi).

**MORE ONLINE** Visit [find.pcworld.com/62965](http://find.pcworld.com/62965) to see in-depth reviews, full test results, and detailed specs for all printers on this chart.



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## Captivate and Vibrant: Android Powerhouses

THIS SPRING, SAMSUNG debuted its much-anticipated Galaxy S phones. AT&T's version, the Captivate (\$200 with a two-year contract), is by far AT&T's best Android offering. The T-Mobile version, the Vibrant (\$200 with a two-year contract), stands out due to its high-quality preloaded multimedia apps.

### Light and Gorgeous

The two Galaxy S phones look fairly similar. Measuring just 0.39 inch thick, each is thinner than the HTC EVO 4G and Motorola Droid X, but slightly beefier than the iPhone 4. Both are amazing-

ly light, at about 4.2 ounces.

That light weight is due in part to the phones' Super AMOLED technology, which puts touch sensors on the display itself rather than on a separate layer. Colors burst out of the display, and animations looked lively and smooth. On the Vibrant, Samsung and T-Mobile were wise to preload the movie *Avatar*; the display nicely showcases the animation.

Both Galaxy S phones outshone the Droid X and the EVO 4G in my casual comparisons. The side-by-side with the iPhone 4 was a closer call: The iPhone 4's



**SAMSUNG'S CAPTIVATE (LEFT) and Vibrant, both part of the new Galaxy S line, overlay the TouchWiz interface atop Android 2.1.**

display was slightly sharper, but colors on the Samsung phones looked more natural.

### Sluggish Interface

The phones run Android 2.1 with Samsung's TouchWiz 3.0 interface. Despite each handset's 1GHz Hummingbird processor, I saw a slight lag when flipping through menus and scrolling down lists or Web pages. Here's hoping for a speed boost when the two phones receive their upgrade to 2.2.

Video over each phone's MobiTV app looked and sounded great. Playback was smooth with no pixelation, artifacting, or stutter. On the Captivate, video over AT&T's Cingular Video service was far worse, and audio sounded hollow and tinny through the service. On the Vibrant, YouTube videos didn't fare well.

A handful of multimedia apps are preloaded on the Vibrant, including the Layar augmented-reality browser, Amazon Kindle, and Amazon MP3. You can also share

media files between your Vibrant and your television.

I was pleased with the call quality on both phones. My contacts' voices sounded clear, with ample volume and no hissing or static. I had good reception and coverage all over San Francisco.

Data speeds were also quite fast on both phones, but occasionally the Vibrant dropped to EDGE depending on the neighborhood I was in. In my limited tests, Web pages and apps that use data connectivity launched and loaded quickly.

—Ginny Mies

## Garminfone: Good Mix of GPS and Phone Functions

GARMIN'S Garminfone (\$200 with a two-year T-Mobile contract) distinguishes itself in the excellent way it makes navigation and smartphone features work together. It's as good as any dedicated GPS device, and it's a better value than buying an Android phone and then



**PHONE CONTROLS and GPS directions are easy to read on the Garminfone.**

paying another \$100 for GPS software.

On a grueling trip to Canada and back, the Garminfone was a comforting companion.

Directions were clear, as were the inevitable "I'm running behind" phone calls. Dialing on the touchscreen was easy. And over the course of testing, I found that the talk time on a single charge was about 5 hours, matching the manufacturer's rating.

—John R. Quain

★★★★★ VERY GOOD

**Garminfone | Garmin**

Touchscreen Android phone skillfully integrates navigation features. List: \$200 (with two-year contract) [find.pcworld.com/70484](http://find.pcworld.com/70484)

★★★★★ SUPERIOR

**Captivate | Samsung**

Has a dazzling display, as well as good voice and data performance. List: \$200 (with two-year contract) [find.pcworld.com/70387](http://find.pcworld.com/70387)

★★★★★ SUPERIOR

**Vibrant | Samsung**

Offers pleasing call quality and comes with useful multimedia apps. List: \$200 (with two-year contract) [find.pcworld.com/70406](http://find.pcworld.com/70406)





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## Acer's Sleek TimelineX Has Iffy Ergonomics

AT ABOUT \$600, the Acer Aspire TimelineX 1830T is affordable for an ultraportable. It offers nice performance, has excellent high-def video playback, and runs for over 6 hours on a battery charge. But it also has some ergonomic quirks.

Equipped with an Intel Core i5-430UM CPU, 4GB of

DDR3 RAM, and a 500GB 5400-rpm hard drive, our test unit scored a 76 on WorldBench 6. Gaming frame rates from the Intel HD Graphics (measured in frames per second) were unplayable, landing in the teens.

The keyboard is large and has a crisp feel. It's slightly recessed into the laptop's deck, however, which sometimes makes pressing the spacebar problematic. Resting your wrists on the deck's relatively sharp front edge is bothersome, as well. The deck also has limited room for the flush-mounted touchpad, which translates into

THE TIMELINEX has Windows 7 Home Premium 64-bit.



more strokes when you're moving up and down the screen.

Weighing about 3 pounds, the TimelineX 1830T lacks an optical drive, but has a typical array of ports (three USB 2.0 ports, HDCP-enabled HDMI, VGA, and gigabit LAN). Bluetooth and 802.11n Wi-Fi are on board, as is a five-in-one card reader.

High-def video was quite smooth no matter the source. The 11.6-inch screen doesn't

have the resolution for true

1080p and can't accommodate an overly large viewing angle, but it renders images nicely nonetheless.

The Aspire TimelineX 1830T supplies good everyday performance in a handsome, portable package. In the quest for style and compactness, though, Acer may have sacrificed too much in the way of usability.

—Jon L. Jacobi

★★★★★ GOOD

**Aspire TimelineX 1830T** | Acer

This ultraportable performs well, but using it is uncomfortable.

Street: \$600

[find.pcworld.com/70405](http://find.pcworld.com/70405)

## RIM BlackBerry Torch 9800: Excellent Design

RESEARCH IN MOTION'S BlackBerry Torch 9800 (\$200 with a two-year AT&T contract), the company's first



touchscreen/keyboard handset, sports the new BlackBerry 6 OS. (For my take on the platform and how it handles e-mail, Web browsing, and more, see page 16.)

A little thicker than some other top phones out now, the Torch measures 4.4 by 2.4 by 0.6 inches and weighs a manageable 5.68 ounces.

Perhaps the most disappointing aspect is the display, which I found lackluster and a bit wonky in its responsiveness. The 3.2-inch, 360-by-480 capacitive touchscreen is fine for browsing the Web, but the colors, text, and detail look slightly flat.

The hardware keyboard

**THOUGH ITS KEYBOARD and its OS are new, the Torch will feel familiar to BlackBerry fans.**

slides smoothly and easily. I found it comfortable to type on. The Torch also has a software keyboard, but in both portrait and landscape modes it feels cramped.

I found the Web browser slow to load, especially at media-heavy sites. The handset's 624MHz processor just can't seem to handle the new WebKit-based browser technology. Page scrolling wasn't as smooth as I've come to expect with faster, 1GHz-processor phones. I actually managed to crash the browser a few times, too, which was frustrating.

Call quality over AT&T in San Francisco was good overall. Voices sounded loud and clear, with no static or distortion. A few callers sounded slightly tinny, but

not distractingly so. Callers on the other end heard background noise while I was at a busy city street corner, but said it wasn't loud enough to interfere with the call.

The Torch's 5-megapixel camera has autofocus, a 2X zoom, and an LED flash. The image quality was better than what I've seen from older BlackBerrys, but my photos were a little washed out. Playing with the scene modes was fun, though, and I captured some great shots.

—Ginny Mies

★★★★★ VERY GOOD

**BlackBerry Torch 9800** | RIM

The design is innovative, but the performance isn't quite up to par. List: \$200 (with two-year contract) [find.pcworld.com/70503](http://find.pcworld.com/70503)





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## Top 10 Performance Desktop PCs

Whether you need processing power for games or for work, these loaded PCs fit the bill.

MODEL	Rating	Performance	Features and specifications
<b>1</b>  <b>Origin Genesis</b> <b>\$6996 NEW</b> <a href="http://find.pcworld.com/70419">find.pcworld.com/70419</a>	★★★★★ SUPERIOR	<ul style="list-style-type: none"> <li>WorldBench 6 score: 194</li> <li>WorldBench 6 rating: Superior</li> <li>Overall design: Very Good</li> <li>Graphics: Perfect</li> </ul>	<ul style="list-style-type: none"> <li>4.36GHz Core i7-980X</li> <li>12GB RAM; 2.1TB storage</li> <li>nVidia GeForce GTX 480 (three)</li> <li>BD-R drive</li> </ul>
► Offering the highest general performance we've seen, the Genesis is arguably worth the arm and leg that Origin is asking in trade.			
<b>2</b>  <b>Maingear Shift Gaming Desktop PC</b> <b>\$7000</b> <a href="http://find.pcworld.com/69459">find.pcworld.com/69459</a>	★★★★★ SUPERIOR	<ul style="list-style-type: none"> <li>WorldBench 6 score: 181</li> <li>WorldBench 6 rating: Superior</li> <li>Overall design: Very Good</li> <li>Graphics: Perfect</li> </ul>	<ul style="list-style-type: none"> <li>3.96GHz Core i7-975 Extreme Edition</li> <li>6GB RAM; 2TB storage</li> <li>XFx Radeon HD5870 (three)</li> <li>BD-R drive</li> </ul>
► You won't find many PCs that are faster (or flashier), but that doesn't mean this beautiful monster is ideally priced for its performance.			
<b>3</b>  <b>Origin Genesis Midtower</b> <b>\$3592 NEW</b> <a href="http://find.pcworld.com/70422">find.pcworld.com/70422</a>	★★★★★ SUPERIOR	<ul style="list-style-type: none"> <li>WorldBench 6 score: 190</li> <li>WorldBench 6 rating: Superior</li> <li>Overall design: Superior</li> <li>Graphics: Superior</li> </ul>	<ul style="list-style-type: none"> <li>4GHz Core i7-930</li> <li>12GB RAM; 1.6TB storage</li> <li>ATI Radeon HD5970</li> <li>BD drive</li> </ul>
► Packed with liquid-cooled, overclocked components, the midsize-tower Genesis is every bit as potent as its larger sibling.			
<b>4</b>  <b>Digital Storm Black Ops Assassin</b> <b>\$3391 NEW</b> <a href="http://find.pcworld.com/70421">find.pcworld.com/70421</a>	★★★★★ SUPERIOR	<ul style="list-style-type: none"> <li>WorldBench 6 score: 172</li> <li>WorldBench 6 rating: Superior</li> <li>Overall design: Superior</li> <li>Graphics: Superior</li> </ul>	<ul style="list-style-type: none"> <li>3.86GHz Core i7-930</li> <li>6GB RAM; 1.1TB storage</li> <li>nVidia GeForce GTX 480 (two)</li> <li>BD drive; DVD-RW drive</li> </ul>
► If price is no object, you won't find a more killer gaming/performance PC than the beautifully constructed Black Ops Assassin.			
<b>5</b>  <b>CyberPower Black Pearl</b> <b>\$4199</b> <a href="http://find.pcworld.com/69878">find.pcworld.com/69878</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 171</li> <li>WorldBench 6 rating: Superior</li> <li>Overall design: Very Good</li> <li>Graphics: Perfect</li> </ul>	<ul style="list-style-type: none"> <li>3.33GHz Core i7-980X</li> <li>6GB RAM; 2TB storage</li> <li>ATI Radeon HD5870 (three)</li> <li>BD-R drive</li> </ul>
► Equipped with Intel's six-core Core i7-980X processor, the performance-oriented Black Pearl could be a power user's best friend.			
<b>6</b>  <b>Micro Express MicroFlex 97B</b> <b>\$2099 NEW</b> <a href="http://find.pcworld.com/70423">find.pcworld.com/70423</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 155</li> <li>WorldBench 6 rating: Very Good</li> <li>Overall design: Very Good</li> <li>Graphics: Very Good</li> </ul>	<ul style="list-style-type: none"> <li>3.26GHz Core i7-970</li> <li>6GB RAM; 1TB storage</li> <li>nVidia GeForce GTX 480</li> <li>BD drive</li> </ul>
► With a few minor exceptions, the 97B provides what you'd expect from a reasonably priced high-performance desktop PC.			
<b>7</b>  <b>Polywell Poly X5800A3</b> <b>\$4500</b> <a href="http://find.pcworld.com/69879">find.pcworld.com/69879</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 175</li> <li>WorldBench 6 rating: Superior</li> <li>Overall design: Good</li> <li>Graphics: Superior</li> </ul>	<ul style="list-style-type: none"> <li>3.33GHz Core i7-980X</li> <li>12GB RAM; 2.5TB storage</li> <li>ATI Radeon HD5970</li> <li>BD-R drive</li> </ul>
► It may not be much to look at, but the Poly X5800A3's premier components and fast speeds make it a compelling performance PC.			
<b>8</b>  <b>HP Pavilion Elite HPE-390t</b> <b>\$2049 NEW</b> <a href="http://find.pcworld.com/70424">find.pcworld.com/70424</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 160</li> <li>WorldBench 6 rating: Very Good</li> <li>Overall design: Good</li> <li>Graphics: Good</li> </ul>	<ul style="list-style-type: none"> <li>3.33GHz Core i7-980X</li> <li>9GB RAM; 1.5TB storage</li> <li>ATI Radeon HD5770</li> <li>BD-R drive</li> </ul>
► HP's Pavilion Elite HPE-390t delivers great performance in a humble, media-savvy shell—but you need to bring your own peripherals.			
<b>9</b>  <b>Polywell Poly 890FX</b> <b>\$2700 NEW</b> <a href="http://find.pcworld.com/70425">find.pcworld.com/70425</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 145</li> <li>WorldBench 6 rating: Good</li> <li>Overall design: Good</li> <li>Graphics: Very Good</li> </ul>	<ul style="list-style-type: none"> <li>3.2GHz Phenom II X6 1090T</li> <li>8GB RAM; 2TB storage</li> <li>ATI Radeon HD5870</li> <li>BD drive</li> </ul>
► Even with a bundled 23-inch monitor, the 890FX is priced pretty high. A little more attention to design could have done wonders.			
<b>10</b>  <b>Micro Express MicroFlex 88B</b> <b>\$1299</b> <a href="http://find.pcworld.com/70417">find.pcworld.com/70417</a>	★★★★★ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 156</li> <li>WorldBench 6 rating: Very Good</li> <li>Overall design: Good</li> <li>Graphics: Good</li> </ul>	<ul style="list-style-type: none"> <li>3.06GHz Core i7-880</li> <li>4GB RAM; 560GB storage</li> <li>ATI Radeon HD5870</li> <li>BD drive</li> </ul>
► The MicroFlex 88B may not win any speed races, but it cruises to the finish line in style, equipped with Blu-ray and USB 3.0.			

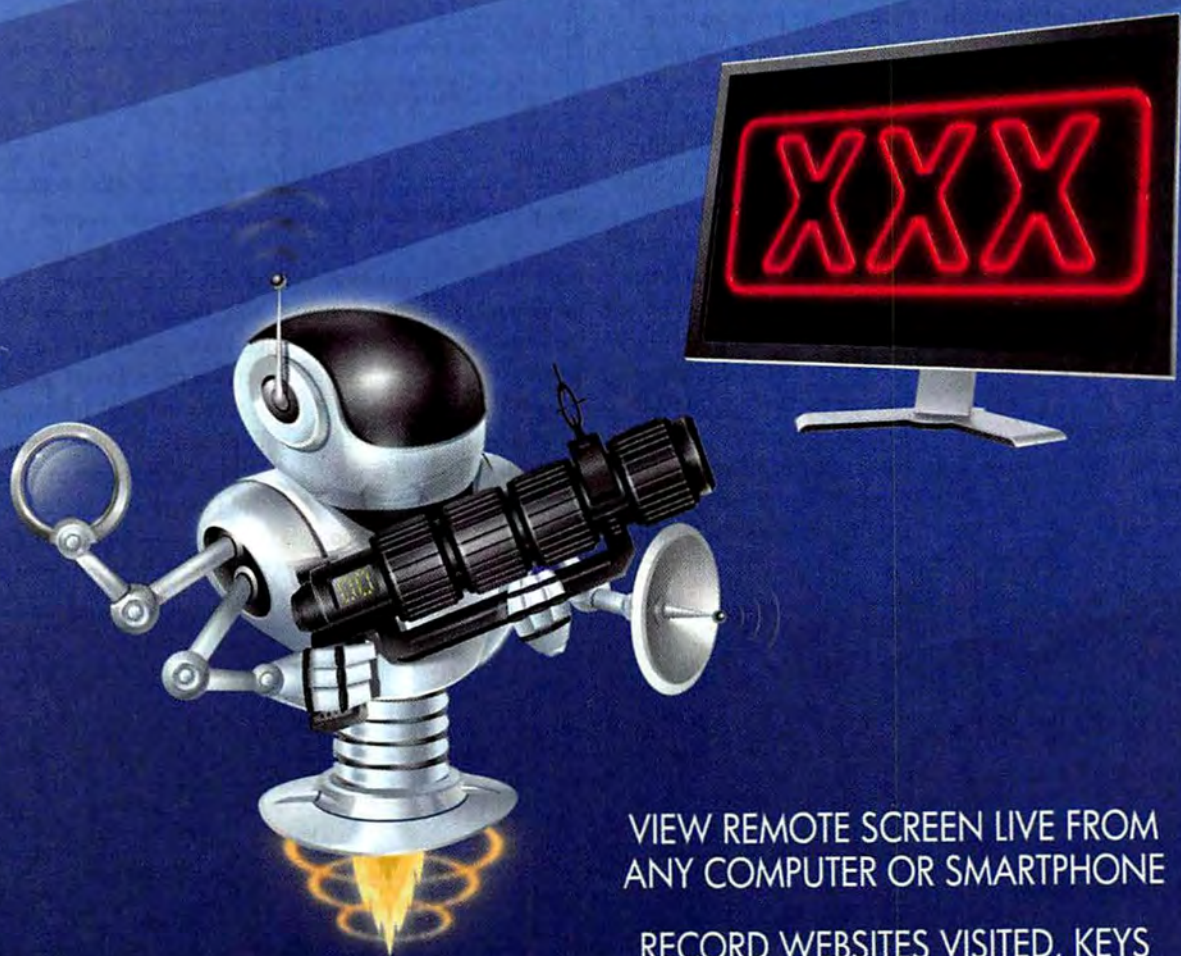
CHART NOTE: Ratings are as of 8/4/10.

**MORE ONLINE** Visit [find.pcworld.com/69453](http://find.pcworld.com/69453) to see in-depth reviews, full test results, and detailed specs for all desktop PCs on this chart.



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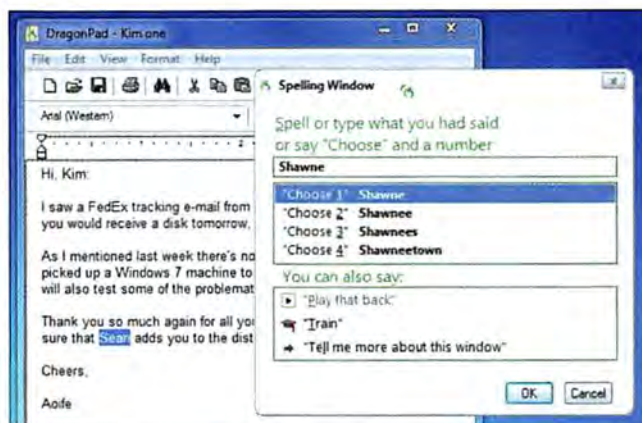
## Dictation Software Improves Interface

NUANCE HAS TAKEN almost two years to roll out this new version of its speech recognition software. As I was impressed with the previous Professional edition, I hoped to find exceptional improvements in accuracy and in hands-free capabilities, but I did not. The good

news, though, is that the software's new features help you use the program more effectively to get more done.

The company says you can get up to 99 percent accuracy out of the box. But it also recommends that you train Dragon before you start using the program. This process involves reading a series of paragraphs aloud, while the software "listens."

After the initial training, I reached an average of 97.8 percent accuracy. Despite more training, I haven't yet achieved 99 percent accuracy. On the plus side, though



DRAGON'S INTERFACE HELPS you train the dictation program.

I talk quickly, Dragon kept up with me: I stumbled on the word "compatibility" in separate tests, and Dragon still got it right. Bravo.

The most notable interface change is the useful new Dragon Sidebar, which anticipates the kinds of com-

mands or tips needed.

At \$600, Professional's cost is steep. The \$100 Home version offers Professional's features in Word, Internet Explorer, and Firefox, while lacking full support in Excel and PowerPoint.

—Aoife M. McEvoy

★★★★★ SUPERIOR

**Dragon NaturallySpeaking 11 Pro**  
Nuanace

Pricey but solid dictation software offers modest improvements.

List: \$600

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# VIA Artigo A1100: A Tiny PC for Do-It-Yourselfers

THE VIA ARTIGO A1100 is a bare-bones do-it-yourself PC kit based on a 1.2GHz

VIA Nano processor, a single-core x86 chip with little muscle; but VIA's Chrome9 integrated graphics offers hardware-accelerated video decoding. The box is a tiny 5.7 by 3.9 by 2.0 inches.

The A1100's face provides two USB ports, microphone

and audio jacks, and a mini-USB port. The rear has a pair of USB ports, a gigabit ethernet port, a VGA port, and an HDMI port. Optional add-ons include an SD Card reader (\$25) and an 802.11 b/g Wi-Fi module (\$45).

You must supply the operating system, a 2.5-inch hard drive, and laptop RAM. A 320GB, 2.5-inch hard drive can be as little as \$50. The A1100 will support a single stick of DDR2 notebook RAM (\$45 for 2GB). Tack on an operating system, and the cost approaches \$500.

With a 320GB hard drive and 2GB of DDR2-800 memory, the A1100 achieved a



VIA'S ARTIGO A1100 is a mini-PC that you put together yourself.

WorldBench 6 score of 35—poor, but in line with the marks of Intel Atom netbooks we've reviewed.

High-definition media playback is surprisingly good on the A1100—up to a point.

Power economy was noteworthy: At its peak, the unit

pulled in just 18.6 watts.

The Artigo A1100 kit isn't suited for the average consumer. But if you're interested in a fun side project, the unit does have enough muscle to perform as a fairly capable media machine.

—Nate Ralph

★★★★★ GOOD

Artigo A1100 | VIA

For tinkerers, VIA's kit offers a media-slinging PC in a tiny shell.

List: \$243

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## Top 10 All-Purpose Laptops

Though a new Dell leads the pack, a new Lenovo IdeaPad takes the Best Buy award.

MODEL	Rating	Performance	Features and specifications
<b>1</b>  <b>Dell Vostro 3300</b> <b>\$913 NEW</b> <a href="http://find.pcworld.com/70397">find.pcworld.com/70397</a>	★★★★★ SUPERIOR	<ul style="list-style-type: none"> <li>WorldBench 6 score: 112 Superior</li> <li>Overall design: 86 Very Good</li> <li>Tested battery life: 5:31</li> </ul>	<ul style="list-style-type: none"> <li>2.46GHz Core i5-520M</li> <li>13.3-inch widescreen</li> <li>4.8 pounds</li> <li>500GB hard drive</li> </ul>
► Dell's Vostro 3300 is a highly functional small-business laptop wrapped in an attractive, lightweight package.			
<b>2</b>  <b>Lenovo ThinkPad W510</b> <b>\$2929</b> <a href="http://find.pcworld.com/70159">find.pcworld.com/70159</a>	★★★★★ SUPERIOR	<ul style="list-style-type: none"> <li>WorldBench 6 score: 118 Superior</li> <li>Overall design: 84 Good</li> <li>Tested battery life: 3:47</li> </ul>	<ul style="list-style-type: none"> <li>1.6GHz Core i7-720QM</li> <li>15.6-inch widescreen</li> <li>7.1 pounds</li> <li>500GB hard drive</li> </ul>
► This workstation-class laptop has an excellent CPU and a good display, but its Windows 7 touch interface isn't the best.			
<b>3</b>  <b>HP EliteBook 8440w</b> <b>\$1649</b> <a href="http://find.pcworld.com/69809">find.pcworld.com/69809</a>	★★★★★ SUPERIOR	<ul style="list-style-type: none"> <li>WorldBench 6 score: 119 Superior</li> <li>Overall design: 77 Good</li> <li>Tested battery life: 6:07</li> </ul>	<ul style="list-style-type: none"> <li>2.67GHz Core i7-620M</li> <li>14.0-inch widescreen</li> <li>5.8 pounds</li> <li>BD-ROM; 320GB hard drive</li> </ul>
► The EliteBook 8440w is a solid corporate laptop with a terrific keyboard; it isn't a multimedia powerhouse, however.			
<b>4</b>  <b>BEST BUY</b> <b>Lenovo IdeaPad Y460</b> <b>\$899 NEW</b> <a href="http://find.pcworld.com/70398">find.pcworld.com/70398</a>	★★★★☆ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 106 Very Good</li> <li>Overall design: 87 Very Good</li> <li>Tested battery life: 4:09</li> </ul>	<ul style="list-style-type: none"> <li>2.4GHz Core i5-520M</li> <li>14.0-inch widescreen</li> <li>5.0 pounds</li> <li>500GB hard drive</li> </ul>
► This IdeaPad is a great compromise between power use and performance, but a compromise nonetheless.			
<b>5</b>  <b>Micro Express NBL60</b> <b>\$1199 NEW</b> <a href="http://find.pcworld.com/70399">find.pcworld.com/70399</a>	★★★★☆ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 123 Superior</li> <li>Overall design: 87 Very Good</li> <li>Tested battery life: 2:06</li> </ul>	<ul style="list-style-type: none"> <li>2.67GHz Core i7-620M</li> <li>15.5-inch widescreen</li> <li>5.6 pounds</li> <li>80GB solid-state drive</li> </ul>
► Micro Express delivers a surprisingly robust laptop, with both a true 1080p display and a DVD drive, at well under 6 pounds.			
<b>6</b>  <b>HP Envy 13</b> <b>\$1199</b> <a href="http://find.pcworld.com/69810">find.pcworld.com/69810</a>	★★★★☆ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 94 Very Good</li> <li>Overall design: 85 Very Good</li> <li>Tested battery life: 4:42</li> </ul>	<ul style="list-style-type: none"> <li>2.13GHz Core 2 Duo SL9600</li> <li>13.1-inch widescreen</li> <li>3.8 pounds</li> <li>250GB hard drive</li> </ul>
► If it looks and feels like a MacBook, it must be from Apple, right? Wrong! The Envy 13 offers slim, stylish Windows-based computing.			
<b>7</b>  <b>Lenovo ThinkPad T410</b> <b>\$1419</b> <a href="http://find.pcworld.com/70167">find.pcworld.com/70167</a>	★★★★☆ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 108 Very Good</li> <li>Overall design: 82 Good</li> <li>Tested battery life: 6:06</li> </ul>	<ul style="list-style-type: none"> <li>2.53GHz Core i5-540M</li> <li>14.1-inch widescreen</li> <li>5.6 pounds</li> <li>320GB hard drive</li> </ul>
► The T410 retains the legendary keyboard feel of ThinkPads, but also remains somewhat pricey for its feature set.			
<b>8</b>  <b>HP ProBook 4520s</b> <b>\$819 NEW</b> <a href="http://find.pcworld.com/70400">find.pcworld.com/70400</a>	★★★★☆ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 103 Very Good</li> <li>Overall design: 88 Superior</li> <li>Tested battery life: 3:21</li> </ul>	<ul style="list-style-type: none"> <li>2.3GHz Core i5-430M</li> <li>15.6-inch widescreen</li> <li>5.7 pounds</li> <li>320GB hard drive</li> </ul>
► The ProBook 4520s is a sturdy, stylish business laptop that performs well at work or on the go, and has impressive security software.			
<b>9</b>  <b>Dell Inspiron 14R</b> <b>\$779 NEW</b> <a href="http://find.pcworld.com/70401">find.pcworld.com/70401</a>	★★★★☆ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 94 Very Good</li> <li>Overall design: 89 Superior</li> <li>Tested battery life: 2:58</li> </ul>	<ul style="list-style-type: none"> <li>2.27GHz Core i3-350M</li> <li>14.0-inch widescreen</li> <li>5.1 pounds</li> <li>500GB hard drive</li> </ul>
► Dell's slick update to the Inspiron line will let students and home users do anything they need to without breaking the bank.			
<b>10</b>  <b>Sony VAIO EB12FX/T</b> <b>\$749</b> <a href="http://find.pcworld.com/70168">find.pcworld.com/70168</a>	★★★★☆ VERY GOOD	<ul style="list-style-type: none"> <li>WorldBench 6 score: 91 Very Good</li> <li>Overall design: 83 Good</li> <li>Tested battery life: 3:22</li> </ul>	<ul style="list-style-type: none"> <li>2.13GHz Core i3-330M</li> <li>15.5-inch widescreen</li> <li>5.7 pounds</li> <li>500GB hard drive</li> </ul>
► Sony's VAIO EB12FX/T gives you high style without a high price tag, but you give up some performance and battery life.			

CHART NOTES: Ratings are as of 8/6/10. Tested battery life figures are expressed in hours:minutes.

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Intel® PM55 Chipset

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**From \$999**



## Pandigital Novel: Frustrating E-Reader

THE PANDIGITAL NOVEL makes a valiant attempt at being a value-priced, full-color, Android-based e-book reader that doubles as a tablet. Unfortunately, it falls short. At \$175, the Novel is expensive compared with Amazon's newest, \$139 E-Ink-based Kindle e-reader. As a tablet/e-reader combo that tries to compete with Apple's iPad, the Novel is

slow and inelegant, lacking the full versatility a tablet user has come to expect.

(For more on the e-reader price wars, see page 12.)

The Novel is chunky: It's made of thick, white plastic and feels heavy, though at 1 pound (and a compact 7.5 by 5.5 by 0.5 inches), it's lighter than the Kindle DX or the iPad. It has built-in Wi-Fi, and also connects via mini-USB (but you need to use the included charger, not your PC, to charge).

Since the Novel is marketed as an e-reader, widgets for the bookstore and My Library dominate the screen real estate on startup.

The 7-inch resistive-touch, 800-by-600-pixel LCD is mediocre, at best. When the screen is white (as it normally is for reading), the background sparkles to distraction; text is fuzzy, with the dots visible. Using the night-read option, which turns the background black and text to white, was easier on my eyes.

Performance is sluggish; basic navigation and tasks like page flipping are a chore. The resistive-touch display proved incredibly frustrating to use. And long waits for an app or a book to open point to underpowered guts.

The many useful pre-installed apps include Barnes



WIDGETS FOR AN e-bookstore and My Library dominate the opening screen.

& Noble's Reader; a Web browser; music, video, and photo players; and e-mail (but no Android Market app).

Its screen and interface problems keep this device from being a contender.

—Melissa J. Perenson

★★★☆☆ FAIR

Novel | Pandigital

Tablet/e-reader combo needs better screen and interface to compete.

List \$175

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## Dell Streak: A Tablet and Smartphone Hybrid

THE DELL STREAK smartphone (\$300 with a two-year AT&T contract; \$550 without a contract) has a roomy 5-inch touchscreen and a design that emphasizes its considerable potential as an Android-based data device. But it is a phone, too, and as such, it must be judged against the latest competi-

tors. And that's where the Streak stumbles. I found a lot to like when using it for multimedia and data, but it's lacking as a phone.

This palm-size gadget is truly optimized for use as a handheld. However, its large screen means the Streak's dimensions will defy many average-size pockets (I couldn't slip it into my jeans). It weighs in at 8 ounces, compared with the Apple iPhone 4's 5 ounces, and is almost as thin.

The specs sound appealing: a 1GHz Snapdragon processor, 512MB of RAM,



THE DELL STREAK tries to be both a tablet and a smartphone.

2GB of built-in storage (plus 16GB on a MicroSD card), an 800-by-480 WVGA display, GPS, GSM/HSDPA/HSUPA/UMTS/EDGE support, Bluetooth 2.1 EDR, and a 5-megapixel camera (as well as a front-facing VGA camera).

But it runs the already-creaky Android 1.6 OS. The device often felt surprisingly

sluggish, despite its Snapdragon CPU (presumably the blame falls on Android 1.6; recent versions of the Android OS are zippier).

The Streak works as an entertainment device, but as a smartphone it has mediocre sound quality, and it lacks the visual and interface polish of competing devices.

—Melissa J. Perenson

★★★★★ GOOD

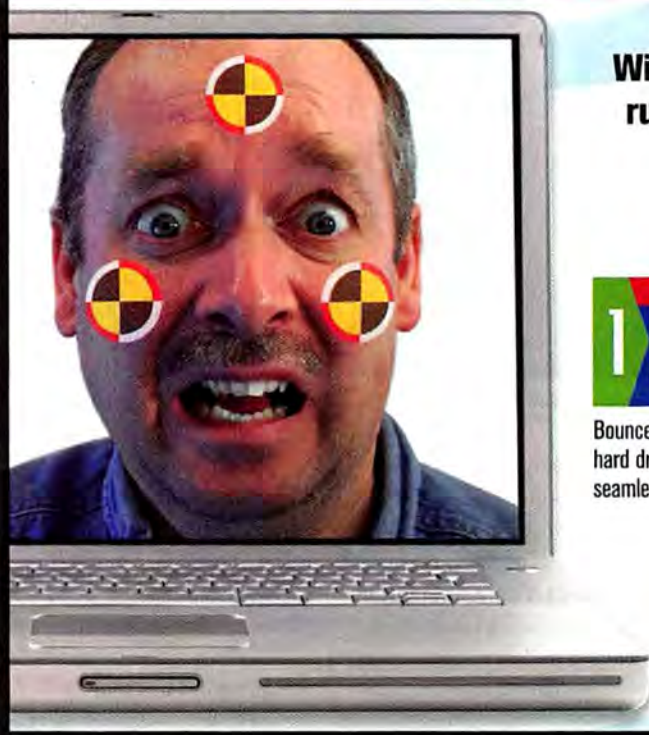
Streak | Dell

Stumbles as a smartphone, but makes a promising minitab.

List: \$300 (with two-year contract)

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## Sony Alpha NEX-5 Is Small but Powerful

THE SONY ALPHA NEX-5's high-performance features—including a 14.6-megapixel sensor, a 25-point autofocus system, and a 7-frames-per-second burst mode—go beyond those in compact cameras. Yet its 10-ounce body is only 4.38 by 2.38 inches. The 3-inch LCD screen occupies most of the back, leaving just



THE SONY ALPHA NEX-5 earned high ratings for its images and video.

★★★★★ VERY GOOD

### Alpha NEX-5 | Sony

Camera's quality and high-end capabilities justify its price.

List: \$700; \$950 with two kit lenses  
[find.pcworld.com/70462](http://find.pcworld.com/70462)

enough space for three buttons and a dial, but the camera is comfortable to hold.

The LCD angles upward 80 degrees and downward 45 degrees, letting you shoot more creatively. However, the camera has no optical or electronic viewfinder.

The NEX-5 uses a clever menu system that's graphical and easy to navigate. For example, instead of a mode dial on top, Sony creates a picture of one on the LCD that you rotate using the multipurpose dial on the back.

In image quality, the NEX-5 performs like a DSLR. It scored well on exposure, color fidelity, sharpness, and

image noise. Photos taken with the NEX-5 were impressive even compared with those of full-fledged DSLRs. Only distortion was a weak spot. Overall, the Alpha NEX-5 achieved an imaging score of Very Good.

I took the NEX-5 to a basketball game and shot at ISO 1600 and 3200. The photos were solid. Plus, shooting at 7 fps enabled me to capture action I would have missed using a compact model.

Movie mode has three resolutions, going all the way up to 1080p, all at full frame rates. You have the option of choosing your movie format, too: MP4 or AVCHD.

In our lab-based video tests, the NEX-5 was the interchangeable-lens camera to beat in video quality. It got the highest overall score for video shot in bright light, video taken in low light, and audio capture, earning a Superior rating for video.

At the top of my special-features list is the Sweep Panorama mode. Not only does the NEX-5 make it easy to capture broad panoramas in a horizontal or vertical direction, but it also merges and processes the images in-camera, nearly instantly.

A free firmware update adds a 3D effect to photos taken in Sweep Panorama mode. Sony also includes Anti Motion Blur technology to help with moving objects, an Auto High Dynamic Range option to better capture highlights and shadows, and built-in shooting tips.

The NEX-5 has no built-in flash. An external flash does come in the box, however.

The Sony NEX-5 is an excellent camera for hobbyists upgrading from compacts who want to increase capability but not bulk.

—Derrick Story

## HDR Expose Has Workflow Issues

HIGH-DYNAMIC-RANGE (HDR) imaging is a growing trend among photography enthusiasts. And Unified Color Technologies' HDR Expose (\$150) does a good job of providing tools to control how merged HDR pictures will look. But the interface impedes editing.

HDR imaging combines photos at different exposures to go beyond what a single image can capture. HDR software is designed to



EXPOSE CAN PRODUCE clean, sharp high-dynamic-range images.

boost a picture's gamut.

HDR Expose, which replaces the company's HDR PhotoStudio, separates dynamic range from color information, so that when you edit, say, the shadows of a picture, you won't alter the colors, and vice versa.

It's a very good program that produces sharp, clean, attractive images, though its midtones tend to be overly contrasty. Our big complaint is that its workflow can be clumsy and time-consuming.

—Sally Wiener Grotta and  
Daniel Grotta

★★★★★ VERY GOOD

### HDR Expose | Unified Color Technologies

Clumsy workflow impedes this image-editing tool's usefulness.

List: \$150  
[find.pcworld.com/70476](http://find.pcworld.com/70476)





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Pizza Ordering Screen



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## Xara's New Photoshop Alternative

XARA PHOTO & Graphic Designer 6 is a graphic design alternative to Photoshop that focuses on doing one thing really well: desktop publishing. Click the Designs Gallery icon, and you access dozens of templates for newsletters, Websites, photo albums, CD covers, and so on.

Once you import a design or template, making changes is very intuitive. One example: the Fill Tool. After click-



**XARA'S SOFTWARE** greatly simplifies graphic design work.

ing on the tool and a region, select one color after another to change that region's color over and over again.

If designing Websites, improving your company letterhead, or creating a CD cover is your goal, Designer 6 is an excellent deal. It's intuitive, but has serious depth for power users.

—Steve Horton

★★★★★ SUPERIOR

**Xara Photo & Graphic Designer 6**  
Xara Ltd.

Desktop publishing tool is a great deal for both newbies and experts.

List: \$90

[find.pcworld.com/70485](http://find.pcworld.com/70485)

## DOWNLOAD THIS

### Keep Your Data Safe Everywhere You Go

NO MATTER WHERE you're working, every minute and every bit of data counts. We found a portable encryption program that keeps your files safe regardless of whose PC you borrow. If you're squeezing the last bit of juice out of your laptop, a battery tool tests and tweaks energy-slurping settings. And a promising beta shortens the longest few minutes in anyone's day: boot time.

#### Encrypt Stick Free

Encrypt Stick is one of the most secure and least intrusive ways to encrypt sensitive data. It leaves no footprint on your computer (or those of others), because it runs off a flash drive, and it will run on both PCs and Macs. Once you're up to speed on the program, all you need to do is drag files to and from the flash drive where Encrypt Stick creates its default vault (that is, an encrypted archive). The free version is limited to 20MB of storage (a full version is \$40), but it's still quite useful. It's a modest download for an amazing set of features. [find.pcworld.com/70488](http://find.pcworld.com/70488)

—Jon Jacobi

#### Battery Optimizer

Battery Optimizer is a small application designed to perform various tasks that improve battery life on a laptop PC. The first thing it does is provide a big graphic detailing battery life expressed in percentage and time. It then



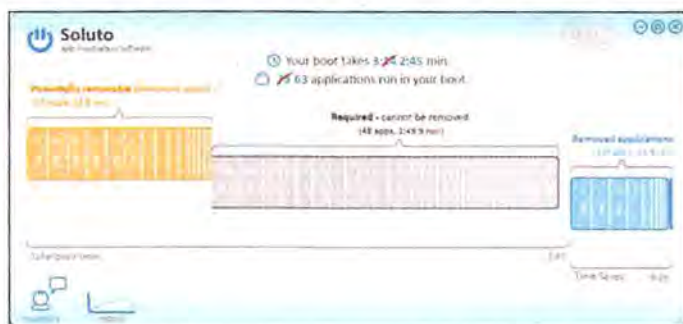
**BATTERY OPTIMIZER** IS a software tool that improves a laptop's battery life through a series of simple diagnostics and tweaks.

runs a diagnostic test that shows you how much battery life you'll gain with its optimizations. The program doesn't do anything that you couldn't do yourself; it simply makes optimizing your laptop's battery life much faster and more convenient. If you think that's worth your \$30, then go for it. [find.pcworld.com/70487](http://find.pcworld.com/70487)

—Steve Horton

#### Soluto

Frustrated by how long Windows takes to fully load after you've logged in? So is just about every other Windows user on the planet. Now you can do something about it. Soluto, currently in free beta, helps you cut that time—in ways that no other program does. Soluto runs in the background and watches what applications and services load when you log in. It then analyzes how long each one takes, and categorizes



**SPEED UP THE** time that Windows takes to boot with the easy-to-use (and free) Soluto beta—it pinpoints programs that could be removed from boot.

them according to whether they are required for Windows, potentially removable, or can easily be removed from boot. If you are looking to cut down your Windows boot time, Soluto is a solid bet. [find.pcworld.com/70486](http://find.pcworld.com/70486)

—Preston Gralla





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# Technology's Biggest Myths

As it turns out, Windows Vista really wasn't all that slow; and no, your PC probably won't fry if you open it up without wearing a wrist strap. Thanks in large part to the Internet, the tech world is teeming with lies, half-truths, and misinformation. We've dug up some of the Web's most notorious nuggets of conventional wisdom to see which hold up to scrutiny and which are merely urban legends.

Of course, there's often a grain of truth in even the most fanciful myth. That's why we provide a handy-dandy set of numbered warning signs to indicate how accurate each of these myths is, with 1 being True and 4 being Outrageous—a complete fabrication. After all, they say numbers never lie. »



Expensive cables are better! Defragging speeds up your PC! Refilling ink cartridges ruins your printer! We put these and nine other claims to the test to find the truth behind tech's tallest tales.

BY PATRICK MILLER

ILLUSTRATIONS BY KEITH NEGLEY



## The Claim: Vista is slower than Windows 7.



When Windows Vista came out, it soon acquired a reputation for being slow and a resource hog. Once Windows 7 arrived, people were quick to tout it as the speedy, slim operating system Vista should have been.

We conducted performance tests on a handful of laptops and desktops using both 32-bit and 64-bit versions of Vista and Windows 7, shortly after the latter OS was released ([find.pcworld.com/63714](http://find.pcworld.com/63714)). Windows 7 raised WorldBench 6 scores from 1.25 percent to almost 10 percent (but most often in the vicinity of 2 to 3 percent); it also resulted in much faster disk operations and slightly longer battery life. But applications launched more slowly.

As it turns out, the “snappy” feeling has to do with Registry tweaks and minor changes to the window manager that make the OS feel more responsive, even though it isn’t that different.

The verdict: Windows 7 *is* faster, but not by as much as you may think.

## The Claim: All smartphones suffer signal loss from a “grip of death.”



When early iPhone 4 adopters discovered that touching a certain spot on the exposed antenna could cause the phone to lose signal strength, reduce data speeds, and even drop calls, Apple insisted that all smartphones suffered from a similar defect. We tested that claim with five different smartphones ([find.pcworld.com/70441](http://find.pcworld.com/70441)). We looked at RF signal strength, data speed rates, and call quality in areas with weak and strong signals.

While every phone we tested was affected by a “grip of death,” none went so far as to drop calls, as the iPhone 4 did ([find.pcworld.com/70442](http://find.pcworld.com/70442)). Bottom line: If you don’t have an iPhone 4, you don’t need to worry too much about this antenna issue.

## You probably know this, but...

...overclocking your PC’s processor won’t make your computer blow up. It *can* generate excess heat, which may cause erratic PC performance and, over time, burn out certain components. But your system will shut down before it blows up. Newer Intel and AMD processors automatically overclock and underclock themselves, depending on how busy your PC is, to keep things cool.



## The Claim: The desktop PC is dying.



Sure, laptops are cheaper and more powerful than ever, and can meet all your basic computing needs. But saying that the

desktop is on its deathbed is like saying that, since all most people need is a Geo Metro, the pickup truck is obsolete. Power users who need desktop-caliber performance in a laptop must pay a significant premium, and if they want a Blu-ray drive, a better GPU, or a 3D display, they must buy a new model. Also, people who like to tinker with their PCs have fewer options with laptops than they do with desktops.

Meanwhile, the desktop PC market is evolving to meet users’ demands. People who want a larger display but don’t like the looks of a tower can buy an all-in-one system. Others want a computer that fits nicely next to their 50-inch HDTV—a home theater PC. And students, who typically benefit most from a laptop, can buy both a solid all-in-one PC for gaming and movies (ahem—“multimedia projects”) and a cheap, lightweight netbook for taking notes in class for the same price as a single moderately powerful laptop (which would be more expensive to replace if it were broken, lost, or stolen).



## The Claim: High-priced HDMI cables make your HDTV look better.



When you plunk down \$1200 (or more) for a new HDTV and \$300 for a Blu-ray player, it can be easy for a salesperson to guilt you into tacking a \$150 HDMI cable onto your purchase—after all, your brand-new gear needs a good cable to get the image quality you're paying for, right? If you're lucky, you'll have the alternative of buying the "cheap" store-brand cable, at a cost of only \$30 and a disapproving look from the cashier. Well, feel free to take that \$150 and spend it on popcorn for the movies you'll be watching—your HDTV won't care which HDMI cable you use.

High-quality cables have been a staple of the audio/video business for decades now, and for good reason—as an analog audio or video signal travels from one device to another, it's susceptible to interference and disruption, meaning that the image data as it leaves your DVD player isn't 100 percent identical to the image that shows up on your TV, because certain parts of the signal can get lost on the way there.

However, digital audio/video standards like DisplayPort, DVI, and HDMI don't have this problem because the data being transmitted over the cable isn't as sensitive as an analog signal; it consists entirely of ones and zeros, and a tremendous drop in signal voltage has to occur before a one starts to look like a zero at the receiving end. When this does happen, you'll usually see some kind of white static "sparklies" on your TV, as the set attempts to fill in the blanks itself, but this typically happens only over very long HDMI runs (8 meters and up). For shorter cables, the cable quality shouldn't matter.

That explanation rarely succeeds in silencing the home-theater enthusiasts (and home-theater salespeople) who swear that they see a difference between the good stuff and the cheap stuff, so we decided to check them out ourselves to see whether cost made a difference. We tested two pricey HDMI cables—the Monster HD1000 (\$150) and the AudioQuest Forest (\$60)—against a couple of bargain-basement cables from Blue Jeans Cable (the 5001A-G, \$5) and Monoprice (the 28AWG, \$3.04).

After testing different kinds of high-def video clips (including clips of football broadcasts and selections from *The Dark Knight* on Blu-ray), we ended up with all four cables in a dead heat: Blue



Jeans Cable, Monoprice, and Monster all saw an average rating of 3.5 out of 5, with AudioQuest trailing ever so slightly at 3.4—close enough to practically be a rounding error. So save your money and stick to the cheaper cables unless you need the cables to cover a long distance.

## The Claim: LCDs are better than plasma screens for HDTV sets.



Don't believe the hype: Your local HDTV salespeople may be trying to upsell you on a spiffy new LCD, but there are plenty of reasons to pick a plasma instead. Plasmas still handle darker scenes better, have a wider range of viewing angles, and are generally cheaper than LCDs (especially at larger sizes). Panasonic and Samsung continue to manufacture plenty of plasma sets (including a line of home 3D TVs and a gigantic, superexpensive 152-inch 3D display). For more on plasma vs. LCD displays, see [find.pcworld.com/70443](http://find.pcworld.com/70443).

LCDs are catching up in a few respects, however. LCD sets with LED backlighting and higher refresh rates can compensate for some of the traditional problems of LCDs, and they suck up significantly less power than plasma sets do, so the higher price may be offset over time in your electricity bill.

Some manufacturers are dropping out of the plasma display market (Pioneer, most notably, and Vizio), and California plans to ban power-hungry TVs—so the writing is undeniably on the wall: Plasma isn't dead yet, but it may be finished in a few years. >>



## The Claim: More bars on your cell phone means better service.



The signal bars on your cell phone display indicate the strength of your cellular signal to the nearest tower. But if you're connected to a tower that lots of other people are connected to, you could have a strong signal and still have poor service, since everyone's calls are competing for scarce network resources. Once your information

arrives at the cellular tower from your phone, it has to travel through your service provider's backhaul network (which connects the tower to the Internet). And if your provider's network isn't up to snuff, you could have a flawless connection to an empty cell tower, and yet still encounter poor speeds and dropped calls.

When we tested 3G service in 2009, we found that signal bars were poor indicators of service quality in 12 of the 13 cities in which we tested. In San Francisco, for one, signal bars correlated with service quality in only 13 percent of test results.

Additionally, if you use an iPhone, you might just be seeing inaccurate readings. Apple recently announced (in connection with the iPhone 4 antenna issue) that the formula it had been using in all iPhones to display signal strength was "totally wrong" and often reported the signal as two bars higher than it should have. Oops.



## You probably know this, but...

...your cell phone isn't going to cause an airplane to crash, though the Federal Aviation Administration still has a ban on using cell phones during flight to avoid interfering with the plane's navigation and communication systems. In fact, the Federal Communications Commission instituted its own ban in 2007 for a different reason: When we're 30,000 feet in the air, we're roughly the same distance from several different towers at once, meaning that multiple towers might sense our call and reserve that cellular channel for us—which could prevent other people from using the tower and interfere with existing calls.

## The Claim: Over time, inkjet printers are much more expensive than laser printers.



To figure out how much a printer's consumables will cost you over time, you take the price of the ink or toner cartridge and divide

by the estimated page yield per cartridge, for your cost per page. Traditionally, laser printers have had a higher initial purchase price, which was balanced by their lower cost per page versus inkjet printers.

However, as inkjet printer manufacturers began to release more efficient models (ones with separate ink tanks for each color, or higher-yield cartridge options), the cost-per-page gap has closed dramatically. Businesses needing cheap, fast printers, for example, could do well with either the Epson B-510DN inkjet (1.3 cents per black text page, 14.7 pages per minute, \$600 retail price), or one of the more economical laser printer models, such as the Oki C610dtn (1.1 cents per black text page, 19.1 pages per minute, \$700 retail price). Home users and students have fewer options—paying less for the printer means paying more for the ink. To its credit, the Canon Pixma iP4700 (2.7 cents per black text page, 7.4 pages per minute, \$100 retail) has reasonably priced inks.

Keep in mind that the inkjet printers you see going cheap with big mail-in rebates or included with laptop purchases generally aren't the type that can hang with a laser printer in speed and costs. Instead, you'll end up paying more in the long run via expensive, low-yield ink cartridges—to the point where it can even be cheaper to buy a new printer than to refill the ink in your old one (see [find.pcworld.com/69406](http://find.pcworld.com/69406)).



## Don't be fooled again.

All fired up about demystifying tech-related myths? A few other sites can help.

**Snopes.com** is good for tracking annoying chain letters and the occasional Facebook-related scare. If friends and family pester you about such things, sending them a few links to Snopes might help.

**HowStuffWorks.com** has a special "tech myths" section that deals specifically with some of the more popular misconceptions in the tech world.

**PCWorld Forums** ([forums.pcworld.com](http://forums.pcworld.com)) is also worth visiting. It's one of the best venues where hard-core PC users congregate to swap stories and advice. Ask away and get plenty of answers.



## The Claim: People with more monitor space are more productive.



Begging your boss for an extra display at work? You might sell her on the idea if you tell her you'd be 30 to 50 percent more productive than you are on your single 18-inch display. At least, that's what a 2008 study from the University of Utah (commissioned by NEC, mind you) found for text and spreadsheet tasks.

NEC, naturally, was quick to trumpet the results as a way to move more of its widescreen displays. However, the study also found a point of diminishing returns. Productivity gains fall in a bell-curve distribution once you hit a certain amount of screen space. For a single-monitor setup, over 26 inches is too much, while dual-display gains top out at 22 inches.

In addition, the pattern of the results implies that while a second monitor can make you a wunderkind at work, don't even think about adding a third.

Interestingly, users' reported preference did not predict their performance—that is, the setup they liked wasn't necessarily the one they worked best with.

So think about what you'd be using that second display for. The University of Utah study took place in a controlled environment, where the subjects did nothing but the text and spreadsheet tasks they were assigned. If that sounds like your office, you'll probably do great with a second monitor.

If you're planning on using that second display for e-mail, Twitter, or other Internet-related distractions, however, you're probably going to end up being less productive overall. (I certainly am.)

## The Claim: Refilled ink cartridges will ruin your printer.



Taking your printer's ink cartridge to a refill service can save you a few bucks. But because cartridges aren't designed to be

reused, refilling has risks: Nozzles could clog, or the ink tank could spring a leak. A good rule of thumb is to monitor the cartridge closely so you can prevent damage to it—or to your printer—if something goes awry. That way, though the cartridge or printhead might be a goner, you are unlikely to cause any permanent damage to the printer itself.

Note that refills done by a third party typically come with a guarantee that covers the cartridge (which may cost anywhere from \$10 to \$20)—but not necessarily the printer.

Refill companies also like to remind you that it is illegal for your printer manufacturer to void the warranty on your printer for using third-party cartridges. True enough, but warranty agreements we've seen suggest that if a refill cartridge breaks your printer, you shouldn't expect a free fix. If you're worried about leaks, pull the cartridge out of the printer occasionally to see if any excess ink is pooling near where the cartridge rests in the printer. »



## The Claim: Internet Explorer is less secure than other browsers.



Everyone “knows” that Chrome, Firefox, and Safari are all way more secure than Internet Explorer. But what’s the real story?

To find out, I first looked up Symantec’s twice-yearly Internet Security Threat Report, which yielded the total numbers of reported vulnerabilities for 2009: Firefox had the most at 169, followed by 94 for Safari, 45 for IE, and 41 for Google Chrome. For more-recent data, I turned to the United States Computer Emergency Readiness Team (US-CERT), which hosts the National Vulnerability Database, a searchable index of reported computer vulnerabilities. A search of data for a recent three-month period yielded 51 such vulnerabilities for Safari (including both mobile and desktop versions), 40 for Chrome, 20 for Firefox, and 17 for IE.

Such counts alone aren’t the best way to measure a browser’s security, however. A browser with 100 security flaws that are patched a day after being discovered is safer than a browser with only one exploit that hasn’t been patched for months.

According to Symantec’s report, the average window of vulnerability (the time between when the flaw is reported and when it’s patched) in 2009 was less than a day for IE and Firefox, 2 days for Google Chrome, and a whopping 13 days for Safari.

Clearly, Internet Explorer is doing fairly well. Nevertheless, you should still consider a few important factors before deciding to jump ship back to IE.

**Stay updated.** The second most common Web-based attack in 2009 exploited an IE security flaw patched way back in 2004 (the 2009 attack targeted unupdated PCs). The latest version of IE 8 may be pretty safe, but ditch any earlier version you have.

**Your browser is only as secure as your plug-ins.** Symantec found that Microsoft’s ActiveX plug-in (enabled by default in IE) was the least secure with 134 vulnerabilities, followed by Java SE with 84, Adobe Reader with 49, Apple QuickTime with 27, and Adobe Flash Player with 23. The moral: Be careful at sites that use browser plug-ins.

**It’s tough to be on top.** IE still has the biggest piece of the browser pie, meaning that cybercriminals are more likely to target IE than other browsers.



**YOU CAN DISABLE** most of the ActiveX functions in Internet Explorer by going to Tools • Internet Options • Security and resetting your browser’s Security Level to High.

## The Claim: You’re safe if you visit only G-rated sites.



If your PC has ever had a virus, you probably know about the raised-eyebrow, mock-judgmental

looks you get when you tell that to other people. After all, if you had been a good little PC user and stayed in the G-rated Web, you would have been safe, right?

Not so, says Avast Software, makers of Avast, a popular antivirus suite. “For every infected adult domain we identify, there are 99 others with perfectly legitimate content that are also infected,” its chief technology officer, Ondrej Vlcek, reports. In the United Kingdom, for example, users are far more likely to see infected domains with *London* in the name than *sex*.

So porn alone doesn’t necessarily mean you’re opening yourself up for infection. Which makes sense—porn-site operators depend on subscriptions and repeat visitors to do business, and infecting your customers with spyware isn’t the best way to do it. If you find yourself on a generic-looking Website with popular search keywords in the title, or a site that’s rearranging your browser window, you’re likely to end up stuck with some malware—whether it’s about porn or about hotels in London.



## You probably know this, but...

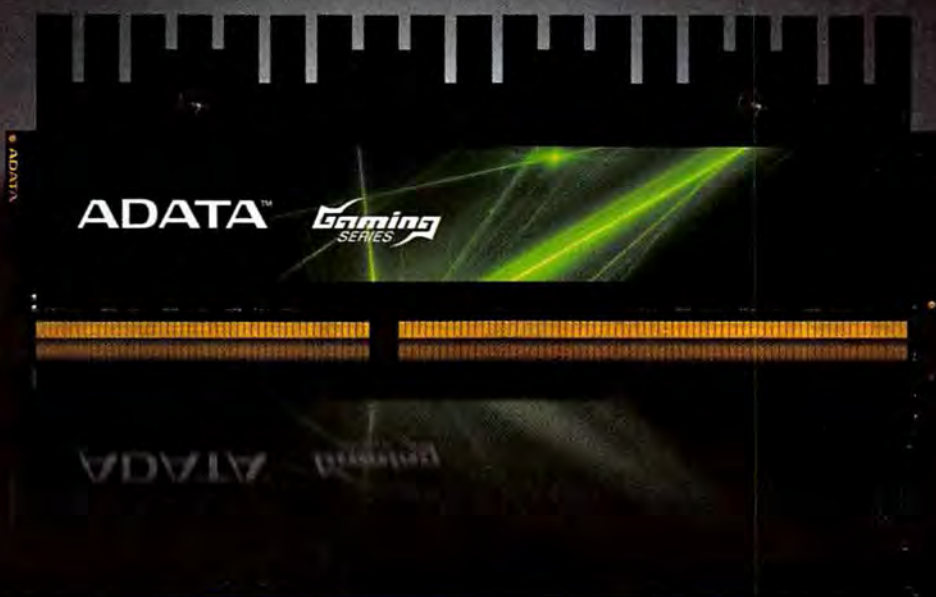
...you don’t have to worry about magnets annihilating your hard drive. Magnets were dangerous for 3.5-inch floppy disks, but modern hard drives aren’t affected by anything short of a high-end degaussing device. Don’t worry about your flash memory cards and solid-state drives, either—there’s nothing magnetic about flash memory, so such devices won’t be affected.





# ADATA XPG Gaming V2.0 Series DRAM Module

## Fast & Stable



Within hardcore gaming, overclocking, and enthusiast circles, faster is always better. Unfortunately, though, faster tends to go hand in hand with hotter, which is not so good. ADATA's XPG Gaming V2.0 Series DRAM Module brings killer speed and related performance to component-conscious gamers in DDR3-1600, DDR3-2000, DDR3-2200, and DDR3-2400MHz frequency options. The company's approach of doubling up on the amount of copper it uses in the module's PCB, combined with the use of ADATA's TCT (Thermal Conductive Technology), brings gamers the stability and reliability needed to keep that speed from killing the gaming experience.

### Thermally Speaking

Available in dual-channel (2GB x 2 and 4GB x 2) and triple-channel (2GB x 3 and 4GB x 3) kits, the XPG Gaming V2.0 Series DRAM Module's use of TCT means that each memory chip is put in direct contact with the module's aluminum heat spreaders. Further, the heat spreaders sport an extended surface area that leads to more efficient offloading of heat. The end result is that heat is immediately ushered away from those critical module areas where damage is likely to occur.

One aspect of TCT is ADATA's use of 2 ounces of high-quality copper in eight layers on the module's PCB, which gives the XPG Gaming V2.0 Series DRAM serious cooling capabilities and reduces electrical flow resistance to cut down on electrical waste. Overall, you're getting a module that offers better signal integrity and a longer lifespan.

### Xtreme Plus Gaming

Optimized for 64-bit operating systems and sold with a limited lifetime warranty, the XPG Gaming V2.0 Series DRAM Module series includes the DDR3-2400G, DDR3-2200G, DDR3-2000G, and DDR3-1600G models, all of which are tested at latency settings of CL9-9-9-24 at 1.55V to 1.75V. Additionally, all are backward-compatible with DDR3-1600, DDR3-1333, and DDR3-1066 frequencies.

If you're a gaming enthusiast who requires the most out of your system components, the XPG Gaming V2.0 Series DRAM Module gives you the speed and performance you demand from system memory without sacrificing stability and reliability to get it. ■



## The Claim: You should regularly defragment your hard drive.



Your hard drive has to decide where to write your files on the drive platter, and as you fill up the drive, your files will be scattered more and more widely across the platter. This means that the drive's read/write heads take longer to find the whole file, since they take more time skipping around the platter to find the different parts of the fragmented file. However, this state of affairs isn't an issue these days, for several reasons:

**Hard drives are bigger.** When your hard drive capacity was measured in megabytes, fragmentation was a big deal. Not only did the drive's read/write heads have to move all over the platter, but the space freed up by deleting old files was also scattered, and new files could be dispersed across the small gaps between larger files.

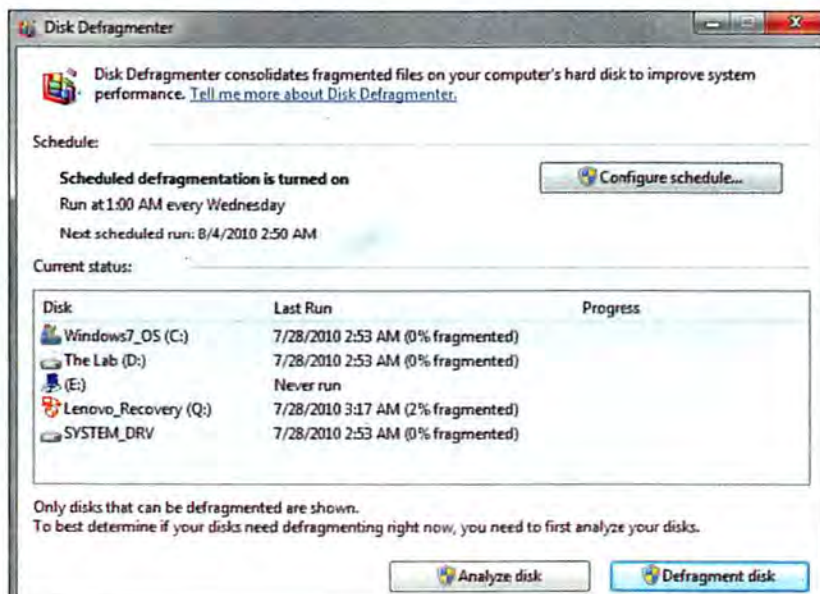
People now generally have more hard drive space and use a smaller overall percentage of their drive, so the read/write heads don't have to move as much.

**More RAM and optimized OSs help.** According to the engineers who worked on Windows 7's updated Disk Defragmenter tool (see the screenshot below), Windows' file system allocation strategies, its caching and prefetching algorithms, and today's relative abundance of RAM (which permits the PC to cache the data actively in use rather than having to write repeatedly to the drive) minimizes fragmentation delay.

**Solid-state drives don't need to be defragmented.** SSDs don't have a drive platter or read/write heads that need to go searching around the drive. In fact, defragmenting is generally not recommended for SSDs because it wears down the hard drive's data cells, shortening the drive's overall lifespan.

**You don't need to go out of your way to defrag.** In Windows Vista and Windows 7, the system automatically handles defragging. By default, defragging happens at 1:00 a.m. every Wednesday, but if your PC isn't on or is in use, the process will occur in the background the next time the machine is idle.

**We didn't notice a difference.** When we last tested disk defragmentation ([find.pcworld.com/70446](http://find.pcworld.com/70446)), we took a heavily used, never-defragmented system from the PCWorld Labs, ran speed tests before and after defragging, and found no significant difference.



## You probably know this, but...

...you shouldn't run your laptop battery to zero. Users occasionally had to drain the nickel-metal hydride (NiMH) batteries in older laptops because the batteries would incorrectly "remember" how much charge they could hold if the user wasn't charging a battery to its full capacity. The lithium ion batteries in modern laptops, however, can actually lose maximum battery charge if they are completely drained, because doing so increases the battery's chemical resistance to recharging, which shortens its lifespan. The only time that you should consider running your lithium ion battery to zero is if your PC's battery life ratings have gone completely haywire. Draining the battery can sometimes fix this problem. ●



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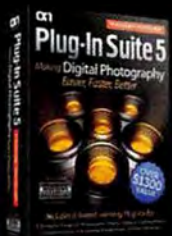
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{The Perfect PC}

# Don't Buy It, Build It

Whether you've budgeted \$500 for a new machine or given yourself \$1200 to spend, our editors show you how to create the best system for the money. »

BY NATE RALPH  
ILLUSTRATION BY SEAN McCABE



## The Perfect PC

Quiet, but powerful. Roomy enough to hold your expansive DVD collection, but small enough to tuck inside a cabinet. It should look nice and be ready to tackle all of the latest and greatest games, but it shouldn't break the bank.

The perfect PC means different things to different people. If you search hard enough, you may find a factory-made machine that matches your ideal, at a reasonable price. But if you'd rather not wait for a major retailer to hit all the right notes, consider building your own system.

Don't worry—putting together a PC is a lot easier than you might think. And there are plenty of good reasons to do it.

If you've ever had to ship your computer back to the manufacturer for a checkup, the experience may have encouraged you to think seriously about rolling up your sleeves and doing your own troubleshooting. Lengthy turnaround times, or hours spent sitting on hold with customer service are maddening enough. But if your machine happens to be out of warranty—or didn't have a very good warranty to begin with—the cost of getting a part or the entire system replaced could be more than you bargained for.

Most of all, building your own system is fun. Technology has become increasingly complex, but PCs are modular—and with our step-by-step guide you can put together a dream machine that's just right for your needs and budget.

**Note:** The do-it-yourself process is a double-edged sword. Whether you've had positive customer service experiences in the past or not, having a single seller to turn to if your equipment goes haywire can simplify troubleshooting (and replacing parts). Getting a faulty component replaced on a home-built machine entails working with individual product manufacturers, which may increase the overall hassle.

Caveats aside, you'll be hard pressed to find a computer that suits your needs better than one you build yourself. The first and most important step in building a PC is to know exactly what you want it to do. The only thing worse than wasting time assembling a subpar system is spending far more money than you need to, cobbling together a quad-core behemoth that you'll be using just to check your e-mail.

Once you have identified the functions that you want your PC to perform, decide how much you're willing to spend. A system designed for gaming or video editing will require a

## Parts List: \$500 PC

IT'S NOT EASY to build a PC for just \$500 in parts. No matter how you slice it, you're going to have to make some sacrifices. That said, we were impressed at how much computing power we could get for \$500. Here are the parts we chose for our \$500 PC build, along with the reasons we picked them. The prices listed here are ones we found at reputable online stores; the numbers may have shifted by the time you read this.



### CPU

**AMD Athlon II X3  
445 (3.1GHz)  
\$90**

At the low end of the price range, AMD's processors provide really good bang for the buck. What's more, choosing this CPU enables us to use an affordable motherboard with very good integrated graphics.



### CPU Cooler

**Stock (see below)  
\$0**

The AMD Athlon processor that we chose comes with a stock CPU cooling fan, so we don't have to spend any extra money to get this component.



### Motherboard

**Biostar TA890GXB  
\$95**

Built on the Micro-ATX design, this motherboard offers AMD's latest chipset, support for the full range of AMD processors, and Radeon HD 4290 integrated graphics (one of the best integrated graphics options available).



### RAM

**Crucial DDR3  
1333MHz (two 1GB  
modules)  
\$57**

We'd prefer 4GB of RAM, but our budget won't allow it. Crucial makes reliable RAM at a fair price, and this pair of 1GB DDR3 memory sticks will get the job done.



### Case

**Rosewill R102-P-BK  
\$30**

It's not the best case around, but it fits our MicroATX-based motherboard nicely, it's inexpensive, and it's not ugly. On our tight budget, that's about as much as we can hope for.



### Power Supply

**Cooler Master Elite  
460W  
\$30**

With the components we're using, we don't need a power supply with a lot of wattage. Instead, we need one that is inexpensive and reliable, and Cooler Master's 460W model fits the bill.



larger investment than one intended for nothing more demanding than surfing the Web. Our parts lists enumerate the components that we chose, and explain our rationale—beyond sticking to our budget—for choosing each part.

## Testing

For our tests of our DIY system, we used the PCWorld Labs' WorldBench 6 benchmark suite. WorldBench 6 gauges real-world system performance on a series of tests based on common applications. We calculate WorldBench 6 scores by timing how long a machine takes to complete the various tasks, and weighing those numbers against the performance of a baseline system. We also conducted a gaming test, using Unreal Tournament 3 to provide us with a graphical performance benchmark.

With test results in hand, we compared the data for the PC that we built from scratch against the average for machines at similar price levels. All of the competitors we considered were recently reviewed machines, available at retail. ➤

# \$500 PC

## TEST

	TEST SCORE		
	Home-built \$500 PC	Average for all preassembled \$500 PCs	Speed advantage of average preassembled \$500 PC over home-built \$500 PC
WorldBench 6	108	112.0	3.70%
Adobe Photoshop CS2	442	374.6	17.97%
Autodesk 3ds Max 8.0 SP-3 (DirectX)	346	401.1	-13.75%
Autodesk 3ds Max 8.0 SP-3 (Rendering)	443	484.0	-8.47%
Firefox 2	256	246.5	3.85%
Microsoft Office 2003 with SP-1	354	325.1	8.87%
Microsoft Windows Media Encoder 9.0	200	167.8	19.17%
Multitasking: Firefox and Windows Media Encoder	285	300.5	-5.16%
Nero 7 Ultra Edition	302	294.6	2.49%
Roxio VideoWave Movie Creator 1.5	207	194.3	6.52%
WinZip Computing WinZip 10.0	222	197.8	12.22%
Unreal Tournament 3, medium settings (frame rate)			
1024 by 768 resolution	26.2 fps	17.7 fps	-32.12%
1680 by 1050 resolution	11.7 fps	10.8 fps	-7.41%
1920 by 1200 resolution	9.2 fps	9.7 fps	6.34%
2560 by 1600 resolution	9.2 fps	8.5 fps	-7.07%
Unreal Tournament 3, highest settings (frame rate)			
1024 by 768 resolution	22.6 fps	13.9 fps	-38.13%
1680 by 1050 resolution	10.3 fps	8.3 fps	-18.61%
1920 by 1200 resolution	8.3 fps	7.6 fps	-7.63%
2560 by 1600 resolution	8.3 fps	6.4 fps	-22.89%

# total = \$493



**Graphics**  
**Radeon HD 4290**  
(integrated into motherboard)

**\$0**

In lieu of a graphics card, we're relying on the motherboard's integrated graphics. If you're a gamer, you'll want to invest \$100 in a decent graphics card—but that would take us way over our budget.



**Hard Drive**  
**Seagate Barracuda 7200.12 500GB**

**\$49**

Hard-drive storage is amazingly inexpensive these days. This 7200-rpm drive from Seagate performs quite well, holds half a terabyte, and costs about half a C-note.



**Optical Drive**  
**Asus DVD-E818A6T**

**\$17**

This is an extremely simple and basic DVD-ROM drive. It reads DVDs and CD-ROMs, but it doesn't burn discs, nor does it play Blu-ray discs. It costs only \$17, which is perfect for our tight budget.



**Operating System**  
**Windows 7 Home Premium 64-bit (OEM)**

**\$100**

Linux costs less, but we want compatibility with mainstream apps. Despite having just 2GB of RAM, we opted for the 64-bit version of Windows 7, for its slight security edge, and for future upgradability.



**Keyboard**  
**Microsoft Comfort Curve Keyboard 2000**

**\$15**

Shopping carefully online, we found this perfectly adequate keyboard for an astonishingly low \$15. At that price, it's a steal!



**Mouse**  
**Microsoft Comfort Optical Mouse 1000**

**\$10**

It isn't our favorite mouse, but it's better than the generic low-cost mice that ship with most prefab \$500 PCs. And because it's dirt cheap, it helps us keep our system's overall cost under \$500.



## Our PC vs. the Competition at \$500

On a \$500 budget, PC manufacturers have a clear advantage: By ordering in bulk and maintaining direct control over their supply chain, they can buy components at lower prices than can an individual user shopping for parts online. On the other hand, they have to pay for assembly (do-it-yourselfers work for free) and of course they have to build in a profit margin.

Overall, our results weren't bad. On our WorldBench 6 tests, our \$500 system scored 3.7 percent below the average mark for budget desktop PCs in the same price category.

Graphics performance was better—though not exceptionally so. We couldn't eke out a playable frame rate, regardless of setting, which is normal with integrated graphics. Despite such results, our \$500 PC still outperformed the category average in gaming frame rates by a considerable amount.

Limitations in gaming performance aside, our \$500 machine does excel at tackling high-definition content. Our motherboard's integrated graphics chip offers MPEG-2 and H.264 decoding, which helps lighten the load on the CPU. The end result is smooth, stutter-free playback, even at high-

er resolutions. You'll also have enough power to run multiple displays—an arrangement that's handy for getting work done when you aren't watching your favorite flicks.

Despite its marginally lower performance, our \$500 machine has a few advantages over competing prefab systems. Machines in the budget desktop PC category generally get tucked into petite, custom cases that don't offer much room to grow. Our Rosewill chassis isn't much larger than the average, but it can accommodate various components that you may want to introduce later on. Likewise, our motherboard's integrated graphics system leaves PCI slots available for adding a discrete graphics card, if we'd eventually like to make our rig a bit friendlier for gaming or video editing.

## Our PC vs. the Competition at \$1200

Though our \$500 machine struggled a bit to keep up with its low-cost preassembled peers, its \$1200 sibling had no such trouble. The higher price ceiling allowed us to focus on getting stronger performance, while building a machine that was quiet, user friendly, and reasonably attractive.

## Parts List: \$1200 PC

\$1200 GIVES US room to choose more powerful, more visually appealing, and less noisy PC parts, for a better overall experience. This PC should be able to handle almost anything you throw at it during the next few years, from video conversions to high-end PC games. The result: a PC that truly does it all, and does it well. Here are the parts we chose for our \$1200 PC, along with our rationale for choosing each. We found the prices listed here at reputable online stores; the precise numbers may have shifted by the time you read this.



### CPU

**Intel Core i7 875K  
(2.93GHz)**

**\$310**

Priced at just over \$300, this Intel Core i7 processor has four cores (eight threads) to deliver plenty of power. And since it's unlocked, it gives overclockers lots of options.



### CPU Cooler

**Cooler Master DP6-9EDSA-0L**

**\$11**

We opted for a fairly inexpensive CPU cooler. It's fairly quiet and does a good job of keeping the processor cool, but if you plan to overclock the CPU, you'll want something a little more substantial.



### Motherboard

**Asus P7P55 LX**

**\$111**

This motherboard has a fanless design, and its two graphics slots let you run dual ATI graphics cards. The P7P55 LX supports up to 16GB of RAM and any Core i5 or i7 processor that uses the LGA 1156 socket type.



### RAM

**OCZ Platinum DDR  
1333MHz (two 2GB  
modules)**

**\$105**

4GB is enough for any modern home PC, and we'll have two slots open, so we can double our system's memory later by adding another pair of 2GB memory sticks.



### Case

**Zalman Z7 Plus  
Black ATX Tower**

**\$67**

The Z7 Plus is a great midsize tower PC case for the price. It looks nice, has thick sides to dampen noise, and includes several large (120mm) fans to keep things cool.



### Power Supply

**Antec EA650 650W**

**\$80**

Antec's EarthWatts power supplies are energy-efficient and reasonably priced. We don't need 650 watts for the components we've chosen, but it's smart to build in a little breathing room for future upgrades or overclocking.



Our \$1200 machine's WorldBench 6 performance was almost 4 percent better than the average for the mainstream desktop PCs category. That's a marginal bump, but bear in mind that the Core i7-875K processor we used is unlocked and thus overclocker-friendly. If you're feeling a little adventurous, you can easily push the CPU beyond its stock clock speeds and get a little more mileage out of your system. You can obtain even more legroom by upgrading from the inexpensive CPU cooler we selected to something a bit larger. Even if you'd rather not dabble with overclocking, you won't find it easy to beat our performance results at this price.

Graphics performance was also noteworthy, which will please builders looking to play some games on their rig. Our \$1200 PC's XFX Radeon HD 5850 trumped the mainstream PC category average in our gaming tests, across the board.

As with our budget model, taking the do-it-yourself route enabled us to choose a fairly versatile case. The Zalman Z7 chassis has plenty of bays for future expansion, while muffling much of the racket that the components make. ➤

# \$1200 PC

## TEST

	TEST SCORE		
	Home-built \$1200 PC	Average for all preassembled \$1200 PCs	Speed advantage of average preassembled \$1200 PC over home-built \$1200 PC
WorldBench 6	138	132.8	-3.77%
Adobe Photoshop CS2	339	355.4	-4.61%
Autodesk 3ds Max 8.0 SP-3 (DirectX)	294	313.4	-6.19%
Autodesk 3ds Max 8.0 SP-3 (Rendering)	219	250.4	-12.54%
Firefox 2	196	204.8	-4.30%
Microsoft Office 2003 with SP-1	311	328.4	-5.30%
Microsoft Windows Media Encoder 9.0	163	179.2	-9.04%
Multitasking: Firefox and Windows Media Encoder	215	232.6	-7.57%
Nero 7 Ultra Edition	298	234.2	27.24%
Roxio VideoWave Movie Creator 1.5	164	190.8	-14.05%
WinZip Computing WinZip 10.0	156	184.2	-15.31%
Unreal Tournament 3, medium settings (frame rate)			
1024 by 768 resolution	222.3 fps	170.0 fps	-23.53%
1680 by 1050 resolution	205.1 fps	150.1 fps	-26.80%
1920 by 1200 resolution	179.1 fps	123.9 fps	-30.77%
2560 by 1600 resolution	120.1 fps	105.5 fps	-12.15%
Unreal Tournament 3, highest settings (frame rate)			
1024 by 768 resolution	137.5 fps	124.6 fps	-9.35%
1680 by 1050 resolution	137.2 fps	100.0 fps	-27.09%
1920 by 1200 resolution	133.0 fps	86.9 fps	-34.60%
2560 by 1600 resolution	96.3 fps	75.8 fps	-21.27%

# total = \$1203



**Graphics**  
**XFX Radeon HD 5850**  
**\$285**

This is one of the best sub-\$300 graphics cards out there. It's quiet, it supports DirectX 11, and it can run every modern game, even at high detail levels.



**Hard Drive**  
**Seagate Barracuda 7200.12 750GB**  
**\$60**

This drive resembles the excellent workhorse we used in our \$500 PC, only with 50 percent more storage capacity. We wanted to get the 1TB model, but we're pushing the \$1200 limit as it is.



**Optical Drive**  
**Asus DRW-24B1ST**  
**\$23**

This model is quite capable. It burns single and double-layer DVDs as well as CDs, so with the exception of Blu-ray support, it does everything you could want of an optical drive.



**Operating System**  
**Windows 7 Home Premium 64-bit (OEM)**  
**\$100**

To make full use of our 4GB of RAM, we want the 64-bit edition of Windows 7. Even if our configuration were more modest, we'd still want 64-bit: It's the future.



**Keyboard**  
**Microsoft Comfort Curve Keyboard 2000**  
**\$15**

This very serviceable keyboard has an unbeatable price. (It's the same one we chose for the \$500 PC.) We couldn't find anything better that didn't cost at least \$20 or \$30 more.



**Mouse**  
**Logitech MX 518**  
**\$36**

Our more expensive PC requires a better mouse than the \$500 system's Microsoft Comfort Optical Mouse 1000. Logitech's MX 518 is large and comfortable, tracks smoothly, and is sensitive enough for gamers.





## Tools

**BEFORE YOU START**, get your tools are in order. Luckily, you won't need many.

To open the boxes that components arrive in, keep a **box cutter** or a sharp knife handy. You'll also need to cut away any cable ties that stand in the way.

Quite a few screws will accompany each of your components, and they may not be interchangeable. Keeping things organized will simplify your work. You'll need a **Phillips-head screwdriver** to put everything together, so be sure to have one available.

Finally, have a few **twist ties** and **cable ties** on hand. Building

a PC can be messy work, with a rat's nest of wires protruding from the power supply and plugged into your components. But besides being annoying while you're mucking about inside the case, tangled wiring can cause components to get hotter than they otherwise would while your PC is running. Tying back cables to keep them out of the way will keep cool air flowing throughout the chassis.

## Step by Step

ASSEMBLING A PC isn't as hard as you might think. Just clear a couple hours from your day and find a big, clean space to work in. Following are the nine steps you'll take to assemble your home-made PC. As you'll see, it's not very technical and doesn't require special tools or skills. For a more detailed demonstration of building a PC, see our short video series at [find.pcworld.com/70497](http://find.pcworld.com/70497).

### 1 Install the power supply:

Line up the power supply's holes with the mounting space in the case, and screw it in.

### 2 Install the motherboard:

Screw the spacers into your case, and then screw the motherboard onto the spacers. Plug the power supply and case buttons (power, reset) into the motherboard.

**3 Install the CPU:** Gently place the processor in the socket, and fold the lever down to lock it in place. Place thermal grease on the CPU if necessary, and then snap or screw on the CPU cooler.

**4 Mount the CPU cooler:** Position the CPU cooler over the mounting holes, adding a dab of thermal paste to the CPU if necessary. Some coolers have snaps and some have screws; either way, tighten it down securely.

**5 Install the RAM:** Line up the notch in the RAM with the slot and press firmly until it snaps into place.

### 6 Install the hard drive:

Screw the hard drive into the mounting brackets (usually in the front of the case). Attach the SATA power cable from the power supply, and the SATA data cable to the motherboard.

### 7 Install the optical drive:

If you have rails, screw the drive onto them and slide it into the case. If not, slide the drive in and screw it into position. Attach the SATA power cable from the power supply and the SATA data cable to the motherboard.

### 8 Install the graphics card:

If you're using integrated graphics, you can skip this step. Push the graphics card firmly down to seat it in the large PCIe slot closest to the CPU. Then plug in the power connectors from the power supply.

### 9 Install the operating system:

Attach your keyboard, mouse, and monitor; then turn on your PC and put the Windows disc in your optical drive. Follow the prompts to install your OS, and you're done! ●







The world's first adaptive mouse!

# WTF?



Find out!

[GetSmartfish.com/WTF](http://GetSmartfish.com/WTF)



iBUYPOWER Recommends Windows® 7 Home Premium

# GRAB YOUR GEAR Prepare for Battle



**Faster.  
Smarter.**



Zalman GS1000 Plus



Thermaltake Level 10



## Gamer Paladin D885

- Intel® Core™ i7-930 Processor
- Genuine Windows® 7 Home Premium 64-Bit Edition
- Gigabyte GA-X58A-UD3R, USB3 + SATA3 Motherboard
- NVIDIA® GeForce™ GTX470 1280MB Video Card - DirectX 11 Support
- Thermaltake V9 Green Gaming Case + 800W SLI™ Certified Power Supply
- Intel® 40GB SSD (Boot) + 2TB SATA3 HDD (Data)
- Liquid CPU Cooling System with 120mm Radiator
- High Definition Surround 3D Premium Sound
- Optional: NVIDIA® 3D Vision Glasses & Monitor (+639)

**\$1939**



Components included with system

- |  |        |
|--|--------|
| • Intel® Core™ i7-980X Processor Extreme Edition | \$2699 |
| • Intel® Core™ i7-970 Processor                  | \$2559 |
| • Intel® Core™ i7-960 Processor                  | \$2239 |
| • Intel® Core™ i7-930 Processor                  | \$1939 |



## LAN Warrior II-55

- Intel® Core™ i3-540 Processor
- Genuine Windows® 7 Home Premium 64-Bit Edition
- Gigabyte H55M-USB3 Motherboard
- NVIDIA® GeForce™ GTX465 1GB Video Card - DirectX 11 Support
- NZXT Vulcan Gaming Case + 700W Certified Power Supply
- 1TB SATA-II Hard Drive
- High Definition Surround 3D Premium Sound
- Optional: NVIDIA® 3D Vision Glasses & Monitor (+639)

**\$879**



Components included with system

- |                                  |        |                                  |        |
|----------------------------------|--------|----------------------------------|--------|
| • Intel® Core™ i7-875K Processor | \$1119 | • Intel® Core™ i5-760 Processor  | \$979  |
| • Intel® Core™ i7-870 Processor  | \$1079 | • Intel® Core™ i5-670 Processor  | \$1079 |
| • Intel® Core™ i3-540 Processor  | \$879  | • Intel® Core™ i5-660 Processor  | \$979  |
|                                  |        | • Intel® Core™ i5-655K Processor | \$979  |
|                                  |        | • Intel® Core™ i5-650 Processor  | \$949  |

Toll Free: 888-462-3899

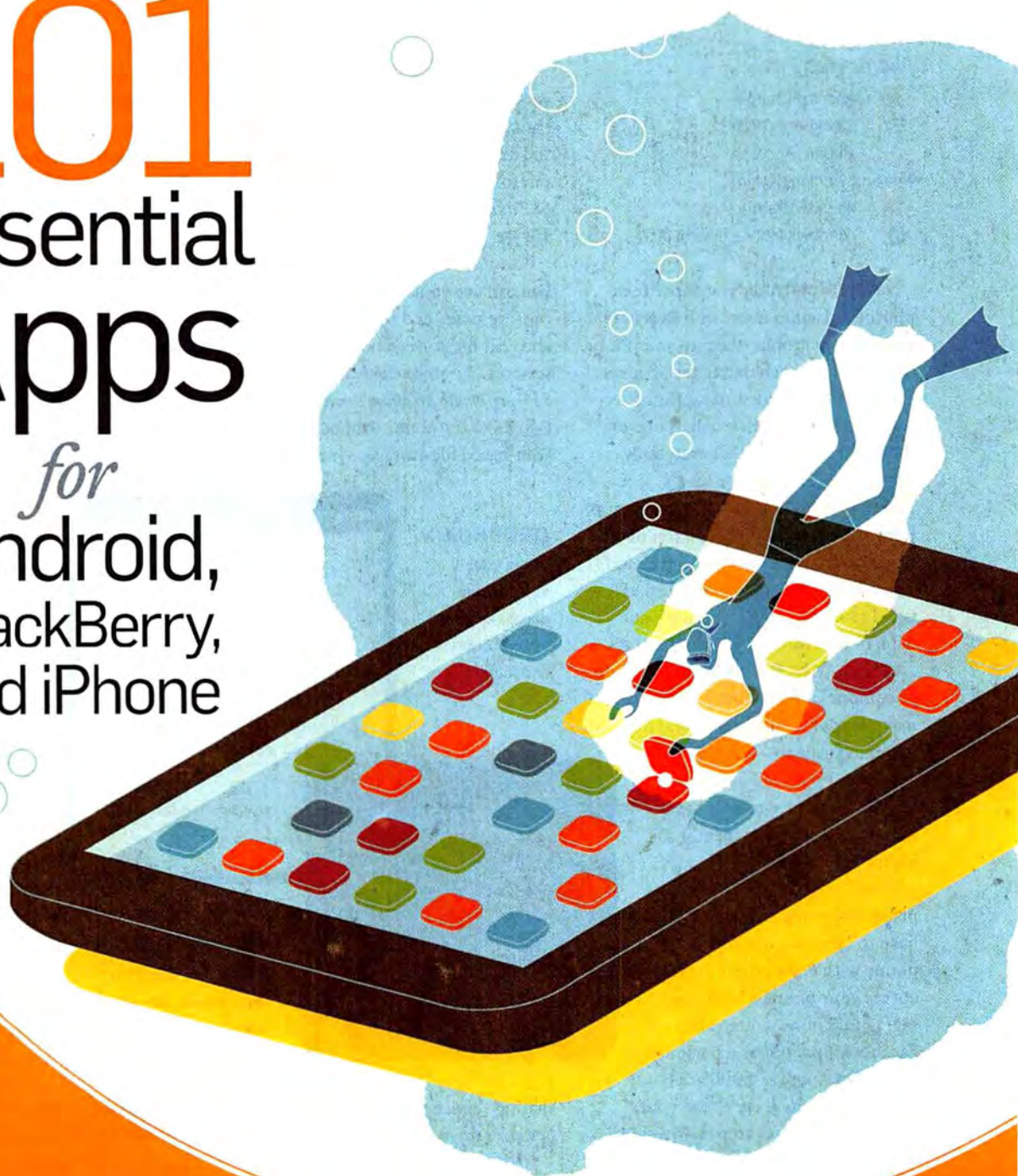


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# 101 Essential Apps *for* Android, BlackBerry, and iPhone



Tired of picking  
through thousands of  
worthless downloads to find a few gems?  
**Here are our favorite mobile apps for  
every smartphone. »**





# for Multiple Platforms

## platform key:

- Android (Google)
- BlackBerry (RIM)
- iPhone (Apple)
- Symbian (Nokia)
- Web OS (Palm)
- Windows Mobile (Microsoft)

**Never forget:** After you create text, photo, and audio notes with **Evernote**, you can synchronize them to your PC or the Web. From generating recipe ideas at the farmer's market to capturing lecture notes in class, Evernote is one of those universal apps that everybody should use. *Free;*

**Master your to-do lists:** For a free app, **Remember the Milk** packs a ton of features, such as the ability to set reminders, switch between incomplete and finished tasks, and sort by priority, due date, or task name. *Free;*

**Call smarter:** **Google Voice** gives you one phone number that you can use to make outgoing calls from—and forward incoming calls to—any phone. The app's Voicemail Inbox transcribes your voice messages so that you can preview them at a glance. *Free;*

**Speak a command:** **Vlingo** replaces every instance where you have to type on your smartphone with voice commands. It covers your phone's basic messaging functions, voice calls, Facebook updates, and personal notes. On Android and BlackBerry, the app will even read your incoming messages to you. *Free basic version, premium version varies in cost by platform;*

**Monitor vital data:** Use **Personal Assistant** to track credit card transactions, check your bank account status, monitor frequent-flyer miles and itineraries, and get alerts when bills are due and itineraries change. *Free basic version, \$7 premium version;*

**Manage your passwords:** The mobile version of **LastPass** syncs saved login data, secure notes, and saved forms with the desktop app, which runs on Chrome, Firefox, Internet Explorer, and Safari. *\$12 annual subscription after a 14-day trial;*

**Dictate everything:** In **Jott Assistant** you can use your voice to set reminders, capture notes and to-dos, send e-mail and text messages, and post to Web services. *\$3-per-month basic version, \$13-per-month premium version;*

**Sync to the cloud:** **ZumoDrive** is a Web-based file storage, syncing, and

has tools for posting your own listings with photos and maps. *Free;*

**Store and sync:** The well-designed **Dropbox** syncing and sharing service lets you share folders across all of your computers. The apps for Android and iPhone (a BlackBerry app is on the way) make sure that your smartphone hosts those folders too. *Free;*

**Exchange media:** One the most ingenious mobile apps we've seen, **Bump** lets two smartphone users physically bump their devices together to share contact data, media, and bookmarks, as well as to initiate social networking

connections and chat sessions. The app employs each phone's GPS radio to detect the presence of the other phone, and then establishes a Web connection with the target device in order to share data. *Free;*

**Scan business cards:** **CamCard** scans business cards and adds the data to a new phone, Gmail, or Exchange contact. *\$10* , *\$7*

**Listen to NPR:** Even if you can't catch all of the news from NPR at home

or in the car, you can still start your day with **NPR News** for your smartphone. You can listen to national news stories on demand, or allow the app to use your smartphone's GPS to pinpoint local content. *Free;*

**Get financial news:** With breaking business stories and complete in-depth market coverage in a customizable format, **CNN Money** provides real-time reporting of financial news and analysis,

**DROPBOX** offers your smartphone access to your synced files and folders.





**OURGROCERIES** keeps your shopping lists organized—and makes them shareable with other phones.

sharing service that mounts just as a network drive does. *Free;*

**Write transferable grocery lists:** **OurGroceries** allows you to set shopping lists on your phone and share them with other handsets, even if they don't run the same OS. *Free;*

**Buy and sell faster:** Search and browse Craigslist posts near your current GPS location, and bookmark relevant listings, with **Craigspine**. The app also





as well as data and charts. *Free*;  

**Watch the markets:** When you're on the go, consult **Bloomberg Mobile** for financial news, stock quotes, company descriptions, market leaders and laggards, price charts, market-trends analysis, customized lists of stocks, and more. *Free*;  

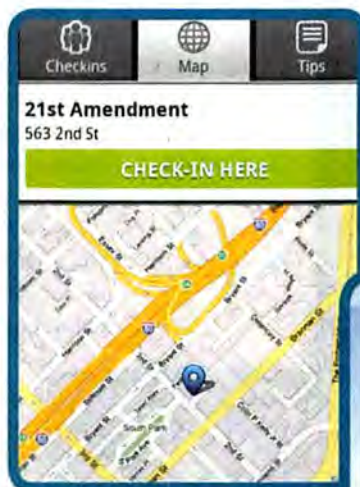
**Check the weather:** The location-aware **WeatherBug** app has detailed weather forecasts, radar maps, temperature maps, satellite views, and a cool sliding interface. You can configure it to appear as a home-screen widget, too. *Free*;  

**Crack up:** For the most hard-hitting...ahem...fake journalism on the Web, look no further than the **Onion News Network**. You can grab the latest updates on Sasquatch, the MacBook Wheel, and the Girl Raised by Wolf Blitzler. The Onion News Network app keeps you connected by giving you access to the Onion archives and delivering all Onion videos to your smartphone. *Free*;  

**Customize your news:** You can tailor the **AP Mobile** app to meet your needs by adding local news to your feed and selecting specific areas of coverage. AP Mobile also nicely utilizes the push-notification system of the iPhone for breaking-news updates. *Free*;  

**Follow the league:** In the **MLB.com** app, you can enjoy an audio stream of every regular and post-season baseball game, along with real-time box scores and stats, video highlights from the game shortly after they happen, and all the news from around Major League Baseball. \$15;  

**Upload in a trice:** **Pixelpipe Post & Upload Pro** lets you post status updates and upload photos or video to Facebook, Flickr, Picasa, Twitter, YouTube, and other services all at once. It's a great, time-saving way to reach all your social networks. *Free*;  





**FOUR-SQUARE** lets you leave your mark by "checking in" at various local establishments.



**WEATHER-BUG** gives current conditions and forecasts.



**LAYAR** places useful neighborhood information over the scene shown in your phone's camera.

**Network effectively:** Using **HootSuite**, you can manage your Facebook and Twitter accounts within an elegant, clean user interface. HootSuite stands out from other social network managers for its extra features: You can schedule updates, set columns to monitor key-



words and hash tags, and translate updates in other languages. *Free*;  



**Share your location:** On **Foursquare** you "check in" whenever you hit a restaurant, a coffee shop, a bar, or even a bus line, and then you can see if other Foursquare members are there, too. You can earn badges for your check-ins, as well as receive the prestigious title of "Mayor" if you check in to an establishment enough times. *Free*;  

**Enhance your world:** The **Layar Reality Browser** is an AR (augmented reality) app that overlays information about such subjects as restaurants, public transit options, and apartment-search information on the view from your smartphone's camera. You can even see the tweets from people posting to Twitter within your camera's field of view. *Free*;  

**Find facts fast:** The **Relief Central** app puts the whole CIA World Fact Book into your smartphone. *Free*;  

**Watch your money:** Balance your budget on the go with the

**Mint** mobile companion to the popular Mint.com free personal-finance site. Among other features, Mint offers real-time monthly budgets (so you know how much you can spend while you're out and about) and account-activity alerts, all within an incredibly secure app. *Free*;  

**Monitor markets:** For continuous access to—and control over—your TD Ameritrade account, use **iStockManager**. You can get equity and option trading, streaming data, real-time balances and positions, news, and more on your mobile device. *Free*;  

**Report expenses at once:** **Expensify** takes some of the hassle out of creating expense reports by allowing you to report expenses as they happen while >>



you're on the move. *Free*;

**Access travel plans:** The **WorldMate** mobile app gives you full access to the travel plans you make using the WorldMate desktop program. You can see up-to-date information on flights, hotels, car rentals, and more, with clickable links. The premium version lets you get flight-delay information, plus suggestions for alternative flights. *Free basic version, \$12-per-month premium version*;

**Convert currency:** **XE Currency** can convert more than 180 countries' currencies at up-to-the-minute rates. The app saves the last conversion just in case you may need to repeat it offline, too. *Free*;

**Retrieve a lost phone:** With **SmrtGuard** you can remotely track—and lock—your smartphone if it goes missing. The Pro version lets you perform automatic wireless backup and restore. *Free basic version, premium version is \$5 per month after a 30-day trial*;

**Chat with all of your friends:** Via **Beejive IM** you can chat simultaneously on AIM, Facebook, GoogleTalk, ICQ, Jabber, MSN, MySpace, and Yahoo. *\$10 for a single device, \$15 for a transferable license*;

**Share your photos easily:** Use **iTookThisOnMyPhone** as a one-stop shop for uploading your pictures and video to photo sharing sites, including Facebook. All of your albums are hosted for free on the iTookThisOnMyPhone Website. *Free*;

**Run smarter:** The **RunKeeper** app employs your smartphone's GPS radio to track the distance, time, pace, route, and elevation of your jogs. You can then sync your data to the RunKeeper Website and later view a history of your activity. The Pro version (for iPhone only) includes timing for interval training and audio cues, and it integrates

with your music playlists. *Free basic version, \$10 premium version*;

**Preview books:** With the **Kindle** mobile app, you can use your smartphone to preview books that you might like to buy later. Clean and customizable, the app permits you to preview the first chapter, as well as to add bookmarks, notes, and highlights. It's a must-have



◀ **BEEJIVE IM** lets you chat with pals on multiple services at the same time.

▶ **KINDLE** has previews of e-books and provides bookmarking functions.



for any bibliophile. *Free*;

**Discover music:** Tell **Pandora** your music preferences, and it streams tunes on your smartphone accordingly. You can stream music in the background (yes, even on the iPhone with iOS 4) while you do other stuff such as check e-mail or play games. Pandora's music algorithm isn't always spot-on, but the app is a nice alternative when you need a break from your own song collection. *Free*;

**Listen offline, too:** Similar to Pandora, **Slacker** is a well-designed taste-based online radio service. We like it because it caches on an iPhone 4's

memory, so you can listen to music while in flight or outside the cellular signal area. *Free, though some features require a subscription*;

**Name that tune:** Want to identify that one song you keep hearing everywhere you go? Just open the **Shazam** app, hold your smartphone up to your radio's speaker, and—in a flash—it displays the name of the song and the artist. *Free*;

**Be a power listener:** The perfect app for the hard-core music lover, **MOG** enables you to download any song or album to your phone for \$10 a month. It's great for continued listening when you leave wireless coverage. MOG also one-ups Pandora by letting you create radio stations that play only what you specify, such as a station of Bruce Springsteen songs. *App is free, service is \$10 a month for all your devices*;

**Rock your BlackBerry:**

Unlike MOG, **Thumbplay** allows BlackBerry users to get in on the on-demand music, with unlimited access to any artist or album. You can build playlists within the app, listen either online or offline, and sync existing music from your PC or Mac. *\$10 per month for full access*;

**Get your groove on:** Find and stream an amazing variety of music, hassle-free, with

**Grooveshark.** Play individual songs or whole albums, or create your own playlists. *\$3 per month*;

**Watch cable anywhere:** **SlingPlayer Mobile** streams the video from your cable box and DVR to your phone. The responsiveness of the app's video controls and the image quality of the video depend on the quality of your wireless connection, but it's worth the trouble. *\$30*;

**Map it:** The **Google Maps** app is useful for finding businesses (you can save results into your Contacts) and getting directions (you can hand this function off to Navigation). Its public-transit



directions are great when you're in a new city. *Free*;

**Visit the world:** Using the detailed satellite imagery displayed in **Google Earth**, you can explore the world. Assorted POIs (points of interest) are marked with links to photos, Wikipedia articles, and more. *Free*;

**Get maps free:** You could shell out big bucks for a top-brand navigation app—or you could download the free **MapQuest 4 Mobile**, which delivers spoken turn-by-turn directions, automatic rerouting if you miss a turn, walking

directions, and many other useful navigation features. *Free*;

**Find your way:** Turn your phone into a real-time navigation device with **TeleNav**. You can get turn-by-turn directions by voice and on screen, and you can locate, call, or navigate to rated and reviewed restaurants, hotels, ATMs, Wi-Fi hotspots, and more from a directory of over 10 million businesses. *\$10 after a 30-day trial*;

**Launch furious fowl:** The clever **Angry Birds** game combines simple physics with sheer luck as you transport ticked-

off birds to a pig fortress via slingshot to retrieve stolen eggs. *\$1*;

**Play an old-school game:** In the highly addictive **Doodle Jump**, you use your phone's accelerometer to guide "Doodle the Doodler" up a sheet of graph paper while dodging black holes and blasting enemies. If you miss old Nintendo games, you'll love Doodle Jump. *\$1*;

**Check your speed:** The FCC-endorsed **Ookla** tool checks the upload and download speeds you're getting from your wireless network. *Free*;



## for Android

**Entertain a child:** With **Toddler Lock** you can turn your phone into a toy that can keep your little one rapt for hours. It shows a single screen (locking away all others) that displays colorful shapes when your toddler touches it. Soothing sounds play in the background. *Free*

**Check your head:** In the **Thinking Space** "mind-mapping" app, you can create maps to connect thoughts and ideas. It's great for organizing and for forming new concepts. *Ad-supported free version, \$4 premium version*

**Manage your files:** **Astro File Manager** makes your phone act as a miniature PC. You can copy/move/rename files, back up apps, send files as attachments, and create compressed files. *Ad-supported free version, \$4 premium version*

**Customize alerts:** In **Missed Call** you can customize your phone's LED light, ringtones, vibrations, and alerts for missed calls, incoming calls, SMS, Bluetooth, and calendar events. *Free*

**View Flash video now:** Thanks to the **SkyFire** browser, you can play streaming Flash video. 'Nuff said. *Free*

**Browse better:** The **Dolphin Browser HD** Web browser has tabs, gesture-based

navigation, and plug-ins. It's a far more functional browser than the one that came preloaded on your phone. *Free*

**Share Web pages:** **Bookmarklet** plugs into the Android Web browser (or Dolphin HD) and lets you share Web pages with AIM, Bit.ly, Delicious, Digg, Facebook, Twitter, and other services. *Free*

**Find the best Wi-Fi:** Want to find the least-crowded Wi-Fi channel? **WiFi Analyzer** shows a graphical representation of Wi-Fi SSIDs' signal strength, plus >>

### SKYFIRE

allows you to enjoy Flash video on your handset.



### TODDLER LOCK

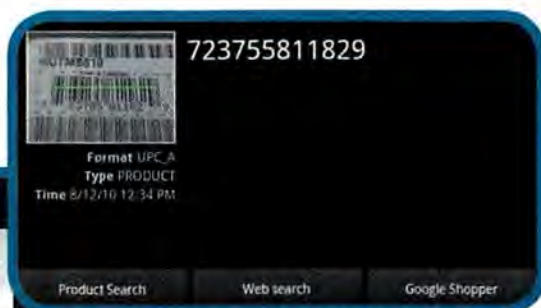
safely transforms your Android phone into a toy.





## ▼ BEYONDPD

manages audio and video podcast subscriptions.



## ▲ BARCODE SCANNER helps you look up products for comparison shopping.

music player, you can discover and manage audio and video podcasts. The premium version adds better controls for updating and managing subscriptions. *Free basic version, \$7 premium version*

**Discover cool podcasts:** The **Listen** app helps you search for thousands of audio feeds, stream them, or subscribe to them. It integrates with Google Reader on the desktop, as well. *Free*

**Find a lost Android:** If you lose your phone, **AntiDroidTheft** turns on remote GPS tracking so that you can determine its location. You can also trigger the phone's camera to shoot an image that might help you locate the handset. *Free*

**Manage archives:** The powerful **AndroZip File Manager** works with archives, including 7ZiPhone, BZIP2, GZiPhone, RAR, TAR, and ZiPhone files. You can use it to create GZIP, TAR, or ZiPhone archives, too. *Free*

**Use gestures to find files:** **Gesture Search** lets you quickly locate a con-

which channels are being used. *Free*

**Scan bar codes:** **Barcode Scanner** handles bar codes—including 2D QR codes—and lets you look up the associated product or URL for instant price checks and comparison shopping. *Free*

**Manage tasks wisely:** The **Gtasks** task manager syncs with the desktop Google Tasks, which you can also access in the Web version of Gmail and Google Calendar. It's so useful, it should be included on every Android phone. *Free*

**Track podcasts:** With **BeyondPod**, which integrates with the Android

tact, a bookmark, an app, or a music track by drawing letters and digits on your phone's touchscreen. *Free*

**Work smart with photos:** Using **Picasa Tool Pro** you can batch-upload photos, as well as browse and manage your albums, photos, and comments. *Free*

**Take a measurement:** The **Smart Measure** app, which uses your phone's camera, measures the height of objects and estimates the distance between your phone and the object. *Free*

**Level it:** With **Spirit Level Plus**, you can use your phone to make sure that pictures hang straight. The app also shows the angle of incline. *Free*

**Shine a light:** **Color Flashlight** turns a phone into a bright light with a wide array of hues and strobe patterns. *Free*

**Make recipes mobile:** Through **Digital Recipe Sidekick** you can browse and import recipes from AllRecipes.com, save recipes to SD Card, e-mail them, edit them, or enter your own. The app will even read recipes to you. *Free*

**Text with panache:** Forget the stock SMS utility. **Handcent SMS** brings customizable texting tools—with iPhone-style speech bubbles—to Android. *Free*

**Convert and calculate:** The in-beta **ConvertMe** app is a handy unit converter, currency converter, and tip calculator. It comes with more than 1500 units across more than 65 categories, and it supports 14 languages. *Free*



## for iPhone

**Add a phone line:** **Line2** brings a second line to your phone (with a special number). Calls on that line connect as free or cheap VoIP calls over a Wi-Fi or 3G data connection, but they can move to a cell network (which costs you plan minutes) when such connections are unavailable. This service is great if you

have weak cell coverage in your home, or if you just want to cut down your cell-minutes usage. *\$15 per month*

**Get answers:** The **WolframAlpha** app is the ultimate tool for know-it-alls. Ask questions in sentence form ("What is Nancy Pelosi's voting record?"), and the semantic search engine returns the

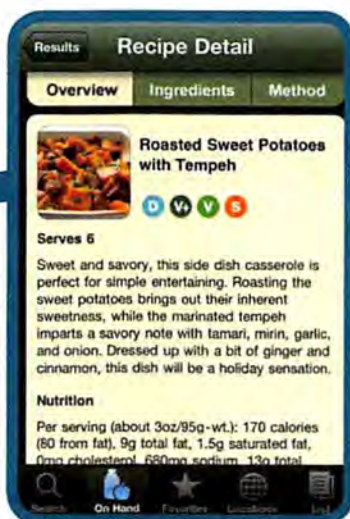
answer. Though it can already answer just about any question you ask, the creators are constantly updating it with new information, making it an ideal companion for pub trivia night. *\$2*

**Browse in style:** Re-creating a desktop browser on the iPhone's screen, **Atomic Browser** has tabs, ad blocking, multi-





**WHOLE FOODS** gives you ideas for dinner and presents recipes in a clean interface.



**INCREDIBOOTH** faithfully re-creates old-time photo-booth fun.



touch gestures, a passcode lock, Facebook/Twitter integration, and more.

*Free basic version, \$1 premium version*

**Hear new music:** In **Last.FM** you enter the name of an artist you like, and the app recommends other artists based on your preferences. You can listen to as much music as you want, too. *Free*

**Find public radio:** With **Public Radio Tuner** you can hear public radio stations from all over the country. After detecting your location, the app can supply a list of the stations around you. *Free*

**Sync your calendar:** **CalenGoo** syncs with your Google Calendar and even has a similar look. Other neat features include the ability to invite people to events, plus an integrated task list. *\$7*

**Never forget passwords:** To maintain your usernames and passwords on your iPhone in one place, try **1Password**. The mobile app syncs with the desktop version, as well. If you wish, you can use it to store other personal information, too, such as your Social Security number and credit card numbers. *\$10 basic version, \$15 premium version*

nonsense cooking advice, how-to illustrations, ingredient information, built-in timers, and organized shopping lists. *\$5*

**Watch your calories:** For keeping track of your caloric intake, **Lose It** is a handy tool. The app tells you exactly what you're eating during the day, and it gives you a chance to enter your food intake on the go, so that you don't forget to do so later. *Free*

**Find your way:** The **TomTom** app turns your phone into a GPS navigation device with turn-by-turn directions. Maps and routes are stored in your phone's memory, so updating maps and changing routes happens quickly and without requiring a wireless network connection. *\$50*

**Revisit the photo booth:** One of the first apps to use the iPhone 4's front-facing camera, **IncridiBooth** gives you an almost genuine photo-booth experience (minus the shopping-mall atmosphere). You get three "retro effects," and you can share a photo strip or just one image with Facebook friends. *\$1*

**Make trippy photos:** In **Diptic** you can combine two or three photos to create a cool new image. Juxtaposing a close-up of your cat with a photo of your pals has never been so addicting. *\$2*

**Keep it rolling:** In the bizarre but fun **I Love Katamari**, you're a pint-size alien prince who has been ordered by the King of All Cosmos to collect objects by rolling a highly adhesive Katamari ball. You use the phone's accelerometer to control the Katamari. *\$5*

**Slay the undead:** The **Plants vs. Zombies** strategy game has you defending your home from zombie invasion with an arsenal of deadly flora. Cute animation, witty humor, and addictive gameplay make this title one of the best paid games in the App Store. *\$3*

**Play word games:** In the Scrabble-like **Words With Friends** you can play against buddies or strangers. The game cleverly uses push notifications to tell you to take your turn, and you can invite pals to play via social networks. *Free* >>

**Find Wi-Fi anywhere:** A must-have for travelers, **Wi-Fi Finder** is a directory of paid and free Wi-Fi hotspots in over 280,000 locations in 140 countries. You can filter results by provider or by location (restaurant, café, and so on). *Free*

**Manage your reading:** Through **Instapaper** you can save Web articles you browsed on your iPhone for later reading, using a browser bookmarklet. The Instapaper Website reformats your saved articles (sans Flash ads and clutter) for quick reading on the desktop. *\$5*

**Get healthful recipes:** In the **Whole Foods** app you can find creative recipes using what you have on hand, and see them in an easy-to-read interface. *Free*

**Cook with a pro:** The **How to Cook Everything** app, based on Mark Bittman's book of the same name, gives you access to 2000 recipes, as well as to no-





# for BlackBerry

**Tweet better:** Offering location awareness and embedded images and video, the **UberTwitter** client has all of the regular features of Twitter but adds advanced features such as URL/tweet shrinking and group list support. *Free*

**Bubble up:** **Crunch SMS** is a chat-style bubble-SMS application with loads of customization options. Among other things, you can add pictures to your favorite contacts, customize the colors, and add smileys and a signature. *Free*

**Chat with BlackBerry friends:** Using the **BlackBerry Messenger** IM client, you can quickly and easily communicate with other BlackBerry device owners. Using your unique BlackBerry PIN (or bar code), you can add all of your BlackBerry friends and then chat with them or share your files, images, videos, and location. *Free*

**Tune in:** The no-cost version of **Nobex Radio Companion** allows you to listen to radio stations within the United States. With the premium subscription version of the app, you can listen to over 5800 radio stations in 80 different countries, with no ad interruptions. *Free basic version, \$4 premium version*

**Organize podcasts:** Automatically download all of your favorite podcasts for when you have time to listen, using **PodTrapper Podcast Manager**. The app, which includes its own podcast browser, permits you to create playlists, keep track of the last played episode, and

save your place within an episode. *\$10*

**Watch mobile TV:** A new video service from Fox, **BitBop** streams premium TV content to your BlackBerry device. You can also download shows for viewing when a wireless connection isn't available. *\$10 per month*

**Monitor spending:** You can constantly keep track of your checking, savings, and credit card transactions and balances on your handset with the help of **Mobile Checkbook**. This tool also lets you record transactions as they happen, reconcile balances, and schedule recurring transactions on the go. *\$10*

**Get informed fast:** The versatile **Viigo** delivers news and information to your BlackBerry. Modules include sports, business and finance, entertainment, and local and national weather. *Free*

**Know the weather:** Through **Berry Weather** you can obtain instant access to current weather conditions, advisories and alerts, and detailed seven-day and 24-hour forecasts for over 72,000 locations worldwide. *\$10*

**Connect via BlackBerry:** The **Tether** app allows your PC or Mac laptop to connect to the Internet via your BlackBerry's 3G service. *\$50*

**Get there quickly:** **QuickLaunch** enables you to set up an unlimited number of shortcuts that bring you to any Website, function, file, or app on your phone with just one click. *\$5*

**Get longer-lasting alerts:** Extend your default BlackBerry alert system via **Berry-Buzz**. You can customize the LED color alerts and vibration, keeping the LED flashing beyond the default 15 minutes and setting the phone to repeat alerts until acknowledged. *\$6 per month* ●

**UBERTWITTER** brings images, video, and other enhancements to Twitter.



**VIIGO** displays news stories and information in a number of categories.



**TETHER** makes your BlackBerry's Net connection available to your laptop.





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## Amazing New Hybrid Runs Without Gas

*The new face of time? Stauer's Compendium Hybrid fuses form and functionality for UNDER \$50! Read on...*

Innovation is the path to the future. Stauer takes that seriously. That's why we developed the *Compendium Hybrid*, a stunningly-designed hybrid chronograph with over one dozen analog and digital functions that is more versatile than any watch that we have ever engineered.

New technology usually starts out at astronomical prices and then comes down years later. We skipped that step to allow everyone the chance to experience this watch's brilliant fusion of technology and style. We originally priced the Stauer *Compendium Hybrid* at \$395 based on the market for advanced sports watches... but then stopped ourselves. Since this is no ordinary economy, we decided to start at **88% off** from day one. That means this new technological marvel can be yours for only \$49!

**Welcome a new Digital Revolution.** With the release of the dynamic new *Compendium*, those boxy, plastic wrist calculators of the past have been replaced by this luxurious LCD chronograph that is sophisticated enough for a formal evening out, but rugged and tough enough to feel

at home in a cockpit, camping expedition or covert mission.

The watch's extraordinary dial seamlessly blends an analog watch face with a stylish digital display. Three super-bright luminous hands keep time along the inner dial, while a trio of circular LCD windows track the hour, minutes and seconds. An eye-catching digital semi-circle animates in time with the second hand and shows the day of the week. The watch also features a rotating bezel, stopwatch and alarm functions and blue, electro-luminescence backlight. The *Compendium Hybrid* secures with a rugged stainless steel band and is water-resistant to 3 ATMs.

**Guaranteed to change the way you look at time.** At Stauer, we believe that when faced with an uphill economy, innovation and better value will always provide a much-needed boost. Stauer is so



*The Compendium: The spectacular face of the latest watch technology.*

confident of their latest hybrid timepiece that we offer a money-back-guarantee. If for any reason you aren't fully impressed by the performance and innovation of the Stauer *Compendium Hybrid* for \$49, simply return the watch within 30 days for a full refund of the purchase price. The unique design of the *Compendium* greatly limits our production, so don't hesitate to order! Remember: progress and innovation wait for no one!

#### WATCH SPECS:

- Three LCD windows show hour, minute and second
- Stop watch function
- Water resistant to 3 ATMs
- Fits 6 3/4"-8 3/4" wrist

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# Here's How

## How to Leave Work Early

Use these tools and Web services to improve your productivity and shorten your workday.

BY RICK BROIDA

WORKING FROM 9 to 5, or 6, or 7? What a way to make a living—especially as the typical workday stretches later and later into the evening. But what can you do? You have calls and e-mail to return, meetings to attend, and reports to file.

Don't let it drive you crazy, though. With the right tools and services at your disposal, you can stop staying late and start leaving the office on time—maybe even early. After all, most bosses don't care where or how you get your work done, so long as it gets done. By following our advice, you'll learn to work faster, not harder. You might even save enough time to sneak out and catch an afternoon ball game.

### Master Your To-Do List

A good to-do list is the cornerstone of office efficiency. Such a tool can save you from realizing at 4:30 p.m. that you forgot to submit your expense report. (Good



luck trying to leave early when that happens.)

The trick is to find a to-do system that's more capable than a yellow sticky note affixed to your monitor or a legal pad stuffed into your briefcase. Both are easily overlooked or forgotten, and neither can send you a text message when it's time for you to do something.

Enter Producteev (find [pcworld.com/70412](http://pcworld.com/70412)), a free

Web-based task manager with a few handy perks not found elsewhere. Foremost among them is the ability to add tasks to your list: You can use the Web, e-mail, instant messaging, or your iPhone—whichever is the most convenient at any particular time. It can sync your tasks with Google Calendar, and it can add a widget to your iGoogle homepage, too.

Since Producteev is avail-

able wherever you are, it helps you not only add tasks but also review them and receive reminders. The tool isn't perfect—currently it offers no Outlook integration, and it lacks apps for Android and BlackBerry—but it does have some slick social-media features. For example, you can get your coworkers involved and compete in "Who can get the most done?" contests.



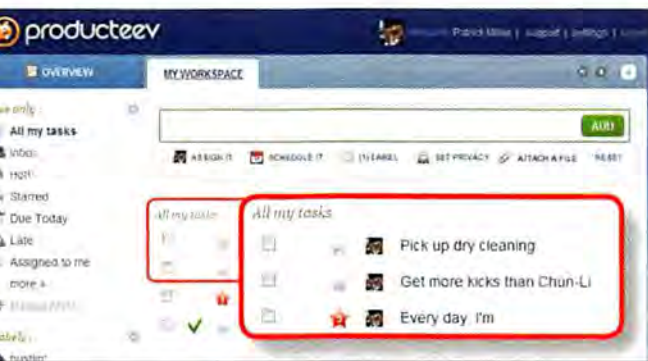
Check out some other task-management heavyweights, too. Remember the Milk ([find.pcworld.com/70413](http://find.pcworld.com/70413)), long a favorite of the Getting Things Done crowd, offers companion apps for all smartphone platforms; you'll need a Pro account (\$25 a year) to use them, however. Another popular service, Toodledo Pro ([find.pcworld.com/70414](http://find.pcworld.com/70414)), offers similar capabilities for \$15 a year.

## Make Sure Phone Calls Find You

Suppose that a client calls during lunch. He leaves a message on your office voice-mail, but unfortunately you don't remember to check your messages until later in the afternoon. That's when you find out that the client wanted to let you know about a crisis that only you can solve—and it will take hours. The client could have called your cell phone, of course, but the onus is on you to be accessible to your clients at all times.

That's where a service like Google Voice ([find.pcworld.com/70415](http://find.pcworld.com/70415)) comes into play. Originally available by invitation only, but now open to everyone, Google Voice offers a killer feature for on-the-go business users: a single phone number that can ring all your other numbers (work, home office, cell, and so on), or just the ones you choose. It can also transcribe voicemail into text and deliver those items via e-mail—another great way to help ensure that you get all your important messages.

Another option is Phone-



**TAME YOUR TO-DO list with Producteev—a free, Web-based task manager.**

booth ([find.pcworld.com/70416](http://find.pcworld.com/70416)), a similar service designed expressly for business users. In addition to automated call routing and voicemail transcription, Phonebooth lets you set up a more businesslike auto-attendant option so callers can reach specific departments, and it provides a click-to-call widget that you can put on your Website.

Both services are free, although Phonebooth OnDemand (\$20 a month) adds a bunch of other features that you might find useful, such as unlimited local and long-distance calls.

## Automate Repetitive E-Mail Tasks

A minute saved is a minute lopped off the end of your workday. Outlook 2010 pro-

vides a way to save lots of minutes throughout the day: Quick Steps. This new feature automates various frequently performed e-mail tasks, such as simultaneously replying to and deleting an e-mail message, creating a new message that goes to your entire team, or moving messages you receive from specified senders into a particular folder. Quick Steps also permits you to create your own custom “e-mail macros” and then trigger them with a single click.

## Keep Interruptions to a Minimum

How can you polish off your projects if colleagues are constantly stopping by to ask questions or chitchat? *PCWorld*'s Dave Johnson has a couple of tips for keeping

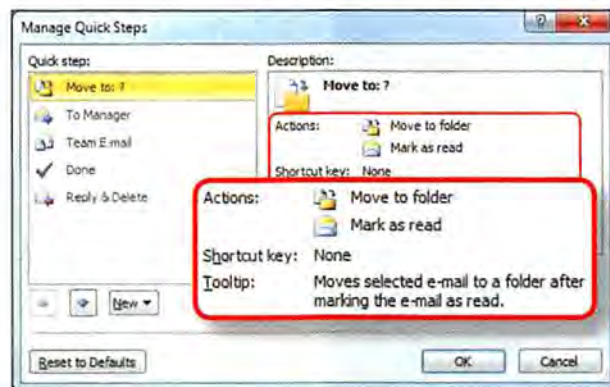
such interruptions to a minimum. For starters, make full use of Outlook's autoresponder: “It's not just for when you're sick or on vacation,” Johnson says. “Use it to let people know that you're heads-down in a project and won't be responding to e-mail or phone calls today.”

In addition, Johnson recommends buying a pair of headphones. You don't necessarily have to listen to music, but the simple act of wearing headphones creates “some sort of perception that visitors are violating ‘private time,’ and so they come back later.”

## Use E-Mail Instead of Phone Calls

So you wrapped everything up at 4:00 and you're ready to hit the road. The only remaining task is to call a client for clarification on a project item. You make the call, but the client turns out to be a nonstop talker who goes on and on about...well, does it matter? You can't be rude and you can't hang up, so you sit and listen while the minutes tick by.

That's one the biggest reasons why businesspeople treasure e-mail. Sure, warm phone chats with a client are great for building and maintaining rapport, but you need to save them for days when you have time to burn. If all you need is the answer to a simple question, resist the urge (which seems especially ingrained in people over the age of 40) to pick up the phone. Instead, fire off an e-mail, and then >>



**OUTLOOK 2010'S INNOVATIVE Quick Steps feature makes automating your e-mail workflow with shortcut keys simple and convenient.**



# Here's How

head for the door. You can always watch for the reply on your BlackBerry (though not when you're behind the wheel—that's dangerous).

## Use Instant Messaging Instead of E-Mail

E-mail may be faster than a phone call, but it's slower than an instant message. Sticking with the previous example, let's say you can't



**MEEBO LETS you juggle multiple instant messaging services.**

leave the office until you get clarification on a project item. The client might not check and answer his or her e-mail for hours. But if you have the person's IM address, you can ask the question as quickly as if you were sitting in the same room.

What if the client's office is on Yahoo Messenger and you're on Google Talk? No fear: Meebo ([find.pcworld.com/70426](http://find.pcworld.com/70426)), a cross-platform chat service that resides in your browser, can connect you to anyone on practically any network—AIM, ICQ, MSN, even Facebook. The service doesn't require you to install any software (so it should get a free pass from your company's IT staff).

## Use Text Messaging Instead of Instant Messaging

Instant messaging is great for getting quick feedback, but isn't always practical. What happens, for example, if you need your boss to sign off on a sales agreement, but he or she is stuck in a meeting with no access to IM? Simple: Send a text message instead (but only if you have prior approval to do so).

Don't depend on e-mail, because the boss might be ignoring new mail until the meeting is over. A text message has a special urgency, so it's more likely to get peeked at under the conference table. Send a brief, direct question like "OK to renew WidgetCo's contract at \$75K?" and you make it easy for the boss to text a discreet "Yep" in reply. Presumably: You're out the door and headed for the freeway.

## Rescue Yourself From Endless Meetings

A meeting that ends on time is as rare as an omelet made with dodo eggs. How can you extricate yourself with-



**GET YOURSELF OUT of endless meetings with Fake-A-Call.**

out getting into trouble? If the siren song of freedom is irresistible, schedule a fake phone call. Enlist a trusted friend to call you at a predetermined time, or tap a fake-call app on your smartphone. Fake-A-Call for iPhone ([find.pcworld.com/70427](http://find.pcworld.com/70427)), for example, emulates real calls from real contacts (or from a fictional doctor, lawyer, or the like) at designated times. It will even play a script for you to repeat so that the call sounds authentic. Sure, it's a little sneaky, but nothing gets you out of an endless meeting like, "Sorry, but I have to take this." The first half-dozen times, anyway.

Don't have an iPhone? Try Fake My Call for BlackBerry ([find.pcworld.com/70428](http://find.pcworld.com/70428), \$3) or Fake-A-Call Free for Android ([find.pcworld.com/70429](http://find.pcworld.com/70429)).

## Get Home From Work Without Delays

What good is getting out of work early if you end up snarled in traffic? But without outside help, you won't know about a trouble spot until you're stuck in it.

Instead of waiting for the radio announcer to deliver a traffic forecast, fire up Beat the Traffic ([beatthetraffic.com](http://beatthetraffic.com)) on your BlackBerry or your iPhone. This convenient app maps out traffic delays in your area so that you know what you're in for—and whether you're better off taking an alternate route that steers clear of the mess.

Beat The Traffic also has a traffic-camera option that shows real-time images from along your route, as well as a Forecast button that projects what conditions will be

like in 20 minutes, 40 minutes, an hour, and so on. Both features are great for occasions when you don't know what's happened to



**USE BEAT THE Traffic to keep an eye on local traffic alerts via your iPhone or BlackBerry.**

cause a backup—an accident, construction, a police car idling on the side of a busy thoroughfare—and you want to know whether it makes more sense to take the next exit or to stick it out.

The app works well for managing your morning commute, too. After all, the later you get to work, the longer into the night you have to stay to catch up.

## Finish Up Your Work Projects at Home

What's the single best way to do your work without actually being at work? Take your laptop with you, whatever your destination may be, and dial in using remote-access software. PCWorld has covered such tools many times before; for a good survey, see "Free Remote-Access Tools for Windows and Mac" ([find.pcworld.com/70430](http://find.pcworld.com/70430)).



# Found! The Last Morgan Silver Dollars

## Amazing Discovery Hidden in Midwest Farm Cellar

**Indiana.** A farmer in America's heartland recently cashed in his long-forgotten savings, hidden away for decades in a dusty crate in his cellar—a hoard of the last Morgan Silver dollars minted by the U.S. Treasury before they ceased production for good, in 1921.

Originally purchased from a local bank for face value, the farmer had tucked them away for his retirement. Now these glittering chunks of nearly uncirculated silver history, are being released to the public by GovMint.com. While they last, you can acquire these brilliant, lustrous silver coins for as low as \$29.50 apiece. Twenty-coin Bankers rolls and 10-coin Half Rolls are available.

### Survival Against All Odds

By all rights these silver dollars should have been destroyed decades ago. Government silver melt-downs, including the 1918 Pittman Act, which alone destroyed 270 million Morgans, have decimated supplies. Millions more were called in by the government and melted for their silver content between 1921 and 1965. Today private hoards account for virtually all the surviving coins. And of those, only a fraction survive in the Virtually Uncirculated condition so coveted by collectors.

### Prized Last Year Coins

These last year 90% pure silver beauties still dazzle with their Mint luster and heft. Weighing in at 26.73 grams and a diameter of 38.1 mm, they are the largest American silver coins ever to circulate. Struck from silver mined from the western Mother Lode, they are the legendary coins that built the West. Master engraver George T. Morgan fashioned a radiant profile of Lady Liberty and a majestic eagle as symbols of our nation's strength and prosperity. Today, the long-gone Morgan silver dollars are among the most sought-after coins in America.

### Hot Silver Market, Hot Silver Value

Silver prices have jumped over 140% in the last two years fueling the frenzy among avid collectors, investors, and the 130 million new collectors created by the U.S. Mint's highly successful state quarters program.

Today, the market is hot for Silver coins in any condition. This same 1921 Morgan Silver Dollar currently sells elsewhere in the same grade condition for \$55 apiece. But while supplies last you can get this original Virtually Uncirculated 1921 Silver Morgan for as little as \$29.50 each, in quantity!

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## Take Care of Your HDTV, Phone, and Camera

YOUR HDTV, your smartphone, and your digital camera all need to stay clean, and each requires protection from accidents. Let's start with one maintenance chore that they have in common.

### Clean Your Screen

A dirty LCD screen won't give you much pleasure or information. But screens are delicate. Clean them the wrong way, and you'll ruin them for good.

The main tool you need is a microfiber cloth. You can get a very small one, perhaps even for free, at your optometrist's office. That's fine for keeping a camera or phone screen free of grime, but if using a 2-inch cloth to clean a 50-inch TV doesn't drive you crazy, you have more patience than I do. You can buy larger microfiber cloths for a few dollars at camera stores, electronics stores, hardware stores, or online.

First wipe the screen gently with the dry cloth. Don't press hard, but for particularly stubborn dirt you can apply a little bit of gentle pressure.

Usually, working with a dry cloth is sufficient; if not, you'll need to use a wet cloth, which can be tricky.

Never use a glass-cleaning product like Windex. Avoid anything that has alcohol in it. Don't apply the liquid directly to the screen. And don't attempt any cleaning when you have electricity coursing through the device.

Distilled water is the safest

liquid to use on a screen. If it isn't strong enough, mix it half-and-half with white vinegar. You can find commercial LCD-cleaning fluids, but I haven't found any that clean better than distilled water and white vinegar.

First, turn off the device. If it's a TV, unplug it. If it's a

the room's aesthetics, and dust can bring on allergies.

Use a soft cloth—the microfiber one you use on the screen, or an old T-shirt.

Dampen the cloth with water, and unplug the HDTV before applying it.

Let your HDTV breathe. Keep its ventilation open-

can pass through a surge protector and fry your television. If a thunderstorm is coming, unplug the HDTV. For the same reason, unplug it if you're going away for a few days, in case a storm arrives during that time.

Burn-in isn't the problem it was a few years ago, but it can still happen, especially with plasma sets. Check your TV's setup menu for a screen saver or an automatic turn-off option; if you find it, enable it. But if burn-in does occur, leave your set on for a few hours with a constantly changing image that fills the screen. A photo slideshow will do, provided that the photos entirely fill the screen.

### Protect Your Phone

Most of us have never dropped a television. But we all drop our smartphones at one time or another. We also put them in pockets or purses crammed with keys, forget to charge them, and leave them in hot or wet

locations. Some of us have even taken them swimming.

First rule to protect your smartphone from yourself: Be careful where you put it. A pocketful of keys may have posed no hazard to your old, clamshell-style phone. But your smartphone almost certainly has a screen (likely a touchscreen) exposed for all the world to scratch. So carry your handset where nothing can scratch it.

Better yet, keep your phone in a case, preferably >>



phone or camera with a removable battery, take the battery out. Otherwise, simply turn the device off.

Put the liquid into a spray bottle, and spray it onto the microfiber cloth. Gently wipe the display, and then wait until the screen is completely dry before turning the device back on.

### Clean Your HDTV

Though a dirty TV frame won't interfere with your viewing pleasure, it hurts

ings clear, and don't install it near a heater.

Keep the TV set dry, too. Make sure that anything that might spill stays well away from your television. Another potential problem is humidity, especially if you live in a tropical environment and want to watch TV on your semi-open patio. As a general rule, an HDTV shouldn't be exposed to humidity above 80 percent.

The electricity from a lightning strike on your home



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# Here's How

one built for your specific model. Most cases leave the screen uncovered so that you can use it, so buy some screen protectors as well. These thin, transparent membranes fit over the screen, stay in place, and allow light and touch to pass through them. They're also reasonably cheap and disposable: You can buy a pack of three for as little as \$6.

Not all protectors are the same, though. Some "privacy" protectors, designed to make your screen unreadable from an angle and to protect it from scratches, hamper the touchscreen's sensitivity. You might try one out for a few dollars, but if the anti-snoop feature interferes with your phone's usability, it may not be worth it.

Turn off the touchscreen before pocketing the phone. Not only does this lengthen the battery life, but it also prevents butt-dialing.

If your phone feels hot, turn it off and (if the phone allows it) remove the battery. Let the handset sit awhile where it can breathe. If the phone or the battery is still too hot an hour later, contact the vendor; something of a chemical nature may have gone wrong inside.

Don't worry too much about wearing out the battery. It will wear out eventually, no matter what you do, but probably not before your contract is up and you are ready to upgrade.

Get in the habit of charging your phone every night when you go to bed. That way, you'll seldom run out of juice in the course of a day. If you still have trouble



**A TYPICAL SMARTPHONE** carrying case (left) leaves the screen uncovered; a clear plastic membrane offers some protection.

charging it, buy an extra charger or two; one that plugs into your car's cigarette lighter may be useful.

## Care for Your Camera

If you have a separate digital camera, that device needs its own special care, too. I've already described how to clean the LCD; but in a camera, that's the secondary cleaning job. Your photos don't depend on a clean menu screen, but they do require a clean lens.

The first tool you'll need is a blower brush—a rubber bulb with a brush on the end. Use this to remove the bulk of the dust. If that doesn't do the trick, use a photographic microfiber cloth and some lens cleaner. Spray the cleaner on the cloth, and apply it that way. You can pick up all of these items, often in a kit, in any photography store.

If you have a pocket cam-

era, the lens is enclosed inside the camera. That means you'll have to turn on the camera to clean the lens.

Though you needn't turn on your digital SLR to clean its lens, such cameras have another component that you might want to clean from time to time: the sensor. Also, because you can remove and change the lens on an SLR, dirt can get inside, affecting the light-sensitive chip that records the images (not a problem with fixed-lens pocket cameras).

This is a delicate and dangerous job, and you should think carefully about undertaking it. Check out "Clean Your Digital SLR Camera's Image Sensor" ([find.pcworld.com/70432](http://find.pcworld.com/70432)) for detailed instructions. If it sounds too risky to attempt, bring your camera to a professional.

A camera can get pretty badly banged up as you carry it around, unless you

keep it in a carrying case.

The best cases for pocket cameras aren't much bigger than the camera itself, and they have loops for attaching to your belt. Serious SLR photographers use a padded shoulder bag with room for extra lenses as well as the camera. No matter what size your camera is, you'll want a case with a few small pockets for extra batteries and memory cards.

If you need one of those extra batteries or memory cards, be sure to turn your camera off before opening it up to remove or replace any inside component.

After you get home from a vacation or other photo-



**USE A PADDED** carrying case to protect your camera in transit.

friendly event, and you transfer your photos from your camera to your computer, remove the camera's batteries. That way, if an aging battery springs a leak, it won't ruin your camera.

For more DSLR camera cleaning tips, check out "Clean Your Dirty Camera" ([find.pcworld.com/70433](http://find.pcworld.com/70433)).

With proper care, your HDTV, smartphone, and camera will last as long as you want to use them. They may even be worth passing along to someone else when it's time for you to upgrade.

—Lincoln Spector



**USE A SMALL** microfiber cloth to clean petite screens and lenses.



**A BLOWER BRUSH** can remove dust from delicate surfaces.



# Use Your Smartphone as a Media Center Remote

SO I'M TESTING this super-cool Lenovo system that would make a perfect media center for the den. It's an all-in-one, meaning that there's no bulky tower to deal with—just a screen, a base, and a wireless keyboard and mouse.

Unfortunately, the PC lacks a remote, too, which is shame given that it has a built-in TV tuner. How am I supposed to kick back on the couch without a clicker?

Smartphones to the rescue! Thanks to helpful applications like HippoRemote

([find.pcworld.com/70435](http://find.pcworld.com/70435)), I can use my iPhone (or my iPod Touch) to control a computer from across the room.

How does HippoRemote work? Both my PC and my iPhone are connected to the same Wi-Fi network. After I installed a small (and free) Windows utility, the app was able to connect to the system and work its magic.

HippoRemote gives me not only a virtual touchpad and keyboard, but also a screen's worth of Windows Media Center controls that

fully approximate an actual remote. The app is well worth its \$2 price tag.

Android users can get in on the PC-remote action with apps such as Gmote ([find.pcworld.com/70436](http://find.pcworld.com/70436)), which is donationware.

Alas, I haven't found anything comparable to HippoRemote for the BlackBerry.

Now if you'll excuse me, I'm going to park myself on the sofa and have a Windows Media Center–powered helping of Netflix-on-demand.

—Rick Broida



**HIPPOREMOTE BASIC** turns your iPhone into a remote control.

## ANSWER LINE

## ASK YOUR QUESTION AT FORUMS.PCWORLD.COM

**Everything on my PC is running very slowly. I checked Windows Task Manager, and it identified one process as taking nearly 100 percent of my CPU. What should I do about it?**

—Dorslo via PCWorld forums

WHEN WINDOWS SLOWS to an unbearable crawl, a very strong possibility exists that one particular process is at fault—in some instances taking close to 100 percent of the CPU's capabilities. In such a case, your best recourse is to kill the process.

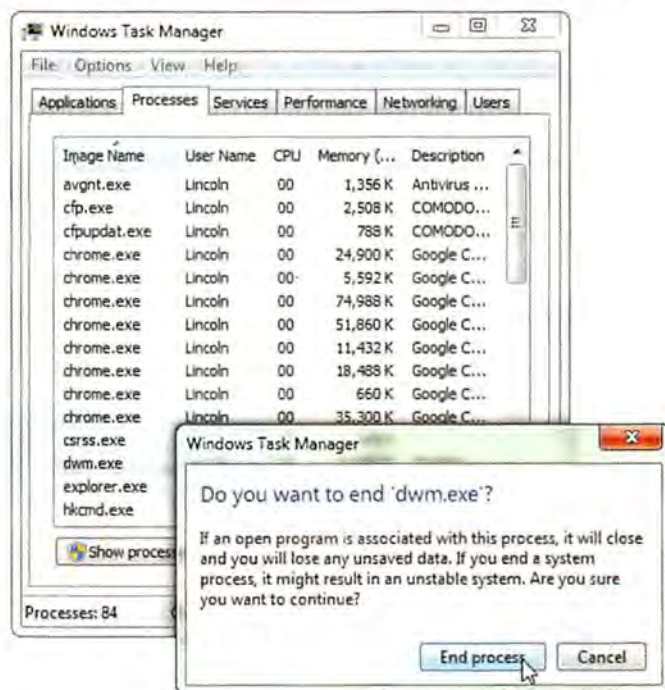
For purposes of Windows troubleshooting, a *process* is a program or an independent piece of a program. As I write this, nine applications, but 81 processes, are running on my computer.

If the problem keeps reappearing after you've killed it, you may need to prevent the process from loading altogether.

To check your processes, right-click the taskbar and select *Start Task Manager*. Click the *Processes* tab, followed by the *CPU* column heading. Doing so will cause the performance-hampering culprit to show up at the top of the list.

To kill a process, select it and click *End Process*. In the resulting, needlessly scary dialog box, click *End Process* again. Some programs may close down or freeze up when closed in this way, but you'll have your computer back.

If the problem continues to recur, you need to find out more about the process. Visit [RunScanner.net](http://RunScanner.net) or [ProcessLibrary.com](http://ProcessLibrary.com) to see whether they can help you learn more details about it. Don't use either site's options for scanning your drive, however; instead, simply enter the process's name in the site's Search field.



**WHEN YOU INSTRUCT** Windows Task Manager to end a process, an alarming dialog box pops up, asking you to confirm your decision.

Once you've identified what process is launching the resource hog, check to see if an update or bug fix that addresses the problem is available. If not, consider switching to a competing app.

My thanks to PCWorld community member Flashorn for his contributions to the original forum discussion of this question.

—Lincoln Spector



## Solve Repeated Internet Explorer 8 Crashes

READER SRINIVAS had an Internet Explorer 8 problem: "Whenever I try to access mail.yahoo.com, the page shows up and immediately IE 8 crashes. It happens with most [other] Websites, too."

Browser crashes can be tough to troubleshoot—especially in the absence of information about your PC, operating system, and so on.

Srinivas did mention that the crashes weren't happening in Firefox, so he knew the short-term workaround

for any browser problem: Try another browser.

We have two likely culprits here: a corrupted add-on or a bad Flash plug-in. Since I suspect the latter, let's start with that possibility.

Begin by uninstalling the Flash Player plug-in and its ActiveX component, using a small uninstall utility available from Adobe ([find.pcworld.com/70437](http://find.pcworld.com/70437)). After running the utility, reboot your PC.

Next, close IE and reset it to its default settings (thus

### Reset Internet Explorer settings

Resets Internet Explorer's settings to their default condition.

Reset...

You should only use this if your browser is in an unusable state.

**CLICK 'RESET' in 'Advanced settings' to restore IE's default values.**

removing any problematic add-ons). Here's what Vista/Windows 7 users should do:

1. Click **Start**, type **Internet Options**, and press **<Enter>**.
2. Click the **Advanced** tab, and then click the **Reset** button at the bottom of the window. (Do not check the box marked 'Delete personal settings'.) To complete the process, click **Reset**.
3. Restart IE and head to

Adobe's Flash Player page ([find.pcworld.com/70438](http://find.pcworld.com/70438)). Follow the instructions there to install the Flash Player.

Now try signing into the site that gave you trouble. IE shouldn't crash. If it remains stable, reinstall any add-ons you were using—one at a time, checking after each installation to make sure that everything still works.

—Rick Broida

### ANSWER LINE

### ASK YOUR QUESTION AT FORUMS.PCWORLD.COM

## Where can I get a good portable, flash-drive program for checking out a PC's specs before I buy?

—Deborah Armstrong

THE PEOPLE WHO run computer stores generally frown on potential customers plugging flash drives into their floor models. And they have good reason to frown. How do they know you're not uploading malware—intentionally or otherwise?

That's why, if you want to check out a PC's performance at the store, you should examine its Windows Experience Index.

The software for this feature is already loaded in Windows 7 (which I assume a new computer will be running), so you don't have to plug anything in.

Click **Start**, right-click **Computer**, and then right-click **Properties**. The rating you're looking for is located at the top of the System section; it's the number displayed as a graphic. To make sure that the rating is up-to-date, and to see details, click **Windows Experience Index**.

To get a fresh score, simply click **Re-run the assessment**.

The detailed view rates five

performance categories: Processor, Memory (RAM), Graphics, Gaming graphics, and Primary hard disk. The overall score isn't an average of the five, but the lowest mark. In theory, a PC is only as fast as its slowest component. But in reality, the slowest component might not matter. For instance, a low score in the Gaming graphics category means little if you don't play games.

The highest rating in Windows 7's Experience Index is 7.9. Normally, a system with a 3.0 score will work fine for most purposes, but will struggle with high-definition video feeds. If you're a serious gamer or video editor, you'll probably want a score of at least 6.0. For more information, click *What do these numbers mean?*

If you want more data than the Index offers—and you think you can get away with plugging in that flash drive at the store—run **System Spec** ([find.pcworld.com/70439](http://find.pcworld.com/70439)) off of it. This free, portable application provides all sorts of useful information about the PC you run it on, including details on the RAM, display, drives, and CPU. You can export its report to HTML.

Whether you use the Windows Experience Index or System Spec, you're not buying the floor model. So if you like it, make sure you get the same specs, or better, in the box.

—Lincoln Spector

Item	Details
Windows	Microsoft Windows 7 Professional, Version 6.1.7600
Internet Explorer	8.0.7600.16385
Memory (RAM)	1979 MB
CPU Info	Intel(R) Core(TM)2 Duo CPU E7400
CPU Speed	412.7 MHz
Sound Card	Speakers / HP (IDT High Definition Audio Device)
CD / DVD Drives	C: ATAPI iH05400-0
COM Ports	NOT Present
LPT Ports	NOT Present
Mouse	3 Button Wheel Mouse Present
Hard Disks	C: 78.2GB (D: 74.5GB)

**SYSTEM SPEC PROVIDES** lots of details about the PC it is loaded on, from operating system to browser version to amount of memory.





## Train YouTube to Jump Through Hoops at Your Command

HERE ARE SOME handy tips for bending YouTube to your will.

### Make a YouTube Video Start at the Good Part

So you finally managed to capture video of your kid scoring a goal. You've uploaded it to YouTube, and now you're ready to share the glory that is your offspring with friends and family.

Unfortunately, the magic moment doesn't happen until about 6 minutes in. Before e-mailing the link, why not tweak it so playback starts just before the goal? Sure, you could tell the recipients to skip ahead to a certain time, but that's an added hassle for them.

Modifying the start time of a YouTube link is easy. Simply add `#t=XXmYYs` to the end of the link, where XX is the number of elapsed minutes and YY is the number of elapsed seconds.

Let's say that you want your video to start at the 5:45 mark. Just copy and paste the link into an e-mail as you normally would, and add `#t=05m45s` to the end of it (with no spaces anywhere).

That's it! Now, anyone who clicks the link will jump straight to 5 minutes, 45 seconds (or whatever timeline spot you've chosen).

### Force YouTube to Play HD Videos Every Time

I like to view YouTube vids at full-screen. But when I click the player's Full Screen button, I'm treated to rather grainy video—because YouTube doesn't automatically bump the resolution to its highest available setting—so I have to click the resolution selector and choose it myself. I'm a busy man. I don't have time for that!

Fortunately, you can force YouTube to automatically switch to HD playback whenever you switch to full-screen viewing. Here's how:

1. Go to YouTube and sign into your account.
2. Find your user name in the upper-right corner, click it, and choose *Account*.
3. Click *Playback Setup*; under Video Playback Quality, select *Always play HD when switching to fullscreen (when available)*.
4. Click *Save Changes*.

Of course, not all videos offer an HD option, and playback may get jerky over a slow connection. A little trial and error may be in order.

### Stop 'Related Videos' From Appearing

One thing I dislike about YouTube is those "related video" suggestions that pop up at the end of each clip—especially when I've embedded videos for others to see.

If you feel the same way, you'll be glad to know that there's an easy way to disable related-video suggestions in videos you're embedding on your Website, on your blog, or elsewhere. Here's how:

1. Go to the YouTube page for the video you want, and click the *Embed* button below the player.
2. Remove the check mark next to *Include related videos*.
3. Copy the code in the Embed field, and then paste it wherever you need it to go.

Presto! The embedded video won't show related videos at the end.

Instruct a YouTube video to start at your favorite part, default to high-definition playback, leave out annoying related video links, and more.

### Download YouTube Videos for Offline Viewing

Ever wish you could watch that piano-playing cat at 35,000 feet? Alas, YouTube requires a live Internet connection, and Wi-Fi is still hard to find in the friendly skies. But you can download YouTube videos to your PC for anytime, anywhere viewing, no Net required.

You can find countless ways to "rip" YouTube vids, but I'm partial to Keep Tube ([find.pcworld.com/70440](http://find.pcworld.com/70440)). It's available both as a Firefox extension and as a browser bookmarklet, the latter compatible with Chrome, Internet Explorer, and other browsers.

Keep Tube works with YouTube and also with CollegeHumor, Facebook, Google Video, Metacafe, and countless other sites.

The screenshot shows the Keep Tube interface. At the top is the 'Keep Tube' logo. Below it is a URL bar containing a YouTube video link. To the right of the URL bar is a 'Download!' button. Below the URL bar are links for '[True HD 1080p Youtube Download]', '[Ways of Downloading]', '[Read Updates]', and '[FAQ]'. A section titled 'Downloading Video' shows a video player for 'YouTube: Halo: Reach Campaign Trailer (Rewind Theater)'. Below the video player are 'Download Options' including FLV (Low Quality 320x240, Normal Quality 400x228, High Quality 640x380) and MP4 (High Definition 480x360, High Definition 1280x720). There are also 'SHARE' and '[ Direct Link ]' buttons.

**KEEP TUBE LETS you download YouTube videos in both the format and the resolution you specify, by clicking the appropriate icon.**

When you see a video you like, click the Keep Tube icon (in Firefox) or bookmarklet. From there you'll land at a Keep Tube page where you can download your video in various formats and sizes.

My advice: Choose MP4 whenever possible, and always at the highest available resolution. YouTube's native FLV format requires a special player, whereas MP4 works in DivX, QuickTime, and other more-common players. Also, MP4 files usually play nicely on smartphones, so you can take saved videos with you on the go. ●



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# The Back Page

## FROM OUR READERS

### Windows Does an About-Face

Reader Paul Schaefer was browsing Microsoft.com when he saw this ad with a backward Windows logo on the laptop screen. So much for branding.



### Like We Needed Yahoo to Tell Us That

Yahoo Pulse, where you manage your public Yahoo identity, may be straying into pop psychology. When Kevin Wright accessed the site recently at [pulse.yahoo.com](http://pulse.yahoo.com), he was greeted with this rather bleak observation. Who's writing Yahoo's error messages these days? Ben Bernanke?

## The Spam Folder: E-Mail Messages You'll Never Open

Pickup lines, business opportunities, mysterious advice—they're all waiting for you in your junk filter.

✉ **Are you participating in the Recession?**

(from [skelly@smakindabak.com](mailto:skelly@smakindabak.com))

You mean...it's voluntary?

✉ **Hi Linda, try yourself as a Personal Assistant**

(from [prison05@repercussionstudios.com](mailto:prison05@repercussionstudios.com))

If it doesn't work out, you can always lay yourself off.

✉ **The best alarm-clocks for your little buddy down there.**

(from [unknown@mysterymiddie.com](mailto:unknown@mysterymiddie.com))

Gilligan?!?

✉ **Agree to be sick! Noway!**

(from [klubprattle@tripanic.com](mailto:klubprattle@tripanic.com))

If that's a typo for "Norway," I know a country that needs a new PR slogan.

—Extracted from the PCWorld spam filter by Steven Gray

## Plugged In



**Ask Away** Ask.com unveils a new question-oriented format for its Website. Question #1: Who still uses Ask.com?



**Prince 2.0** In an interview with a British newspaper, Prince proclaims that the Internet is "completely over." Hold on—we say Prince? We meant "The Artist Formerly Known as Relevant."



**Goo-Goo, Gaga** Lady Gaga becomes the first living musician to amass a following of 10 million Facebook fans. Maybe Prince was right about the Internet after all.



**Member Milestone** Facebook reaches 500 million members. When you consider that 10 million of them are Lady Gaga fans, the number suddenly seems less impressive.



**Wave Good-Bye** Google pulls the plug on its Google Wave collaboration service. It's a shame, because we enjoyed using Wave for...wait, what exactly did it do, again?



**Slogan Shuffle** Microsoft changes its slogan to "Be what's next." Sure beats "Can we please forget about Vista already?"



**Play for Days** Six Dutchmen set a Guinness record by playing video games 50 hours straight. Guinness didn't offer an award for consecutive months without a date. ●

—JR Raphael and Steve Fox

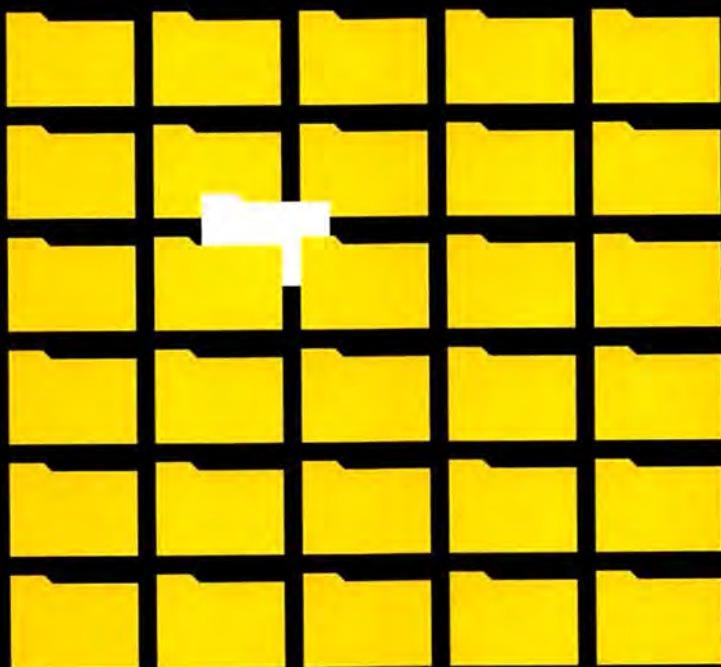
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