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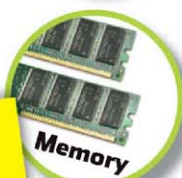
SPECIAL REPORT

HOW TO BUY A

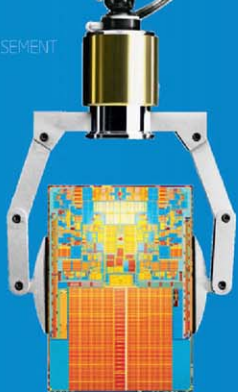
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For Notebooks

The Frequent Flier

Your favorite traveler spends the year trudging through airport terminals and setting up shop in hotel rooms. This holiday season, give him a notebook that makes his road work as smooth as possible. Systems powered by the Intel Centrino 2 processor technology combine great performance with great efficiency, which means smaller and lighter notebooks. (No more struggling to lug a heavy notebook or to keep the machine balanced on his knees!) Enjoy the freedom of a notebook with long battery life -- perfect for long hours in the departure lounge when there are no power outlets in sight. And your road warrior won't have to worry about wireless access either: Intel Centrino 2 processor technology enables smart wireless connectivity to help him stay connected with office and home.

The Gamer

Games are getting more demanding these days, and not just on the reflexes. Top-of-the-line titles need processing prowess to deliver eye-popping 3D graphics at super-fast speeds. With an Intel Centrino 2 processor technology-powered system under the tree, your favorite gamer will never come up short. Intel Centrino 2 technology delivers over three times better 3D graphics performance¹ for an immersive gaming experience—minimizing stuttering images and frustrating pauses. And your gamers won't have to shut down their music player or word processor while they're playing, since Intel Centrino 2 enables amazing performance when multitasking.

The Media Maven

Every family has one—the multimedia steward who keeps family photos and home movies in order and manages the sprawling music collection. When you give her an Intel Centrino 2 processor technology-powered notebook, she can take those hobbies to the next level. Equipped with the next generation of mobile multitasking, she won't have to close the music player while she's editing movies or copying photos. And if she wants to unwind with a video, an Intel Centrino 2 processor technology-based system can give her stunning high-definition performance. Forget about jerky-jerky images filled with static shadows and poor color. Movies become strikingly rich and immersive when you combine the power of Intel Centrino 2 processor technology with a state-of-the-art Blu-ray drive.

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Whether you're buying a notebook for your favorite frequent flier, gamer or media maven, Intel Centrino 2 processor technology is a great place to start. With an Intel Centrino 2 processor technology-powered notebook, you'll get amazing video performance, wireless capabilities and battery life.

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* System performance, battery life, power savings, high-definition quality, video playback and functionality, and wireless performance are based on a number of factors. Actual performance may vary. For more information on how to get the most out of your Intel Centrino 2 processor technology-powered notebook, visit www.intel.com/go/centrino2. ** Performance may vary based on system configuration, usage, and other factors. For more information on how to get the most out of your Intel Centrino 2 processor technology-powered notebook, visit www.intel.com/go/centrino2. *** Performance may vary based on system configuration, usage, and other factors. For more information on how to get the most out of your Intel Centrino 2 processor technology-powered notebook, visit www.intel.com/go/centrino2.

¹ As measured by 3DMark V05 compared latest generation Intel® Centrino 2 processor technology-based notebooks including Intel Graphics, with first generation dual-core Intel Centrino processor technology based notebooks. Actual performance may vary. See <http://www.intel.com/go/centrino2> for important additional information.

² Up to 2x greater range and up to 5x better performance (compared to 802.11g) with Intel® Centrino® 2 processor technology enabled notebooks. Actual results may vary based on your specific hardware, connection rate, site conditions, and software configurations. See <http://www.intel.com/go/centrino2> for more information.

Wireless M Standard currently not available in all countries. Check with your PC and access point manufacturer for details.

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2009

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The Ultimate PC Buying Guide

Looking for the right desktop or laptop to meet your needs and your budget? Our buying guide will help you find your perfect PC—at the perfect price—for 2009.

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25 Great Tech Gifts Under \$150

The economy might be going through its ups and downs, but that shouldn't prevent you from giving cool tech to friends and family. To help you find the perfect gift, we've rounded up products that cost less than \$150, with several coming in at less than \$20.



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Solid-State of the Union

Solid-state drives are rapidly taking over for traditional hard drives, especially in laptops. Which drive is best for you? We test eight and report on the best of this new-wave storage solution.

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You've bought a PC. But what's the best way to protect it? You're five simple steps away from ensuring that your computer and your data are secure for weeks, months, and years to come.

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"QUIZ"—THE LATE, GREAT baseball pitcher Dan Quisenberry—was a sometimes poet and an always quotable wisecracker. He once remarked to a reporter, "I've seen the future, and it's just like today—only longer." Quiz's quote may have the philosophical weight of helium, but it sums up this year-end edition of *Shopper* perfectly. Except that we've seen the future, and it's just like today, only *cheaper*. A whole lot cheaper.

Considering late-2008 headlines, that's fortunate. With 2009 shaping up to be a year of fiscal belt-tightening, "cheaper" will be the word that launches a thousand sales in the New Year. That's borne out best in this issue by our annual look ahead at the PC-buying landscape.

Senior Editor Matthew Murray focused his shopping scope on what to expect—and what to buy—in a desktop or laptop PC in the coming year, and in his special report, "The Ultimate PC Buying Guide: 2009" (p. 53), he runs through the current and future essentials, component by component. What he found: Apart from new Intel processors that will gradually change the game (the Core i7 series, code-named "Nehalem"), the heart of the market in '09 will remain much the same tech—Core 2 and Phenom processors, immense-capacity Serial ATA drives, abundant RAM,

ubiquitous DVD burners—that defined the best PCs in '08. Just *cheaper*.

More immediate than '09, though, are the '08 holidays. The trend there is in letters bigger than those of L.A.'s "Hollywood" sign: Most of us will be spending less. So we followed the budget path with our annual holiday guide, "25 Great Tech Gifts Under \$150" (p. 77). Scout out presents for every special person on your list: the nieces and nephews, your cell-phone-fiend co-worker, your tech geek spouse. Our picks are moderately priced—well below the cost of this season's coveted iPods or iPhones—with a few under \$20, including a super-small MP3 player. We even uncover some ideas for very respectable free gifts.

One place where the future's getting shorter is storage—shorter waiting times for your data, that is. That's thanks to the wave of solid-state drives (SSDs) hitting the market. Compact, cool-running replacements for spinning platters, SSDs are the next gotta-have performance accessory for desktops and laptops. Despite fast-falling prices, they're still premium items; to see which live up to their lofty reputations, we test eight recent models in "Solid State of the Union" (p. 84).

There's plenty more in this issue. Setting up and locking down your new PC have never been easier than with our five-step tutorial, "Protect Your New Computer" (p. 92). And there's plenty more help and how-to advice—not to mention reviews, shopping guides, videos, and news galore—at ComputerShopper.com. In print or online, stay a while and browse. You'll see the future, too.

CORRECTION

Due to an editing error in our October 2008 issue, we listed an incorrect price for the ZT Systems Affinity 7225Xi on p. 47. The correct price is \$749.99.

We want to hear from you!

What do you think of this issue? Let us know: feedback@computershopper.com

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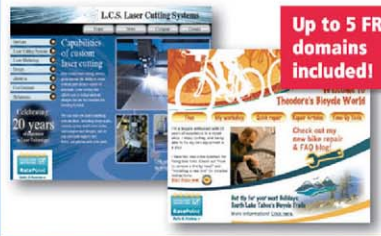
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REVIEWS

THE LATEST HARDWARE AND SOFTWARE PRODUCTS

HP Pavilion HDX18 Entertainment Notebook PC

Big-screen laptop is a luggable media center

HP'S NEWEST HDX is all about design. While the original dual-hinged Pavilion HDX Entertainment Notebook PC was innovative, it wasn't exactly mobile. The HDX18, however, still serves up major-league bragging rights; we just wish movie playback were better.

We like the new Fluid Imprint pattern, which extends from the lid to the keyboard deck. Open the screen (with its drop-down hinge and built-in Webcam), and you'll find an 18.4-inch 16-to-9 display.

The HDX18 is missing the dual hinge and included remote control that sat so nicely in the previous model's deck, a fair compromise to reduce size and weight. At 17.2x11.3x1.3 inches (HWD) and only 8.9 pounds, the HDX18 is more manageable than its predecessor (18.8x13.5x2.5 inches and 15.5 pounds).

We like the spacious silver keyboard, which offers good key travel. The function, Esc, and arrow keys, however, are a little on the small side. Above the keyboard, you'll find HP's familiar collection of media buttons. There's also a Wi-Fi toggle that changes from orange to blue when touched. The volume controls launch a box onscreen, which is an improvement over the previous HDX's lack of visual and tactile feedback for the volume controls.

Below the keyboard is the wide touch pad, complete with comfortable mouse buttons and a scroll area. A button between the touch pad and the keyboard turns the touch pad on and off. A fingerprint reader sits off to the right for good measure.

On the right of the system are VGA, Ethernet, HDMI, two USB, and FireWire ports. On the front are a 5-in-1 memory card reader and three status lights. You'll also find two headphone ports, a mic jack, two more USB ports, the TV tuner and power jacks, and the Blu-ray optical drive on the left.

Movie playback was a little disappointing. On both our Blu-ray test DVD and on a regular DVD, the image was grainy with noise. We also noticed some loss in film resolution. Colors were accurate, however.

Sound, on the other hand, was superb. The Altec Lansing speakers combined with the Dolby Home Theater and subwoofer made for an exceptional listening experience—especially for a laptop. It



produced enough volume to fill a medium-size room. In the box, you'll find an over-the-air TV tuner that's easy to set up. You can also record live TV or use the system as a DVR.

Packed with Intel's latest Centrino 2 platform with a P8400 processor, the HDX18 offers impressive performance. It managed a score of 5,754 on Cinebench 10, completed our iTunes conversion test in 3 minutes and 28 seconds, and finished our Windows Media Encoder test in 5 minutes and 9 seconds. Likewise, the HDX18 handled multitasking with aplomb; we watched a movie while converting iTunes files with no hiccups.

The laptop's Nvidia GeForce 9600M GT graphics card with 512MB of dedicated video memory means the HDX18 can hold its own for casual gamers. With a Futuremark 3DMark Vantage score of 1,251 on the Performance preset, it's not the best gamer on the market, but it should manage 3D games adequately. And there's plenty of power to edit and burn HD content using the included Cyberlink DVD Premium software. Muvue autoProducer Premium is also included for creating movies with special effects. Battery life was impressive at 1 hour and 48 minutes on our DVD rundown test.

HP keeps extras in check on the HDX18. You'll find active hard drive protection to keep your data safe in case you drop the system or knock it around. An external SATA (eSATA)/USB combo port allows for quick backup to an external drive, and HP's Advisor software helps you navigate and update your system. The HDX18 comes with stereo earbuds, a remote control, and a protective sleeve. A one-year warranty with 24/7 phone support is standard.

From day one, the HDX has been a specialized machine, geared toward those who need most of their entertainment in one place. At \$2,149, the HDX18 combines TV, PC, stereo, and DVD-player functionality into one compact package. Although we'd like to see better integration of the Blu-ray capabilities and better graphics performance, its solid array of ports, long battery life, and striking design make this one impressive machine. —Sarah E. Anderson

EDITORS' RATING **8.0**

PROS Striking design; versatile; more portable than predecessor; long battery life

CONS Subpar movie playback; unimpressive graphics capabilities

SPECS 2.26GHz Centrino P8400; 4GB DDR2; two 250GB hard drives; Blu-ray reader/DVD+RW; 18.4-inch TFT; Nvidia GeForce 9600M GT (512MB) graphics; Windows Vista Home Premium SPI (64-bit)

Hewlett-Packard, 866-408-5408
www.hp.com

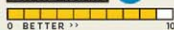
Direct Price \$2,149

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Intel X-25M SATA Solid-State Drive

Superfast, rugged storage comes at a price

EDITORS' RATING



PROS Fast, rugged, cool, silent; plug-and-play replacement for traditional SATA laptop drives

CONS Expensive; smaller capacity than traditional drives

Intel, 408-765-8080
www.intel.com

Mfr. Est. Price **\$595**



SOLID-STATE STORAGE may eventually spell doom for traditional, spinning-platter hard drives, and Intel's release of new, mainstream solid-state drives (SSDs) like the X-25M certainly supports that forecast, though initial prices are high and capacities are low.

The \$595, 80GB X-25M is a plug-and-play replacement for a standard laptop drive, supporting both 1.5Gbps and 3.0Gbps SATA interfaces. Because it has no moving parts, it's more rugged than traditional hard drives; Intel claims it's shock-resistant to 1,000G, and its mean-time-between-failures rating of 1.2 million hours is double that of many consumer laptop drives.

The drive's speed is rated at up to 250MB per second at sequential reads and 70MB per second for sequential writes. We found performance

Intel's X-25M makes the mobile-computing experience so much better that you're unlikely to regret paying to be an early adopter.

exemplary, with HDTach sequential-read results of 121MB per second, compared to 40MB per second for a typical laptop hard drive. We copied the same drive image to a Seagate Momentus 5400.3 5,400rpm drive and to the X-25M, and we saw dramatically higher speeds in every operation that used the SSD.

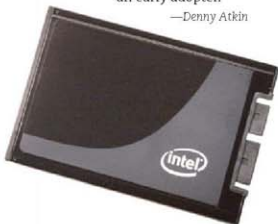
Though its power consumption of 0.06 watts while idle is similar to that of a traditional laptop drive, the X-25M's active consumption of just 0.15 watts (compared to 1.8 to 2 watts for the Seagate Momentus drive we replaced) can result in up to a half-hour of additional battery life, depending on how much you access the drive.

The drive also runs much cooler than typical laptop drives. When we tested it in an Asus Eee PC 1000H netbook, the bottom of the computer was noticeably cooler than with the original hard drive. And, of course, it's completely silent and never needs to be defragmented. One concern with SSDs is longevity, since flash memory can only be written to a limited number of times, but Intel's wear-leveling technology spreads

these writes out to help the drive last longer.

If budget isn't a concern, the X-25M makes the mobile-computing experience so much better that you're unlikely to regret paying the price for being an early adopter.

—Denny Atkin



C For more: computershopper.com/hard-drives-burners



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Alienware Area-51 ALX

Outstanding performance comes at a high price

ONCE AGAIN, Alienware has put together a formidable gaming rig with the Area-51 ALX. Top-shelf components, a beautiful case design, and lots of neat extras are all part of the Alienware experience. Unfortunately, so is the exorbitant \$7,980 price tag.

With its shiny black-and-chrome case, backlit grillwork, and three glowing alien-head badges, the Area-51 ALX is arguably one of the coolest-looking systems around. It's also one of the biggest, standing 19 inches high and 25 inches deep. The over-size chassis contains six lighting zones that you can customize using the AlienFX utility, and you can even assign a color scheme to alert you to incoming mail. We love the addition of a wireless fan connection on the side panel, making it easy to remove without having to disconnect any wires. As always, the interior is immaculate; all cables are impeccably routed and organized for maximum airflow, and there's more than enough room to get both hands in there to install and remove components. A liquid-cooling unit for the CPU and special sound-dampening material combine to keep the ALX relatively quiet, despite having half a dozen fans spinning away, including the one cooling the 1,200-watt power supply.

Our review system came configured with a single recordable Blu-ray/DVD-burner combo drive, leaving room for two additional 5.25-inch drives. All four of the hard drive bays are occupied, but it's doubtful that you'll run out of drive space anytime soon, as it has two 300GB primary drives in a RAID Level 0 configuration and an additional 2 terabytes (TB) of secondary storage from dual 1TB drives. Two PCI Express slots (one x16, one x1) are available for expansion, and two USB ports, a FireWire port, and headphone and microphone jacks are on the front of the case for easy access. Tons of ports are around back, including six USB ports, a FireWire port, dual Gigabit Ethernet jacks, an external SATA (eSATA) connector, and an assortment of integrated audio outputs. Neither a monitor nor speakers are included in the price, so be prepared to shell out even more money if you don't already have one or both.

The ALX uses an Nvidia nForce 790i Ultra SLI motherboard and is powered by an Intel Core 2 Extreme QX9770 processor running at its stock speed of 3.2GHz. All four memory slots are filled with Corsair Dominator DDR3 RAM for a total of 4GB, and graphics are driven by dual 2GB ATI Radeon HD 4870 X2 controllers in a CrossFireX configuration, delivering the power of four GPUs. High-definition eight-channel audio comes by way of a Creative Sound Blaster X-Fi XtremeGamer sound card.

EDITORS' RATING 7.5

0 BETTER >> 10

PROS Wickedly fast; cool design; quiet

CONS Extremely expensive; does not include monitor

SPECS 3.2GHz Core 2 Extreme QX9770; 4GB DDR3; two 300GB hard drives (RAID Level 0); two 1TB drives; Blu-ray burner/DVD±RW; no monitor; two ATI Radeon HD 4870 X2 (2GB, Cross-FireX); Windows Vista Ultimate

Alienware, 800-254-3692
www.alienware.com

Direct Price \$7,980



The ALX outperformed all comers on our Company of Heroes DirectX 10 (DX10) high-resolution tests, with scores of 56.9 frames per second (fps) and 52.5fps when set to resolutions of 1,600x1,200 and 2,560x1,600, respectively. The Alienware's PCMark Vantage score of 7,151 was the highest we've seen to date, as was its very impressive Futuremark 3DMark Vantage score of 11,510, using the demanding Extreme preset test.

DX9 gaming performance was equally impressive, particularly at higher resolutions. The ALX's score of 174.3fps on Company of Heroes at 2,560x1,600 knocked the iBuypower Gamer Paladin 900 (137.1fps) out of first place. The ALX also scored a 17,619 on our Futuremark 3DMark06 test, but another iBuypower system, the Gamer Paladin 795-CX, still holds the top score with a 17,975, and it trounced the ALX across the board on our Supreme Commander DX9 tests, as well as on our iTunes and Windows Media Encoder tests. (Keep in mind that the iBuypower Gamer Paladin 795-CX costs around \$5,000 less than the Area-51 ALX.)

There's little doubt that the Alienware Area-51 ALX will satisfy even the most demanding gamers, and it will elicit its share of compliments from your fellow fragaholics too. But as we've said in the past, it's hard to justify spending close to \$8,000 on a system when there are much more affordable systems out there that also offer amazing performance. —John R. Delaney

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iBuppwer Gamer Haf 9SE

A credible gaming experience at an enviable price



IF THE INEVITABLE TRUTH about gaming PCs is that they'll always be big, hulking, glow-in-the-dark towers, then maybe we can at least debunk the rumor that they'll also always be too expensive for you to own. iBuppwer's latest release, the Gamer Haf 9SE, is a full-tilt gaming rig available for \$1,999—not a big-box-store bargain price, but a virtual bargain for what the system contains and delivers.

Let's get the surprises out of the way first: That two grand isn't just for a box in a box. The Gamer Haf 9SE includes a Logitech gaming keyboard, a Zalman FPSGUN FG1000 gaming mouse, and Logitech X-240 2.1 speakers. A Sceptre X20WG 20.1-inch wide-screen LCD monitor is also included in the package.

Inside the Cooler Master Haf Gaming Case, you'll find a Gigabyte GA-EP45T motherboard stocked with a 2.83GHz Intel Core 2 Quad Q9550 processor and 4GB of DDR3 memory. iBuppwer may have scrimped by including just a 500GB hard disk, but the 20x Blu-ray drive makes up for it in spirit. It's an LG model that reads both Blu-ray and HD DVD discs, and it also reads and writes standard DVD formats. In

the bay below there's an Optiarc 20x DVD burner for your data copying and archiving needs, but you can swap it for a 12-in-1 media reader/writer.

The real jewel in this collection is the 2GB Radeon 4870 X2 graphics card, which helped the Gamer Haf 9SE achieve some impressive benchmark results. It cranked out a score of 22,633 on 3DMark Vantage using the Entry preset, proving its finesse with games at lower resolutions; its scores on the other presets (12,613 for Performance, 9,458 for High, 6,985 for Extreme) were also quite good. The Haf 9SE hovered



PROS Top-notch performance; reasonable price; includes Blu-ray drive; 200mm fans are whisper-quiet; great expansion and connectivity options

CONS Large graphics card may cause shipping difficulties; hard drive is small for the price

SPECS 2.83GHz Core 2 Quad Q9550; 4GB DDR3; 500GB hard drive; Blu-ray/HD DVD combo drive; DVD±RW; 20.1-inch Sceptre LCD; ATI Radeon HD 4870 X2 graphics (2GB); Windows Vista Home Premium (64-bit)

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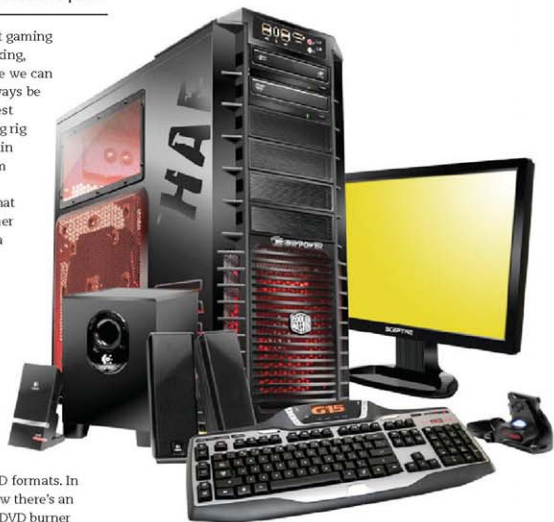
around or above 50 frames per second (fps) in Company of Heroes at all three of the tested resolutions (1,280x1,024, 1,600x1,200, and 2,560x1,600) and around 47 fps in Supreme Commander.

We encountered only two runtime problems: At 1,900x1,200 in Call of Juarez, the benchmark test repeatedly locked up, and at 2,560x1,600 in World in Conflict, the action slowed to a 14fps crawl. Our general experience with new ATI products is that driver updates often solve such problems. (One

note of caution: As excellent as the 4870 X2 card might be, it tips the scales at close to 3 pounds. Think of it as a crowbar wedged into a PCI Express slot during shipment. Our first Gamer Haf 9SE arrived nonfunctional, with the 4870 X2 sitting in a cracked slot. It took a replacement motherboard and a new graphics card to get the system working.)

The Haf case may not be a work of art, but it is a piece of functional magic. Three 200mm fans inside keep everything—including the 800-watt power supply—cool while being whisper-quiet. Four USB ports grace the front panel, along with a FireWire and an external SATA (eSATA) port. There are six 5.25-inch and five 3.5-inch drive bays in total. The Gigabyte motherboard offers eight additional USB ports on the back panel, along with two Gigabit LAN ports. You'll find two more eSATA ports on a bracket at the back panel, along with a power connection. We can't imagine having any expansion limitations with this case-and-motherboard combination.

Throwing money at a PC to make it a "gaming rig" has become an insane road to ever-escalating bragging rights. iBuppwer has taken a detour from that route with its Gamer Haf 9SE—a solid gaming computer, grounded in the reality of current-day economics, that offers you the opportunity to brag about how little you spent to get a good deal. —Brian O'Brien



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T9400 2.53Ghz	\$ 1149
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Quad Q9650 3.00GHz	\$ 1135
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|--------------------------------------|----------------|
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| Quad Q9650 3.00Ghz | \$ 1685 |
| Quad Q9550 2.83Ghz | \$ 1399 |
| 6 (MB Cache, 1333MHz FSB) | |
| Quad Q9400 2.86Ghz | \$ 1345 |
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| E8600 3.33Ghz | \$ 1345 |
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Toshiba Qosmio G55-Q802

Good value, but not the speed demon we hoped for

THE QOSMIO G55-Q802 offers a crisp 18.4-inch display, hand-gesture technology, a robust sound system, and lots of storage. It even unconverts your standard-definition DVDs, so you can watch them in high definition on your HDTV. But the system's most-touted features—fast video transcoding and DirectX 10 performance—come up short.

The Qosmio is beautifully designed with Toshiba's new Vibe pinstripping pattern. It attracts fingerprints, but the glossy display is gorgeous and surprisingly nonreflective. The 1,680x945-resolution screen delivers a bright, crisp picture with a 16-to-9 aspect ratio and good viewing angles.

The keyboard is responsive and comfortable; the touch pad is average size and maintains the same aspect ratio as the display. A slightly textured finish makes controlling cursor movements easy. The two mouse buttons sport a silver finish, as does the volume wheel.

Above the keyboard are Toshiba's backlit, feather-touch media controls and the power switch, as well as two Harman Kardon speakers, both illuminated by white LEDs. Paired with a small, bottom-mounted subwoofer and driven by Dolby Sound Room technology, the audio system delivers outstanding bass, treble, and mids and is distortion-free.

Onboard is Toshiba's Quad Core HD Processor, a Cell processor technology co-developed by IBM, Sony, and Toshiba. The main goal of this technology is to speed up video transcoding, a tedious, CPU-intensive task used to produce personal videos. According to Toshiba, the Quad Core HD processor, working with the CPU and graphics engine, helps transcode video files up to 11 times faster than non-Quad Core systems—provided the transcoding application is optimized for Quad Core processing. Toshiba bundles



the Quad Core HD was around a minute and a half faster, but that's far short of the elevenfold boost Toshiba promised.

Nonetheless, Quad Core processing brings some cool usability features to the Qosmio, including gesture control, video indexing, and DVD upconversion. Gesture control uses the integrated Webcam to capture hand movements and use them to manipulate media-player controls and presentation slide shows. Getting the hand gestures to work is a tricky task that requires the right lighting conditions and a lot of patience.

Video indexing lets you create a catalog of faces from your video clips to use as search criteria to access only those scenes that contain a specific face. The upconversion function takes standard-definition content and scales it up to 720p in real time, so you can watch it in high-definition (up to 1080i) on an HDTV. We ran an HDMI cable from the Qosmio to a 47-inch HDTV and watched a standard-definition DVD of *Apollo 13*. The upconversion function worked quite well, producing bolder colors and a cleaner, sharper picture. At times, the picture would soften for an instant, but that did not detract from the overall HD experience.

The combination of a 2GHz Intel Core 2 Duo P7350 CPU and 4GB of memory produced a score of 3,400 on PCMark Vantage, about what we expected from this class of notebook. The system required 7 minutes and 39 seconds to complete our Windows Media Encoder test, but it fared better on our iTunes test at just 4 minutes and 29 seconds. It lasted a surprising 2 hours and 31 minutes on our DVD rundown test.

Powered by an Nvidia GeForce 9600M GT graphics card, the G55 managed an impressive score of 59.9fps (at 1,024x768) on our Company of Heroes test, but that dropped to a measly 19.6fps while running DirectX 10. If you plan to use the Qosmio for gaming, stick to the less-demanding DirectX 9 titles. Dual 250GB hard drives provide plenty of storage for applications and multimedia projects.

The Toshiba Qosmio G55-Q802 brings some cool new technology to the laptop field, even if it's not totally ready for prime time. Although this notebook won't bowl you over with blazing performance, we give Toshiba credit for keeping the price reasonable. This innovative entertainment system will handle your home multimedia tasks with ease and style. —John R. Delaney

EDITORS' RATING 7.2

0 BETTER >> 10

PROS Gorgeous 18.4-inch display; sleek design; killer sound system

CONS No Blu-ray driver; poor DirectX 10 performance; Quad Core HD chip does not deliver as promised

SPECS 2GHz Core 2 Duo P7350; 4GB DDR2; dual 250GB hard drives; DVD+RW; 18.4-inch TFT; Nvidia GeForce 9600M GT graphics (512MB); Windows Vista Home Premium


Toshiba America, 800-457-7777
www.toshiba.com

Direct Price \$1,549

Ulead's DVD MovieFactory 5 for this.

For our tests, we imported a 7-minute video clip, converted it, and then burned it to a DVD using the Ulead application. The process took 10 minutes and 14 seconds to complete, including the burn process (6 minutes and 24 seconds excluding the burn). During this time, the Quad Core HD units were working at around 75 percent capacity. We then repeated the process using Ulead's DVD MovieFactory 6 Plus, which does not tap into the Quad Core processors. The process took 11 minutes and 43 seconds to render the file and burn it to a DVD (6 minutes and 45 seconds before burning). Processing with

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Lenovo ThinkPad W700

An innovative powerhouse workstation



THOSE WHO NEED to rely on a Windows-based notebook for video editing and other processor-intensive tasks will find just what they need in the Lenovo ThinkPad W700. This portable workstation combines power and innovation to rise head and shoulders above every other notebook on the market.

At 1.6x16.1x12.2 inches (HWD) and 8.4 pounds, the W700 is cumbersome for travel. But at a desk, its bright 17-inch LCD and desktop-like performance will have you forgetting you're using a laptop.

The W700 has all the usual ThinkPad accoutrements, including the matte-black finish, keyboard light above the LCD, and both a Trackpoint pointing stick and a touch pad for pointer control. Typical for Lenovo, the comfortable keyboard has a solid feel and deep throw, and the W700's large size means there's room for a full numeric keypad. To the right of the touch pad is a built-in Wacom Digitizer to be used with the included stylus. You can scale it so that the drawing area covers the entire screen or just a portion, making it an excellent tool for fine tweaks to an image.

Graphic designers using the 1,920x1,200-pixel LCD will appreciate its accurate color reproduction. Not only does the screen display a 72 percent color gamut (the range of visible colors), compared with about 45 percent for typical portable

displays, but the W700 also offers a built-in X-Rite Pantone color sensor to ensure accurate display. When we compared digital photos using Photoshop CS3, the adjusted colors were indeed truer to the originals.

The Nvidia Quadro FX 3700M graphics card has 1GB of dedicated video memory, offering superb performance in both productivity and entertainment applications. The W700 supports dual-monitor usage and has dual-link DVI, VGA, and DisplayPort connectors.

Our test unit was

equipped with a 2.8GHz Core 2 Duo T9600 processor, 4GB of RAM, and the new Centrino 2 chipset. That's already a lot of horsepower, but Lenovo also offers in the new quad-core Core 2 Extreme QX9300 processor for video editing for an extra \$850. Though our unit had a single 5,400rpm 320GB drive, you can opt for dual 200GB 7,200rpm internal drives in a RAID configuration for \$355 (lesser options are also available) or a pair of 64GB solid state drives for \$1,729.

The W700 is a stellar performer. In most of our productivity tests, the W700 matched or beat Alienware's Area-51 m17x gaming notebook, even though the m17x is powered by a Core 2 Extreme X9000 CPU. Our Windows Media Encoder test



finished in 5 minutes and 20 seconds, tying the m17x, while the iTunes conversion test finished in 3 minutes and 14 seconds, just edging out the m17x's 3 minutes and 16 seconds. Its Cinebench 10 score of 6,526 beat out the m17x's slower 5,836. Testing its workstation chops, our Sony Vegas 8 rendering tests took 7 minutes and 12 seconds, just a little slower than a 3GHz Core 2 Duo E8400-based desktop PC, which took 6 minutes and 24 seconds. Even during stress tests, the W700 remained cool, and the only noticeable sounds were from the DVD drive. The W700 lasted 2 hours and 9 minutes on our DVD rundown test, which isn't bad for a 17-inch system.

Though the W700's GPU is more likely to be put to work rendering video effects than playing games, 3D performance on our gaming tests was very good. Its Company of Heroes result of 36.4 frames per second (fps) at the native 1,920x1,200 resolution using DirectX 10 is comparable to that of an ATI Radeon HD 4850 desktop GPU. Its Futuremark 3DMark Vantage score of 4,486 using the Performance preset is very good for a single-GPU notebook.

The W700 sports five USB 2.0 ports and one FireWire port, headphone and microphone jacks, a built-in SD/MMC card reader, and a 34mm ExpressCard slot. You can configure the W700 with a second 54mm ExpressCard slot, a SmartCard reader, or a CompactFlash slot. There's also an optional 1.3-megapixel integrated Webcam. An external SATA port is missing, though; you'll need the optional \$279 Mini Dock to add that, as well as S/PDIF and additional USB ports. A one-year warranty comes standard; longer warranties and onsite service are available. Though the W700 is durable, you can opt for accidental damage protection for \$100.

Highly configurable and a speedy performer even in its base configuration, the ThinkPad W700 is an excellent choice for power users. With its superb screen and color calibration, digitizer, and CompactFlash slot options, it's a particularly good choice for photographers and artists looking for a mobile workstation. —Denny Atkins



PROS Fast; excellent screen rendering in color calibration; reasonable battery life for its class; superb keyboard

CONS Large and heavy; noisy optical drive

SPECS 2.8GHz Core 2 Duo T9600 processor; 4GB DDR3 RAM; 320GB hard drive; DVD±RW; 17-inch LCD; Nvidia Quadro FX 3700M graphics; Windows Vista Ultimate SPI (64-bit)

Lenovo, 800-915-1849
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Direct Price \$3,802 (as tested)

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Dell Inspiron Mini 9

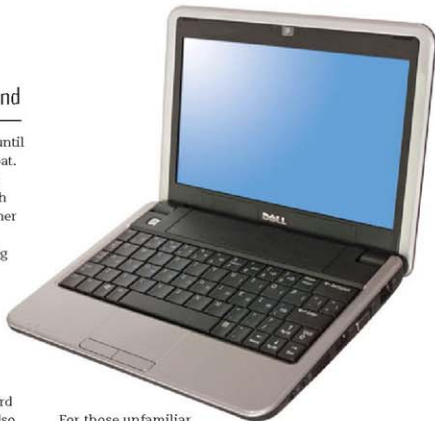
Dell's debut netbook is stylish but a step behind

THE NETBOOK CATEGORY of laptops didn't even exist until about a year ago, but it's already grown surprisingly cutthroat. Major manufacturers don't want to be cut out of the action that companies such as Acer (with its Aspire One), MSI (with the Wind U100), and especially Asus (with, among many other variants, the EeePC 1000H) are currently dominating. Until now, however, HP has made the strongest showing of the big boys, with its 2133 Mini-Note PC. With the release of its Inspiron Mini 9, Dell is hoping to make its own indelible mark on the industry. Although the company has created an attractive machine, we expected something more groundbreaking from the PC giant.

Above all else, the Inspiron Mini 9 delivers the style Dell customers have come to expect. Our \$434 review unit had a glossy black lid that lent the machine much the same outward elegance the company's consumer laptops enjoy. (White is also an option.) Open the lid, and you'll find an 8.9-inch glossy display and a matte-black keyboard outlined with silver-gray edges, which extend onto the wrist rest, the touch pad, and the bezel. It weighs in at a predictably svelte 2 pounds and 5 ounces.

Attractive though the Inspiron Mini 9 may appear, we were less than thrilled with the keyboard. We understand the challenges of cramming a mostly full set of keys into a

space this confined—when closed, the laptop measures 1.25x9.1x6.8 inches (HWD), and the keyboard measures just 8.25 inches wide—but relocating the quotation-mark key into the spacebar row (to the right of the menu key and to the left of the left arrow key) is a poor solution. Typing for any reasonable length of time without easy access to an apostrophe wasn't easy, and contorting our hand to use the key was uncomfortable



For those unfamiliar with Ubuntu, it's definitely one of the more Windows-like Unix distributions, and the version on our machine neatly organized programs into major categories (Entertainment, Games, Learn, Productivity, and Web) to make finding apps easier. The preinstalled software includes Adobe Reader, Firefox, open-source media players, and OpenOffice.org for word processing, spreadsheets, drawing, and presentations. You'll also find Evolution Mail, Pidgin multiprotocol IM programs, and photo and video utilities. (Our test unit had an integrated 1.3-megapixel Webcam; a 0.3-megapixel model is an option if you want to save \$10.)

As a rule, frills tend to be nonexistent on netbooks, and the Inspiron Mini 9 is no exception. It's got a decent set of connectivity options, with headphone and mic jacks, a USB port, a VGA out, and an Ethernet jack on the right edge; two more USB ports and a multifunction card reader reside on the left. But that's it. There is, of course, no optical drive.

Because of the Linux OS, we couldn't run our usual battery of benchmark tests, but we were generally satisfied with the Inspiron Mini 9's performance in Internet and office work alike. The system took about 36 seconds to cold-boot and about 16 seconds to shut down—good news when you want to get on- or offline fast—and a speedy 9 seconds to wake up from sleep mode. Battery life was similarly solid: We measured 3 hours and 20 minutes of time in general use.

Despite a good-looking design and decent performance, the Inspiron Mini 9 might be too little, too late. It's a fine first-generation machine, but the rest of the industry is already moving on. Asus, for one, has revised its EeePC line nearly to the point of perfection with its 1000H, which pushes the boundaries of netbook size, offers a much more comfortable keyboard, and ranges in price from \$449 to \$549. Bargains like that are hard to beat. Dell was late to the table, and it shows. —Matthew Murray

EDITORS' RATING 7.2

0 BETTER >> 10

PROS Attractive; good battery life; in-depth software selection; multiple configuration options

CONS Keyboard layout defeats touch typing; no optical drive

SPECS 1.6GHz Atom N270; 1GB DDR2; 8GB SSD; no optical drive; 8.9-inch TFT; integrated graphics; Ubuntu Linux 8.04

Dell, 800-999-3355
www.dell.com

Direct Price \$434

and dragged down our typing speed.

If you're not much of a typist, the Inspiron Mini 9 suffices as a quick-and-easy way to plow through basic tasks under any circumstances. The 1.6GHz Intel Atom N270 processor is standard across the line, but a number of configurations are available to match your needs and budget. Our model came with 1GB of DDR2 RAM (though you can save \$25 by settling for 512MB) and an 8GB solid-state drive, which proved more than sufficient for running the Ubuntu Linux 8.04 operating system; 4GB and 16GB drives are also available, respectively, for \$35 less or \$40 more. (According to Dell, the configuration we tested will be available soon; a similar version, sporting Windows XP Home Edition, is already on the market and costs about \$479.) For networking, 802.11b/g is standard, and Bluetooth is an option.

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MSI GX720

Gaming and Blu-ray for less than \$2,000

THE MSI GX720 is a midlevel gaming notebook with some cool features. We just wish the DX10 performance were more enticing.

Weighing 7 pounds, the chassis has a black-and-red color scheme that continues to the inside. A panel of touch-sensitive function buttons contains media-player controls and hotkeys for activating the Webcam as well as the Bluetooth and Wi-Fi radios. The Turbo Drive button kicks the processor into overclock mode by bumping up the front-side-bus speed from 1,066MHz to 1,243MHz. The average CPU speed was 2.93GHz in Turbo mode. That speed is on par with MSI's claims, but the improvement isn't that big.

The 17-inch display maxes out at 1,680x1,050 pixels. Although it offers good viewing angles and bold color reproduction, we'd prefer a 1,920x1,200 screen, given the Blu-ray drive. A 2-megapixel Webcam is in the bezel.

Powered by Intel's 2.53GHz Core 2 Duo P9500 processor, 4GB of DDR2 RAM, and a 320GB, 5,400rpm hard drive, the GX720 turned in a respectable 3,945 on our Futuremark PCMark Vantage test. With Turbo mode enabled, the score increased to 4,144; it managed just 232 frames per second (fps) on our Company of Heroes DX10 test at 1,024x768 resolution, and at 1,680x1,050, it returned a barely playable score of 20fps. DX9 games were better, at 71.5fps (1,024x768) and 31fps (1,680x1,050). On 3DMark06, the GX720 garnered decent

scores of 6,545 and 4,512 at 1,024x768 and native resolutions.

The battery lasted 1 hour and 50 minutes on our DVD rundown test and an extra 15 minutes in ECO Movie mode.

Extreme gamers will object to the GX720's DirectX 10 3D performance and the paltry overclocking improvements. For gaming on a budget, we recommend Gateway's FX series. But for a stylish gaming rig with Blu-ray, the \$1,799 MSI GX720 isn't bad.

—John R. DeLaney



PROS Stylish design; Turbo Drive overclocking capabilities; good productivity performance

CONS Mediocre graphics performance and battery life; only marginal improvement in Turbo mode; relatively low-res display

SPECS 2.53GHz Core 2 Duo P9500; 4GB DDR2; 320GB hard drive; Blu-ray/DVD±RW; 17-inch LCD; Nvidia GeForce 9600M GT; Windows Vista Home Premium

MSI Computer, 626-913-0828
www.msicomputer.com

List Price \$1,799

Fujitsu LifeBook T1010

Affordable tablet with a large display

AT JUST \$1,399, Fujitsu's LifeBook T1010 convertible sports a 13.3-inch display, but its Penryn CPU and subpar tablet functionality are just mediocre.

Clad in a glossy silver chassis with a subtle pattern of vertical columns, the T1010 is not exciting-looking. At 1.4x12.6x9.6 inches (HWD) and weighing 5.3 pounds, it's heavier than competing tablets, and our arms tired quickly when we held it in slate mode.

The system's crisp wide-screen can pivot in both directions, but it's not very sturdy. Video playback looked sharp, however, and viewing angles were good. You also get a built-in 1.3-megapixel Webcam. The roomy, white keyboard is comfortable; the touch pad buttons are loud but responsive.

With no active digitizer, the T1010 cannot sense your pen as it hovers above the screen. Instead, it uses a passive resistive touch screen that reacts to input from the included stylus and your finger.

The screen was slow to recognize where we wanted the cursor to go, and once we hit an icon, we often had to tap several times before it would open. The handwriting recognition struggled with our penmanship, but the spacious display made writing comfortable, and the shortcut buttons on the bezel are welcome.

Earning a strong 2,916 on Futuremark PCMark Vantage, the T1010 took just 6 minutes and 44 seconds to complete our Windows Media Encoder test. It also did well on Cinebench 10 (4,611). Due to the integrated graphics, the T1010's 3DMark06 score of 974 was on the low side. On our DVD-rundown test, the battery lasted 2 hours and 41 minutes—about average.

The T1010's hefty chassis and disappointing tablet performance make it hard to recommend. But if you're on a budget and want a tablet with a larger screen, it's worth considering. —Erin Kandel



PROS Bright, roomy screen; zippy Penryn CPU and DDR3 RAM; affordable; built-in DVD drive; good performance; average battery life

CONS Heavy when used in slate mode; doesn't include active digitizer; mediocre performance in tablet mode

SPECS 2.26GHz Core 2 Duo P8400; 2GB DDR3; 120GB hard drive; DVD±RW; 13.3-inch touch screen; Intel GMA 4500HD graphics; Windows Vista Business SP1

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ATI Radeon HD 4670

Play the hottest games, even on the tightest budget

ATI'S RADEON HD 4670 is a full-featured, compact graphics card that offers last year's midrange performance at an extremely low price. For around \$80, you can play even the latest games at medium resolutions, watch DVD and HD video, and run multiple monitors.

The HD 4670 is available with 512MB of 1,000MHz GDDR3 memory or 1GB of slower 900MHz standard DDR3 RAM; we tested the 512MB version. The faster memory will offer better performance in the resolutions at which you're likely to play games when using this card. Interestingly, our sample card sported a dual-link DVI connector (which can be used with an HDMI adapter) and two cutting-edge DisplayPort connectors; some card makers will ship versions with dual DVI connectors and an analog port instead.

The card draws all its power from the PCI Express (PCIe) x16 slot and doesn't require a separate power cable. Along with its short, 7.6-inch length, this makes it a good choice for compact PCs that don't have PCIe power leads. AMD says the HD 4670 consumes less than 75 watts under full load, and it features dynamic power management to minimize power consumption when the card is idle. The single fan is almost inaudible, and the

card runs much cooler than its 4800-series big brothers, idling at 43 degrees Celsius. When the GPU is stressed, though, temperatures reach 83 degrees, which might raise overall temperatures in cases with limited airflow.

The HD 4670 supports DirectX 10.1 (DX10.1), though virtually all existing games only take advantage of DX10. For a card in its price range,

the HD 4670's 3D performance is excellent; even demanding DX10 games were playable with details cranked up at 1,280x1,024 resolution. The HD 4670 scored 32 frames per second (fps) in our World in Conflict test and 40.1fps in Company of Heroes. Compare those numbers to results from the HD 3850 board released about nine months ago at about the same price, which turned in virtually unplayable scores of 9fps and 17.6fps respectively in our World in Conflict and Company of Heroes tests.

In DX9 tests, we not only got a silky-smooth 66fps in our F.E.A.R. test at 1,280x1,024, but also a very responsive 40fps at 1,920x1,200, compared to just 34fps and 15fps in the same F.E.A.R. test with the older HD 3850. The HD 4670 doubles, and in some cases more than triples, the performance of its predecessor, letting you play even the newest games in high detail at medium resolu-



tions—not bad at all for a card that costs less than \$100. (You can drop up to two additional HD 4670 cards into a system that has a CrossFireX-compatible motherboard, boosting performance even further.)

Image quality is excellent; ATI has had 3D anti-aliasing and filtering down to a science for a couple of generations now, and the card does a great job of upscaling DVD content to your monitor's native resolution. ATI's Avivo HD technology enables hardware decoding of the H.264 and VC-1 compression used by HD DVD and Blu-ray. The HD 4670 has onboard 7.1-channel audio, supporting surround-sound output over the HDMI or DisplayPort cable.

The ATI Radeon HD 4670 brings an unprecedented level of performance for such a low price. It's an excellent card both for video playback and for playing even the latest games on small to midsize monitors. —Denny Atkin

EDITORS' RATING **8.7**

0 BETTER >> 10

PROS Inexpensive; excellent performance for the price; smooth video playback; includes DisplayPort support; no dedicated power connector needed

CONS Runs hot at high GPU loads

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5796

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Microsoft SideWinder X6 Keyboard

A gaming keyboard that will please macro fiends

MICROSOFT ISN'T A NAME often associated with gaming keyboards, but its SideWinder X6 might just put the company in the spotlight.

The X6 incorporates a unique number pad that can be moved to the right or left side of the keyboard. Hardcore gamers who like to use macros can put the number pad near their free hand and activate virtually all of the macros the X6 is capable of utilizing without removing their right hand from the mouse. The number pad is held in place by powerful magnets, so you don't have to worry about it coming unattached during intense gaming sessions.

The X6 can store a massive amount of macros. The keyboard has 30 programmable keys with three profiles per key, for a total of 90 macros, and it lets you record macros without leaving your game.

Backlighting on the main X6 keys is red; on keys that can be programmed, it's

amber. The backlighting is even across the entire keyboard, and a brightness control lets you set the glow to your preference. Typing on the X6 feels good—the keys have good tactile response and offer slight clicking aural feedback when pressed. The keyboard also offers a full array of media-control keys.

On the downside, the X6 lacks convenient features such as a USB hub and headphone and mic jacks. Also, the keyboard does not have internal memory, which means that all macros are saved to your PC's hard drive. If you take the keyboard to use on another PC, your macros and profiles won't travel with you. —Shane McGlaun

EDITORS' RATING 7.8

0 BETTER >> 10

PROS Even backlighting; tons of macros; swappable number pad

CONS No internal memory to store macros; lacks USB, mic, and headphone ports

Microsoft, 800-642-7676
www.microsoft.com

List Price \$79.95



For more: computershopper.com/peripherals

Andrea Electronics Pureaudio USB-SA

Improved audio in a flash-drive form factor

IF YOU ARE UNHAPPY with your PC's onboard audio, your best bet is to install a dedicated internal sound card. But if there's no room inside your case or you're using a laptop, that's not an option. The \$45 Andrea Electronics Pureaudio USB-SA external sound card is a simple solution to this dilemma, offering improved audio in a simple form factor that's the size of a USB flash drive. This inexpensive card outputs a simple stereo signal, however, so movie buffs and gamers who demand surround sound are out of luck.

Setting up the device is beyond simple: Install the software from the CD, then plug the "card" into a USB port. (You can use it without the software, but doing so will prevent you from accessing some important features.)

After installation, Windows will automatically reroute your audio, disabling your old sound card or motherboard chip. Plug in speakers or headphones and a microphone into the two standard audio jacks on the end of the device, and you're all set. We aren't fans of the blue LED on the top of the device that pulses when the Pureaudio is plugged in. For laptop users it will be an annoyance, constantly flashing in your field of vision. But a piece of masking tape can be a quick-and-dirty fix.

The Pureaudio USB-SA provides excellent audio for the price and size. On our test machine, the sound from music and movies was brighter and could be turned up higher without distortion. This is due in part to the fact that the Pureaudio USB-SA moves the digital-to-analog conversion process away from noisy internal components inside your PC. —Matt Safford

EDITORS' RATING 7.9

0 BETTER >> 10

PROS Simple setup; improvement in sound over onboard audio; inexpensive

CONS No surround-sound option; blinking blue LED can be annoying

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Lenovo ThinkVision L2440P

Eco-friendly big screen's quality is a gray area

LENOVO'S 24-INCH wide-screen ThinkVision L2440P offers capable all-around performance, low power consumption, and a wealth of eco-friendly features that make it a great option for users more concerned about their carbon footprint than ultimate gaming performance.

The company has reduced the monitor's mercury content by a third, cut power consumption by as much as 50 percent, and switched to 65 percent recycled packaging materials. Other specs—including its dynamic 10,000-to-1 contrast ratio, 5-millisecond response time, and 1,920x1,200 resolution—are fairly standard for monitors of this size. The lack of an HDMI input (or any input other than VGA and DVI) will also steer console gamers and movie fans away.

Lenovo includes a stand that makes angle, height, and

tilt adjustments smooth and easy. That, combined with its ability to display readable text down to 5.3 points, makes the L2440P a great office monitor for those who need lots of screen real estate.

Where the L2440P runs into some trouble, however, is with the panel itself—and it's likely that

the green innovations are at least a part of the problem. Although the monitor performed reasonably well in DisplayMate (www.displaymate.com) tests, it did show rippling on the dark end of the Color Ramp test, indicating gray-scale problems. We also noticed some gray-scale uniformity issues when the screen was just a few inches above our eye line. In the more subjective DVD and game tests, the monitor performed well, but wasn't overly impressive. We saw no artifacts or ghosting, but the colors didn't pop. That's likely due to Lenovo's Light Booster technology that allows the company to cut mercury content and power consumption. —Matt Safford



PROS Good all-around display; excellent adjustment options; eco-friendly

CONS Gray-scale performance could be better

Lenovo, 866-968-4465
www.lenovo.com

List Price \$549

C For more: computershopper.com/lcd-monitors

LG Flatron L227WTG

22-incher is a gloss leader

ALTHOUGH the LG Flatron L227WTG is a bit expensive for a 22-inch wide-screen monitor, it's a solid choice for gaming and video, thanks to its vivid color reproduction and high resolution. But its glossy screen may not appeal to people who work under bright fluorescent lighting.

Thanks to its 1,680x1,050 resolution, vivid color, and quick pixel-response time (LG says it's 2 milliseconds), the L227WTG is a strong performer. The company's claimed 10,000-to-1 dynamic contrast ratio is a bit hyperbolic—as contrast-ratio claims often are—but the monitor was able to handle the DisplayMate (www.displaymate.com) tests without major problems, especially via a DVI connection. You'll



have to supply your own DVI cable, though.

White-level saturation, color tracking, and gray-scale tests all returned near-perfect results, although the extreme end of the dark gray scale was barely distinguishable from black.

In gaming and DVD testing, the L227WTG performed like a champ, with no noticeable ghosting or noise in dark areas. Text was easily readable down to 5.3 points, although if you're doing a lot of reading on this display, you'll probably want to turn down the brightness a bit.

The glossy screen does a good job of making the colors pop, which is great for watching movies or playing games, but reflections were a real issue in our labs. No amount of adjusting or moving the monitor could solve the problem. In fact, during testing we found ourselves mistaking the stripes on a reviewer's shirt for banding patterns on the screen. —M.S.



PROS Bright, vivid display; fast pixel-response time

CONS Pricey; glossy screen makes bright-light viewing difficult; limited input connectivity; DVI cable not included

LG Electronics, 800-243-0000
www.lgusa.com

List Price \$359.95



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Kodak EasyShare M1033

Simple digicam shoots video in HD

THE \$179.95 KODAK EASYSHARE M1033 is a simple, easy-to-use ultracompact camera with an attractive price. It isn't packed with superfluous features, nor is it particularly fast, but for the price, this model offers a lot in a tiny body.

The 10-megapixel M1033, which has a 3x optical zoom, isn't going to win any speed races. The startup time, just over a second, is fast. But shot-to-shot time takes about 5.6 seconds, and it rises to 6.1 seconds with flash. Shutdown is also exceedingly slow.

The camera is very easy to use, with a multitude of handy shortcut buttons located in all the right places. It also incorporates 22 shooting modes and useful features like panorama shooting. Plus, the camera's Smart mode automatically adjusts its settings to your subject. It's reasonably effective, but the autofocus seemed to have a bit of trouble finding subjects.

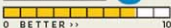
Image quality in brighter conditions is impressive for a budget ultracompact. Colors are accurately represented, and there is little blurring. In low lighting, though, you'll have to stick to an ISO setting of less than 800—anything higher nets grainy images.

The video mode, which provides high-definition 720p recording at up to 30 frames per second—amazing for a budget ultracompact—was impressive. Video quality was good, and we liked the option of zooming while shooting. Just don't expect the same kind of HD-video quality that you'd get from a

true HD camcorder.

Overall, the M1033 is an easy-to-use camera that produces respectable images for the price. The inclusion of HD video recording makes it even more of a deal. —Jonathan Rouget

EDITORS' RATING 7.9



PROS Good image quality; HD video recording; easy to use

CONS Slow shot-to-shot time; slow autofocus

Kodak, 888-368-6600
www.kodak.com

List Price \$179.95

Nikon D60

Great starter camera for dSLR newbies

THE NIKON D60, the company's latest entry-level digital single-lens-reflex (dSLR), has the same 10.2-megapixel sensor resolution, sturdy construction, excellent help system for beginners, and novice-friendly features as the venerable D40x.

As with its predecessor, the \$699.95 D60 would make an excellent first-time dSLR. New features include a sharp, image-stabilized 3x zoom; a dual-pronged dust reduction system; and faster response times. What's missing? As with most dSLRs, there's still no live preview on the LCD, so be prepared to shoot everything the old-fashioned way—using the optical viewfinder.

The compact D60 is bundled with an 18-55mm f/3.5-5.6 AF-S lens with built-in vibration-reduction image stabilization. The D60 body doesn't have a focus drive motor; to autofocus, you'll need to use lenses with a built-in motor (AF-S and AF-I lenses qualify).

In our tests, the D60's wake-up-to-first-shot time was a very fast 0.84 second, while the shutter lag was a speedy 0.29 second.

Overall, the D60's image quality was very good. Our photos were consistently sharp, with an excellent dynamic range. We did notice that colors were oversaturated, but after we changed the saturation setting from Auto to Moderate, the colors were much more natural. The autofocus was relatively fast and accurate in low light, even though the D60 has only three autofocus points (some competing cameras have an 11-point AF system). Exposure levels were accurate over a wide range of environments.

The D60 sometimes faltered in low light. The noise levels increased substantially at ISO 800 and ISO 1600, often more than expected. Color fidelity, on the other hand, held up quite well in low light.

—David English

EDITORS' RATING 8.1



PROS Small yet sturdy camera body; included lens with image stabilization; dust reduction system; fast response times; excellent help system

CONS No onscreen live preview; inconsistent performance at high ISO speeds; default settings yield oversaturated colors

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Apple iPod Nano (Fourth Generation)

One step back is two steps forward for Apple's new Nano

ALTHOUGH THE TOUCH was the star of Apple's iPod event in September, it was the Nano that received the most extensive overhaul. The squat, wide-screen-friendly form factor has been ditched in favor of a familiar tall-and-slim look. To keep the 2-inch, 320x240 display, Apple rotated it 90 degrees. Images, movies, and Cover Flow navigation now make full use of the wide screen when you tip the device sideways, thanks to a built-in accelerometer that senses which way the device is oriented. Encased in an elliptical sheath of brushed aluminum, the new Nano (available in 8GB and 16GB configurations) is also thinner than ever and weighs a feather-light 1.3 ounces.

Fortunately, Apple has also sped up the interface. Cover Flow navigation is much smoother and faster than it was in last year's Nano; despite the absence of a touch screen, it's now just as useful—and fun to use—as it is on the iPod Touch and iPhone. And if you're sick of a song that's currently playing, you can take advantage of the accelerometer in a different way: Simply shake the device to shuffle to another track. As new features go, it's

probably more cute than practical; if you already have the player in your hand, it's almost as easy to press the forward button. (At least the player doesn't often misinterpret quick movements and skip to new tracks when you don't want it to.) Still, if you're taking this Nano for a run, you'll want to engage the hold switch, which has thankfully been brought back to the top of the device.

At long last, audio-recording support has been added. To actually record

anything, however, you'll need to buy a pair of new Apple earbuds with an in-line microphone. They weren't available at press time, so we couldn't test this feature. But with so many cheap, flash-based music players with built-in mics already on the market, it's aggravating that Apple is forcing users who want recording functionality to fork over more money.

Also a bit of an annoyance is the low-riding click wheel. It's the same as in the third-generation Nano, but because the screen is flipped lengthwise, the wheel feels like it's placed much lower. If you hold the player in the palm of your hand, bending your thumb down to navigate through tracks and videos can be a frustrating, digit-cramping experience. Holding the player higher up in your hand helps but can still be awkward because the wheel is so small.

Setting up the Nano and syncing content is as easy as ever, but there's a catch: You have to upgrade to the resource-hungry iTunes 8, which was very sluggish on our 2.8GHz Pentium 4 PC



with 1GB of RAM. Granted, our test PC is hardly state-of-the-art, but for many potential Nano buyers who are PC users, it's probably typical. We recommend downloading and running iTunes before buying a Nano, just in case. No one wants to be

forced to upgrade a PC just to make the new music player work.

The Genius feature, another highly publicized addition from iTunes 8, allows users who have enabled the option in iTunes to create on-the-fly playlists around a single track. The results aren't always flawless, however, particularly if you have eclectic tastes. In our tests, the Nano claimed it had no data for many obscure songs and failed to make a playlist; back in iTunes, however, the software had no problem suggesting song purchases by the same artist. We like the Genius feature, but until it wises up a bit we don't think it lives up to its rather pretentious name.

The earbuds are still an issue: They offer lackluster performance, as well as design that doesn't suit an otherwise flashy, well-performing product. Their bass response is terrible, and they simply don't fit right in many people's ears. Swapping in better buds will immensely increase sound quality and overall enjoyment of the player. But considering the Nano is a best-in-its-class device, it's disappointing that Apple hasn't upgraded its headphones to more closely match the quality of its players. The company's battery estimates for audio playback remain at a fairly typical 24 hours.

Video purchased from the iTunes store looks good on the Nano. The player supports video files in the H.264 and MPEG-4 formats (the latter in the MOV, MP4, and M4V varieties), with a maximum resolution of 640x480. Oddly, Apple has downgraded the expected battery life to just 4 hours for video (last year's Nano promised 5). But if you're planning on watching that much video, you should probably spring for the larger-screen iPod Touch anyway. Games are available via iTunes, but it's still not much fun controlling them with the click wheel. An included Maze demo game makes interesting use of the tilt sensor while doing a great job of pointing out the glare issues created by the new curved-glass screen.

We approve of Apple's decision to revert to the tall-and-slim design for the Nano. The addition of the tilt sensor solves the problem of the upended screen nicely, but the shake-to-shuffle function feels more gimmicky than groundbreaking. If you have last year's Nano, there's no compelling reason to upgrade unless you can't stand the squat form factor. But if you're looking to upgrade from an older device, there's little doubt that the new Nano should be at the top of your list of potential players. —Matt Safford

EDITORS' RATING **8.5**

PROS Return to more pocket-friendly form factor; accelerometer makes small screen more useful; speedy Cover Flow navigation

CONS Requires upgrading to resource-hogging iTunes 8; audio recording requires additional Apple purchase; Genius feature needs education

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Adobe Photoshop Elements 7

Powerful photo editor and organizer gets even better



ALTHOUGH MUCH LESS EXPENSIVE than its Photoshop CS4 big brother, Adobe Photoshop Elements 7 isn't as much a stripped-down version as it is one that's optimized for casual and hobbyist photographers. Though it omits much of the higher-end program's graphic design and prepress functionality, Photoshop Elements 7's photographic organization and editing features offer such a richness and level of automation that even some pros use it alongside the full Photoshop.

Photoshop Elements is composed of four modules. Organize lets you search, tag, and select photos. Edit offers both manual and automatic touch-up of your photos. Create lets you print or order a variety of photo items—ranging from prints and calendars to greeting cards and photo DVDs—and Share lets you select photos to show off over e-mail, online, on disc, or in printed form.

The major focus of the new version is its integration with Photoshop.com. The Basic Photoshop.com membership includes up to 2GB of online backup space, remote access to

EDITORS' RATING 8.6

0 BETTER >> 10

PROS New tools simplify photo enhancement, blemish fixing; easy to create impressive galleries on Photoshop.com; optional automated online backup keeps photos safe

CONS Photoshop.com Plus membership expensive compared to other photo sharing/backup sites; relatively small number of enhancements aside from online features

Adobe Systems, 800-585-0774
www.adobe.com

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photos and videos, and a personal URL for photo-album sharing. The Plus membership costs \$49.99 per year, offers 20GB of backup space, and promises to add tutorials, templates, seasonal artwork, and other updates. At press time Adobe was still finalizing some additional storage options.

The interactive Flash-based online slide shows available on Photoshop.com are much more impressive than the simple HTML galleries that earlier versions of Photoshop Elements created. They provide views ranging from a simple thumbnail grid to a three-



dimensional spinning ring of photos. Though only some of the Photoshop.com features were active at the time of our review, the interactive presentation was more impressive looking, if not as full-featured as the ones found on sites like Flickr. (As in earlier versions of Photoshop Elements, you can share selected photos on Flickr, Smugmug, and Kodak Easyshare, or send them to a CEIVA digital photo frame.)

The update isn't all about up-selling you to Adobe's online service, however. Photoshop Elements' Edit and Organize modules have seen some welcome enhancements and new features. Most significant are a number of new automated functions for common activities. These range from new tools to easily whiten teeth, enhance skies, or improve skin tones to new automated actions to simplify processes like adding captions, slimming your subjects, and resizing and cropping photos for printing.

The new Photomerge Scene Cleaner lets you combine parts of similar pictures to get rid of unwanted elements, such as people walking by in the background, passing cars, and so on. With patience, you can get excellent results, although selecting the corresponding points in each picture without skewing the resulting photo can be tricky.

The slickest new feature is the Smart Brush. Paint over a section of a photo to select the portion you want to modify, use the Alt key to remove any unwanted portion of the selection, and then choose from a wide variety of effects ranging from color enhancements to portrait effects to lighting. The Smart Brush does an excellent job of selecting the correct portions of the photo; very little manual tweaking is typically necessary.

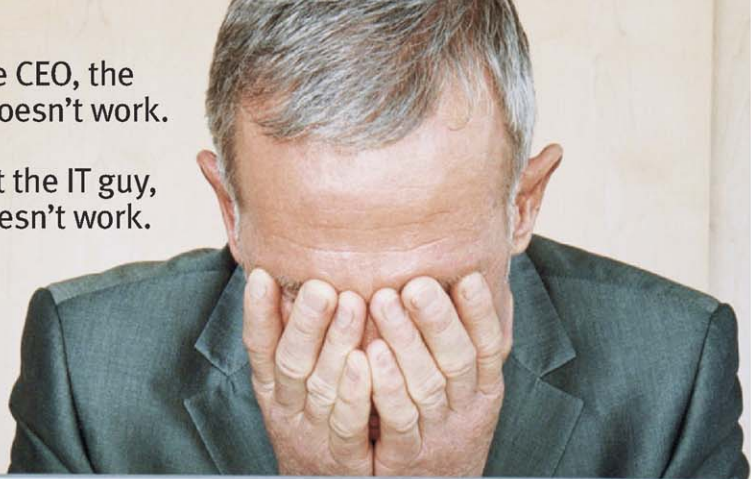
Many existing features have been updated as well. The program supports additional Camera RAW formats from digital SLRs and offers a variety of new Guided Edit selections, as well as new templates for creating photo books and galleries.

For those new to the series, Photoshop Elements 7 is an excellent editing and management product, offering both novice-friendly automated tools and advanced, layered editing features that rival those of expensive professional editors. Whether upgrading from an earlier version is worthwhile is less clear-cut. If the backup features and additional integration with Photoshop.com are appealing to you, it's worth the price. But while the incremental improvements to existing features and powerful but nonessential new editing tools are welcome and useful, the upgrade price is just \$20 short of buying the program new. If you don't plan to use the new online features, you might not find enough to justify the cost. —Denny Atkin

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Kaspersky Internet Security 2009

Comprehensive suite allows detailed control

NO OTHER SECURITY package offers quite the pleasures and annoyances of Kaspersky Internet Security 2009. It couples a great interface and performance with a slow, cumbersome installation and real-time protection that surpasses J. Edgar Hoover in paranoia.

Installing Kaspersky required a lot of time and two reboots. After we finished, the Proactive Defense module continually reported a number of annoying false positives. Once past these hurdles, though, the program's depth, professionalism, and small memory footprint (just 65MB) shone through.

The new virus engine is much faster than before, even with all scan options selected. Scanning can be restarted after it's been stopped, and later scans bypass unchanged files. The program meticulously tracks each scan's detailed advisories: Major problems

are dealt with immediately, but you can ignore advice about minor problems until later. A new feature called Security Analyzer helps scans not only find and eliminate viruses, but also note potential exploits.

The antispam system lets you maintain both white- and blacklists, optionally employ up to five recognition algorithms, and adjust the level at which it flags messages as spam. A mini-virtual keyboard lets you bypass any chance of keyloggers, and a great network monitor lets you closely observe the firewall rules

processing log, and all active traffic, connections, and ports.

We weren't impressed with Kaspersky's antiphishing capabilities, which proved inferior to those in Firefox 3 and Internet Explorer 7 in our tests (and which don't work with Firefox at all). Plus, the boxed version nets you only one license; you get three with the downloadable version. But we were very impressed that the software lived up to Kaspersky's claim of providing premium protection with both breadth and depth. —Barry Brenesal

Norton Internet Security 2009

Faster, less intrusive security



SECURITY PROGRAMS can be a bitter pill to swallow. They protect our systems, but they also slow down other applications, interrupt us with confusing alerts, and hide their inner workings behind a cloak of secrecy. Norton Internet Security 2009 tries to minimize these side effects without sacrificing the cure.

Symantec has rewritten or redesigned almost every aspect of the program. We noted onscreen gauges that display usage of CPU cycles (generally fewer than with previous versions of the software), a new update engine that checks for minor updates every 5 to 15 minutes (but won't suck up battery life if your laptop isn't on AC power), and suppressed alerts if you're operating in full-screen mode for a presentation, movie, or game.

You can now limit scans to the files that need to be inspected, which makes for much faster scan times. With last year's version, a full scan of a 1.8GHz Lenovo X61s notebook took 24 minutes and 51 seconds; this year, the first scan took 26 minutes and 2 seconds, while subsequent scans took only 2 minutes and 36 seconds.

Other improvements include extended browser-protection support for Firefox; now, Norton Identity Safe can import your saved browser logins, and antiphishing look-ups are performed in real time to counter drive-by sites that automatically dispense malware.

The Anti Spam component missed far too much spam and mistakenly blocked some valid e-mails in our tests, and Parental Controls can't limit the number of hours a child can use a computer or block a teenager from setting up a potentially illegal P2P file-sharing connection. Otherwise, among traditional security suites, Norton Internet Security 2009 is currently unsurpassed. —David English

EDITORS' RATING **8.8**

0 BETTER >> 10

PROS Faster scans; frequent micro-updates; lower CPU and memory footprints; Firefox support; protocol-aware browser protection; improved alerting; dynamic antiphishing look-ups

CONS Anti Spam component needs work; parental controls are limited

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1

Canon PowerShot SD870 IS

usa.canon.com

\$279.99

Editors' Rating: **8.5** 

Specs

- 8 megapixels
- 3-inch LCD
- 5.5 ounces
- SD/SDHC memory card
- 3.8x optical zoom

Bottom Line

The PowerShot SD870 IS is one of the best compact cameras we've used. With excellent photo quality, a clutter-free interface, and responsive operation, it's a great choice for users looking for a pocketable camera that requires minimal fuss to operate.

2

Casio Exilim EX-Z200

www.exilim.casio.com

\$299

Editors' Rating: **8.1**

Specs

- 10.1 megapixels
- 2.7-inch LCD
- 4.2 ounces
- SD/SDHC memory card
- 4x optical zoom

Bottom Line

The Z200 is the perfect camera for those who want ease of use and respectable image quality at a good price. Its intuitive interface and myriad shooting modes make it a good option for amateur photographers and YouTube mavens alike.

3

Canon PowerShot SD890 IS

usa.canon.com

\$349.99

Editors' Rating: **3.0**

Specs

- 10 megapixels
- 2.5-inch LCD
- 5.5 ounces
- SD/SDHC memory card
- 5x optical zoom

Bottom Line

The PowerShot SD890 IS delivers quality photos, an intuitive interface, and effective optical image stabilization. The last feature works well in tandem with the camera's impressive zoom range, keeping your long-reach shots blur-free.

4

Canon PowerShot A650 IS

usa.canon.com

\$349.99

Editors' Rating: **3.0**

Specs

- 12.1 megapixels
- 2.5-inch LCD
- 10.6 ounces
- SD/SDHC memory card
- 6x optical zoom

Bottom Line

If you're looking for a good compromise between a point-and-shoot and a digital single-lens-reflex (dSLR), consider the A650. Though a bit cumbersome and bulky, it offers excellent image quality for a camera in its price range. Optical image stabilization and a 6x optical zoom lens provide added flexibility.

5

Casio Exilim EX-S880

www.exilim.casio.com

\$249.99

Editors' Rating: **8.0**

Specs

- 8.1 megapixels
- 2.8-inch LCD
- 4.5 ounces
- SD/SDHC memory card
- 3x optical zoom

Bottom Line

The EX-S880 is one of the best slim shooters we've tested, with a ton of features and only minor minuses. It comes loaded with modes optimized for shooting YouTube videos (including software that eases the upload process) as well as eBay pictures.




Canon PowerShot
SD870 IS



Casio Exilim
EX-S880



Casio Exilim
EX-Z200

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 Editors' Choice

TOP 5 BUDGET LAPTOPS

WALLET-FRIENDLY PORTABLES THAT CAPABLY HANDLE EVERYDAY TASKS.

1

Asus Eee PC 1000H
usa.asus.com
\$549
Editors' Rating: **9.0** ✓

Specs

- 1.6GHz Atom N270
- 1GB DDR2 memory
- 80GB hard drive
- Integrated graphics
- 10-inch LCD
- 3.2 pounds
- One-year warranty

Bottom Line

The freshest entry in the budget ultraportable category is also one of the finest, with a larger screen and keyboard than are typically found in netbooks. Asus's Eee PC 1000H may not be the smallest or lightest model out there, but it has the best overall combination of comfort, battery life, and portability. (Turn to page TK for a full review.)

2

MSI Wind U100
www.msimobile.com
\$499.99
Editors' Rating: **8.7** ✓

Specs

- 1.6GHz Atom N270
- 1GB DDR2 memory
- 80GB hard drive
- Integrated graphics
- 10-inch TFT
- 2.3 pounds
- One-year warranty

Bottom Line

The MSI Wind U100 balances size, price, weight, usability, and performance, all at a comfortable price. It has a keyboard robust enough to let you touch-type at full speed, as well as a screen that lets you view most Web pages without side scrolling, but it's light enough that you'll have to double-check if it's really in your backpack.

3

HP 2133 Mini-Note PC
www.hp.com
\$749 (as tested)
Editors' Rating: **3.4** ✓

Specs

- 1.6GHz VIA C7-M ULV
- 2GB DDR2 memory
- 120GB hard drive
- Integrated graphics
- 8.9-inch TFT
- 2.6 pounds
- One-year warranty

Bottom Line

HP's netbook is more comfortable and stylish than most of the competition, with design flourishes more often found on full-size notebooks. It also has a nice 8.9-inch display and plenty of connectivity options that make it better suited to a wider variety of tasks than its budget brethren.

4

Cyberpower Xplorer X5-3400
www.cyberpowerpc.com
\$999.99
Editors' Rating: **3.2**

Specs

- 2.4GHz Core 2 Duo P8600
- 2GB DDR2 memory
- 200GB hard drive
- DVD±RW
- 15.4-inch TFT
- ATI Mobility Radeon HD 3470 graphics (256MB)
- 7.6 pounds
- One-year warranty

Bottom Line

It may be plain looking and a bit on the heavy side, but the Cyberpower Xplorer X5-3400 is a great budget midsize laptop for basic productivity tasks and media playback. Impressive performance and battery life round out this solid system.

5

Asus Eee PC 4G
www.asus.com
\$399
Editors' Rating: **8.0**

Specs

- 900MHz Celeron
- 512MB DDR2 memory
- 4GB solid-state drive
- DVD±RW
- 15.4-inch TFT
- Nvidia GeForce 8400M G graphics (128MB)
- 6.1 pounds
- One-year warranty

Bottom Line

This lightweight, super-small notebook was the first netbook, and it still holds up well. The Eee PC 4G comes with enough power and preloaded apps to handle basic on-the-road productivity and communication needs all at a bargain price.



MSI Wind U100



HP 2133 Mini-Note PC



Asus Eee PC 4G

✓ = Editors' Choice

* = Configuration changed from original review

For more: computershopper.com/top-products

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**Everything you need to
know before buying your
next laptop or desktop
in the New Year**

SPECIAL REPORT

THE ULTIMATE PC BUYING GUIDE

BY MATTHEW MURRAY

As the '00s roll ever closer to the '10s, buying a new computer becomes equal parts easier and tougher. Constantly declining hardware prices, coupled with always-improving technology, mean that every time that ball drops on Times Square, you can get a brawnier PC than you could at the same time the previous year. The flip side, though, is that your options have also expanded, so you'll have much more to consider at checkout time. Nowadays, the questions seem endless: Dual-core or quad-core processor? DDR2 or DDR3 memory? DVD or Blu-ray drive? It's enough to make the eternal "desktop or laptop?" dilemma look simple by comparison.

So if you're starting off the New Year—or ending the old—shopping for a new PC and are bewildered by the plethora of choices, this guide is for you. We'll look at where desktops and laptops have been in the last year, where they're going in 2009, and what you need to know to find the one that's just right for you, your family, and your finances.

OPERATING SYSTEM

Not long ago, Windows Vista seemed destined to become the only available OS for PC users. And if you're in the market for a mainstream desktop or laptop now, it pretty much is. But there's a version of Microsoft's dominant operating system to match the specific needs and budgets of most buyers. Vista Home Basic, Vista Business, Vista Home Premium, and Vista Ultimate are each slightly different: Home Basic is the least expensive but offers little beyond the basics (including Windows Movie Maker and Windows Photo Gallery); Vista Business adds remote access and support for system imaging; Vista Home Premium comes equipped with the Windows Media Center interface and Windows DVD Maker; and Vista Ultimate offers all of the above, as well as BitLocker Drive Encryption for even stronger security.

Our recommendation for most users is Home Premium—it offers the best balance of price and features for everyday tasks. It's also the default choice for most consumer systems. If you want Vista Business, prepare to add about \$100 to the price when configuring your system; for Vista Ultimate, you'll need to add about \$130.

But if you're in the market for a super-small and super-cheap "netbook" (a small, inexpensive laptop like Asus's Eee PC or the Dell Inspiron Mini 9) or a similarly diminutive deskbound "nettop" (like Asus's Eee Box), you have some additional choices. Makers of these small machines sometimes use the less demanding Windows XP Home Edition as the OS, and you might even have the choice of a money-saving variant of the Linux OS (such as Ubuntu). If you opt for the latter, know that even the most faithful Linux installation isn't quite like Windows, so there will be something of a learning curve. You'll still be able to do most everything you're probably used to, though if gaming is your thing, you're better off sticking with Windows. A Linux app called Wine can run many Windows programs, but you're better off tracking down native Linux software to do what you need. Luckily, hundreds of free and open-source versions of every kind of app are commonly available on the Web.



Vista: 32-Bit or 64-Bit?

Windows Vista didn't invent the concept of a 64-bit operating system, but it has come as close as any OS ever has to popularizing the concept. Many computers from major manufacturers are now coming preinstalled with 64-bit Vista. But do you need it, or even want it? The question is still murky for many, primarily because most of the benefits of a 64-bit OS reside below the hood.

The big one is that a 64-bit version of Vista removes the 32-bit version's low ceiling on RAM. If you're running 64-bit Windows Vista, you'll know that the OS can basically use all your PC's RAM—the 32-bit OS can take advantage of just over 3GB or so, depending on the system. Plus, if an application is specially written to take advantage of 64-bit technology, you could see a sizable increase in performance. Minor security enhancements are also inherent in 64-bit Vista.

Right now, though, not much 64-bit software is on the market, so under most circumstances you won't notice any major gains. And in certain cases, unless you're loaded down with RAM, you might even notice a slight speed decrease. If you have a 64-bit processor—and if you have almost any recent-model Intel or AMD chip, you do—you're ahead of the curve. Just don't expect to be wowed by 64-bit technology until the rest of the industry catches up.

PROCESSOR

The big processor news going into 2009 is in the desktop realm. Intel's new Core i7 platform (built on the "Nehalem" microarchitecture) implements features such as a new 32-nanometer manufacturing process; an integrated memory controller and graphics processor; and the Intel QuickPath Interconnect, which replaces the front-side bus of older Intel processors. Core i7 uses a larger processor that fits into a new socket (LGA1366), and it supports triple-channel memory for increased performance when you have three RAM sticks operating in concert.

As was the case with Penryn in 2007, it will take a while for Core i7 advances to filter down to every nook of the desktop CPU lines, and laptops will see them still later. But until that happens, you have no shortage of CPU choices.

For desktop users who want respectable power at a reasonable price, Intel's Core 2 Duo and AMD's Athlon X2 processors fit the bill. Most of these two-core CPUs cost under \$200, but if paired with the right amount of memory and a discrete graphics card, they will give your system all the oomph it needs. If you have more than \$200 to spend, a four-core chip in Intel's Core 2 Quad or AMD's Phenom X4 families will give your processing capabilities an even bigger boost. (AMD also offers three-core processors in its Phenom X3 family that, predictably, fall between dual- and quad-core in performance.) The CPUs in Intel's Core 2 Extreme series are the fastest (and the most eye-bulgingly expensive) quad-core chips available; you'll only want to consider these if you're shopping for a heavy-duty gaming system.

On the midrange-laptop side, look for systems that support Intel's Centrino 2 platform, which offers the highest bus speeds and new features for enhanced HD playback and wireless support, or the Mobile AMD Turion 64 X2 dual-core processors. Laptop gamers, like their desktop counterparts, should consider notebooks equipped with Intel's Core 2 Extreme series of CPUs, for four cores of processing power.



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RAM

This time last year, we wrote that DDR2 RAM's status as the go-to choice for PC manufacturers was fading quickly in the face of competition from newer, faster DDR3. We might have been a bit premature in that assessment. In 2008, we didn't see much of a migration toward DDR3: At this writing, AMD-compatible motherboards don't support it at all, and many enthusiast motherboards on the Intel side of the aisle are still driven by DDR2.

Which should you get in your computer? Unless you're shopping for a gaming rig, you probably won't have a choice—DDR3 still shows up most frequently in high-end systems. Otherwise, DDR2 is still *de rigueur*. Also keep in mind: Though RAM prices have tumbled, DDR3 remains considerably more expensive than DDR2, and most ordinary users probably won't notice the performance difference between the two, all else being equal. But since DDR2 and DDR3 have different physical configurations, you have to pick just one or the other.

So, instead of focusing on what type of RAM you're getting, simply make sure you're getting enough of it. For any flavor of Windows Vista, 2GB is the absolute functional minimum. If you'll be using a 32-bit installation of Vista, don't bother getting more than 3GB; only 64-bit versions can use 3.25GB or more of RAM, so there's no point in spending money on memory your operating system can't utilize.

Also, for any given amount of memory, we recommend getting multiple sticks of RAM rather than just one, if you have the option. Most AMD and Intel LGA775 motherboards have a dual-channel memory architecture that gives you a performance bump when two identical sticks are installed in corresponding slots. And if your system uses Intel's new Core i7 platform, you can take advantage of triple-channel memory for a similar speed increase when you use three sticks of RAM at once.

STORAGE

Though conventional spinning-platter hard drives still predominate in both desktops and laptops, solid-state drives (SSDs) are rapidly gaining favor—especially in laptops and netbooks—for their speed, light weight, and ruggedness. (Because SSDs have no moving parts, you never have to worry about the drive heads crashing if the drive is jarred or dropped.) But there are two major trade-offs to consider: SSDs are only available in much smaller capacities than platter drives are, and they cost a lot more.

For example, you might pay \$400 for a 128GB SSD, but you could get 10 or more times the storage space on one or more hard drives for about the same amount of cash. Our advice: If you don't absolutely need the benefits of an SSD, you're probably better off with a hard drive, particularly if you use a stay-at-home desktop. If so, consider getting one fast (10,000rpm), modestly sized (150GB or so) drive for your operating system and programs, and then a much bigger-capacity, slower-spinning (7,200rpm) drive for storing files. A RAID system (which uses multiple drives connected and configured to provide additional storage or enhance security through redundant drives) is also an option if your PC's case can accommodate several hard drives. For laptops, 7,200rpm drives are at the top of the heap, speedwise; 5,400rpm drives are the default. Get the faster kind if you can.

The exact amount of storage space you'll need, however, depends entirely on your computing habits. If you limit yourself to e-mail and Web browsing, you'll use less space than someone who takes a lot of digital photos, who, in turn, uses less space than someone who records HDTV broadcasts on a home theater PC. Generally, 250GB is fine for ordinary desktop users, 300GB to 500GB is the minimum for storing lots of photos and digital music, and the sky's the storage limit if you want to put Media Center's DVR functionality through its paces every day. Laptop users should adjust capacities down accordingly, but assume the same basic ratios apply.



OPTICAL DRIVES AND REMOVABLE STORAGE

People were still forgetting to write "2008" on their checks when Blu-ray struck the decisive blow in the high-definition-disc format war,

vanquishing its main competitor, HD DVD, before it ever got entrenched. But even though Blu-ray had a whole year to work its way into the center of the high-capacity PC-storage market, it still hasn't officially put on the robes of a conqueror. For several reasons (the biggest, we suspect, being cost), Blu-ray has yet to gain widespread acceptance from software developers or consumers.

If you want to take full advantage of your desktop or laptop's 1,920x1,200 screen resolution and watch Blu-ray-format movies in 1080p HD, you'll definitely want to consider a Blu-ray drive. But if you're on the fence, there's no compelling reason yet to splurge. While the prices of drives that play Blu-ray discs have dropped a lot—\$200 is currently about average—drives that burn Blu-ray discs still cost twice as much or more. (Blank Blu-ray discs are expensive, too—roughly \$15 for just one 25GB, write-once disc, enough to buy a whole spindle of blank DVDs.) Unless you need Blu-ray's giant-capacity writable storage, your best-value choice today is a Blu-ray/DVD±RW combo drive, which lets you read Blu-ray discs as well as read and burn DVDs and CDs.

Of course, if all you need is a run-of-the-mill DVD burner, you can get those now for extremely low prices. Be on the lookout for drives that support LightScribe or LabelFlash, which let you print labels directly onto the discs—no more permanent markers or adhesive labels. The downside of this convenience: You'll need special media, which, naturally, costs extra.

Other options for removable storage are available. Very common on laptops, and increasingly so on desktops, are multifunction card readers that accept data cards compatible with a wide array of cell phones, MP3 players, digital cameras, and other mobile devices, making it easy to move files among all the gear in your life. When you buy a desktop or laptop, you can often find special time-of-checkout deals on external hard drives of varying capacities that won't add much to your final bill but could go a long way toward giving you added peace of mind.



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GRAPHICS

The most interesting thing about graphics progress in 2008: Though we saw few major innovations, amazing graphics became affordable at a rate even more frenetic than the year's other dramatic price decreases. That's a direct result of the ongoing competition between the two leading graphics rivals, AMD and Nvidia. Every month seemed to see one company's new release become an instant game-changer, followed by the other company lowering the price of its similar products just to keep up. It was exciting, the consumer was the ultimate winner, and 2009 should prove to be the best-ever year for desktop graphics cards.

Though most every desktop comes with a graphics system integrated into the motherboard, you're almost always better off with a dedicated graphics card if your finances allow it. Discrete graphics lighten your CPU's graphics-processing workload, allowing for much better visuals and increased overall performance. A card with 256MB will do the trick, but excellent 512MB cards are also now available at impressively low prices.

If you have hundreds of dollars to spend, you can get a ridiculously powerful Nvidia GTX 280 or AMD's Radeon HD 4870 X2, both of which employ multiple graphics processors for astounding speed and display quality. But you can also play good-looking games for less than \$100 with the terrific ATI Radeon HD 4670. If you don't care about gaming, an even cheaper card, like the \$55 Radeon HD 4550, will still deliver noticeable performance gains. (For more information about other graphics options, see the "More Is Better?" sidebar.)

Mobile users aren't left out, either—the notebook versions of the companies' graphics chipsets have also ratcheted up laptops' gaming prowess within the past year. The Nvidia 9800GT is an excellent choice, while the Radeon HD 3870 delivers great results on the AMD side.



NETWORKING

It's been ages since we saw a desktop or a laptop pass through the Computer Shopper offices that didn't have an Ethernet port, so, one way or another, any PC you buy can get you on the Internet. But if you're a laptop user—or a desktop buyer tired of cables snaking everywhere—pay close attention to wireless networking options.

Many laptops these days support 802.11n wireless, a standard that hasn't yet been officially ratified. (Though it's still technically called "Draft N," that's merely a formality at this point.) It offers major performance increases over previous Wi-Fi standards, raising maximum possible throughput from 54Mbps to 600Mbps (though few devices currently take advantage of that potential). If you want your desktop to go wireless, opt for a Wi-Fi adapter that supports 802.11n, and you'll be poised to take full advantage of its speed as it continues to spread. You can get the adapters in the form of PCI expansion cards (look for an option in the PC maker's configurator—you may be able to get the card preinstalled) or USB modules.

Another option to consider is Bluetooth, which allows for short-distance networking of wireless devices such as mice, keyboards, and wireless headsets. Bluetooth is becoming a regular fixture in laptop configurations, but it's still fairly rare in desktops, so you'll probably have to pick up an inexpensive USB Bluetooth adapter if you want to take advantage of it in a desktop PC.

True road warriors should be on the lookout for laptops that support mobile broadband services, such as Wireless Wide-Area Network (WWAN) or WiMAX, which are like large-scale Wi-Fi networks that will let you access the Internet from just about anywhere. Since these services derive their connectivity from wireless carriers like Verizon and AT&T, you'll need to shell out some money every month to use them, and you might need to agree to a contract. But if you need easy access to the Internet at all times, it could be worth it.



More Is Better?

As much as we love high-caliber PCs, even we thought that AMD and Nvidia went a bit overboard promoting expandability in desktops in 2008. Barely a year ago, you were limited to hooking up at most two graphics cards using Nvidia's Scalable Link Interface (SLI) or AMD's CrossFireX technology, enabling the two cards to work together for improved

performance. But in 2008, both companies let you use three or even four cards in parallel on compatible motherboards. (The technologies are called "3-Way SLI" or "Quad SLI" for Nvidia, and "CrossFireX" for AMD.) Systems that used this many cards were undoubtedly impressive, but they were also prohibitively expensive for all but the richest—

or most financially foolhardy—consumers. Toward the end of the year, some of the new cards on the market were so potent that having two of them was true overkill.

Luckily, the two companies also went in the other direction. AMD's Hybrid CrossFireX and Nvidia's Hybrid SLI let you increase graphics performance

without shelling out buckets of cash for multiple video cards. Hybrid graphics systems unite the power of integrated and discrete graphics, giving you improved graphics performance with just one discrete card that works in concert with, rather than replacing, the graphics chipset built into your motherboard.

DISPLAYS

Whether you have your sights set on a laptop or a desktop, you'll have to decide how much screen space you want. Get a slightly larger screen than you think you'll need—once you discover how handy a big display can be, it's hard to go back. A good starting point for a desktop PC is a 19-inch wide-screen display, which provides ample room for comparing documents side-by-side or displaying both your Web browser and your e-mail program onscreen at the same time.

If you're really into movies, just remember these numbers: 1,920x1,200. That resolution, whether on a desktop monitor or a laptop screen, will let you watch high-definition video and Blu-ray movies in full 1080p glory. For desktops, that number tends to kick in with 24-inch displays; on laptops, 1,920x1,200 starts coming available with screens of around 17 inches.

For a desktop LCD, how your display connects to your computer is also important. VGA and DVI connectors are the stalwarts you'll still find everywhere. And, of course, there's also HDMI, which lets you output HD video to HDTVs, something else to be on the lookout for if video is one of your passions. But a newcomer on the block is DisplayPort, a scalable technology aiming to be the new standard as the industry continues its move toward flat-screen displays. It's faster than VGA or DVI and offers greater color depths and better refresh rates. You will, however, need a graphics card with a DisplayPort output to take advantage of these features. These are becoming more common, but research your desired graphics card first to determine its DisplayPort readiness.



EXPANSION

In the past year, we've started seeing DIY laptop kits, meaning that build-your-own PCs are no longer limited to desktops. That said, you won't have nearly the same degree of control over a notebook build that you will over a desktop. Swapping out RAM or a hard drive is one thing, but most other laptop components are hard to tinker with. So when weighing your purchase, know that you can pull out a screwdriver and reconfigure most desktops to your liking, but



that laptops will require a smaller screwdriver, much more patience, and many more compromises.

For desktops, pay attention to the number of drive bays (external bays let

you install optical drives, floppy drives, or card readers; internal bays accept hard drives), RAM slots, and expansion slots the PC has free. If the computer you buy comes with just integrated graphics, you can probably add a graphics card yourself later in a PCI Express (PCIe) x16 slot, which you'll find on almost every motherboard these days. If you want to employ a multiple-card video setup, you'll need more than one such slot; also pay attention to which format (SLI or CrossFireX) your board supports so you get the right type of video card.

External expansion options are much less complicated. USB 2.0 remains the most prevalent; even the finest desktops or laptops will come with multiple USB ports for connecting mice, keyboards, iPods, and other devices automatically. (See the sidebar "USB Gets a Promotion" for information about USB's upcoming upgrade.) FireWire ports are usually used by camcorders and external hard drives, which can benefit even more from faster data-transfer rates and additional juice from the computer's power supply. External SATA (eSATA) is designed exclusively for connecting external hard drives and is becoming increasingly common, even on smaller machines.

USB gets a promotion

Familiar USB is due for a major upgrade soon, from 2.0 to 3.0, which will make external connectivity for supported devices even faster. USB 3.0 will provide 10 times the throughput of USB 2.0, topping out at a potential maximum rate of 4.8Gb per second (600MB per second). USB 3.0 will also be backward-compatible with USB 2.0, so all your current peripherals will continue to work with USB 3.0 ports. The specification was still being hammered out this past summer, but USB 3.0 ports should start appearing on PCs in mid-2009, with commercial products hitting shelves later in the year or in 2010.

AUDIO AND SPEAKERS

Computer sound systems have become so prevalent nowadays that it's hard to believe there was once a time when you needed an expansion card to hear anything other than basic beeps and bleeps. While you can still add a sound card to your desktop PC for the ultimate in audio (gamers are the most likely to want these), most laptops and desktops these days come with robust built-in audio-processing chips. For a desktop PC, all you'll need is a set of speakers—but don't expect the ones included free with most systems to be particularly good. If you care about audio quality, an additional \$50 can get you a decent-sounding speaker system with a subwoofer and two satellites. If your computer supports eight-channel audio, get a full set of surround-sound speakers, if you can: The full multichannel experience can't be beat, especially for gaming.

The speakers on laptops are a trickier proposition, since they vary greatly between models. If possible, test the speakers of any system you're looking at before you buy, so you can determine the quality of the audio. A good rule of thumb, though: The smaller the system, the smaller the sound it produces. Laptops intended for media and movie watching generally (and predictably) have better sound than, say, netbooks.



WEIGHT AND SIZE

For the most part, a desktop's weight will only concern you when you're carrying it to the desk. But weight is obviously a much bigger deal with laptops. Depending on your upper-body strength, you might not mind carrying a six- or seven-pound machine—we've done so when a comfortable keyboard was of primary importance. One of the reasons netbooks are so popular is that they usually weigh right around two pounds, making them convenient to carry anywhere. On the other hand, desktop-replacement notebooks got their nickname for a reason: They can be moved when absolutely necessary but are bulky enough to discourage frequent transportation.

The netbook and nettop revolution of 2008 has also put matters of size at the front of most users' minds. We've been seeing laptops and desktops alike getting smaller and smaller over the last several months. Some systems we've seen are even small enough to fit under an 8.5x11-inch sheet of paper. (If your desk is disorganized, this could be a bad thing!) But you should always pay attention to your system's dimensions, so you know whether that netbook will fit in your backpack or whether that home theater PC will slide right into your entertainment center with a minimum of fuss.

Remember, though, that while bigger isn't necessarily better when it comes to computers, larger systems usually give you more expandability options and, in the case of laptops, bigger screens and keyboards. You don't want a system that's too big, but it's also possible these days to get one that's too small, and that's hardly better.

WARRANTY, SERVICE & SUPPORT

Any computer, regardless of size, is an investment, so making sure you get the most for your money is important. Pay special attention to what kind of warranty and service coverage your PC has. Most systems come with a one-year warranty but offer the ability to upgrade to a longer plan with better service. Service plans vary in price depending on manufacturer, but expect to pay around \$200 for an additional two years of protection. Some programs include online backup, which can be a real lifesaver—if a catastrophe hits, whether a power surge, an electrical storm, or an overly curious two-year-old, your most important data will be safely stored in a place where it can't be unintentionally destroyed or lost.

All for All-in-Ones

If you're more strapped for space than you are for cash, all-in-one PCs present a compelling alternative to traditional desktops. They come in two basic flavors. One type, well-represented by the trend-setting iMac, still requires you to put it on a desk or table. The other is so completely integrated that you can mount it on your wall and use it as both a computer and a television, manipulating it with a wireless keyboard and mouse. (Sony offers models like this.) HP's TouchSmart series adds another twist: It's deskbound, but it's equipped with a touch screen, so you can interact with the system using just your finger.

Because these systems cram a lot into a little space, the trade-off is performance. Many all-in-ones use laptop parts or a combination of laptop and desktop parts, but of the cooler-running midrange type. None of the models we've tested would be remotely appropriate for heavy gaming, video editing, or anything of that sort. But models like these are ideal for use as a TV/DVR combo or as a movie player, and now that we're starting to see models with 24-inch displays, you can even use them to watch Blu-ray discs in full 1080p.



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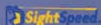
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Marco Chiappetta, Hot Hardware

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*Power and performance comparison based on ATI Radeon™ HD 4870 X2 graphics card at 2.4 teraFLOPS vs. ATI Radeon HD 4870 graphics card at 1.2 teraFLOPS. 1GB memory HD DVD drive and HD display required.
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AnandTech, Anand Lal Shimpi and Derek Wilson

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Staff, Maximum PC



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25 Great Tech Gifts Under \$150



One thing's for certain this holiday season: With all the economic turmoil, the big holiday spending splurge is shaping up to be just a small splash. As a result, shopping smarter—not spending more—is the answer. But that's okay: Giving an awesome tech gift doesn't have to leave a multiple-Franklin bruise on your bank balance. And it doesn't necessarily have to cost anything at all!

With the economy in mind, we looked at appealing yet affordable products for a variety of people, from photographers to kids, business travelers to media enthusiasts. We capped the cost at \$150, with a handful ringing up for less than \$20. Plus, we gathered a few ideas for free—yes, free—gifts that even our tech-saturated selves would be glad to receive. So while fiscal austerity might rule the day, with our help, you can still give thoughtful gifts that will make your giftee appreciate you the whole year through.

"Budget" is the buzzword—big-time—this holiday season, so we've got cool, low-cost picks for everyone on your list.

THE DESKTOP-PC USER

Gifts for Deskbound Tech Types

Kensington ShareCentral 5

For anyone who uses two computers simultaneously, sharing peripherals can be a hassle that involves forever plugging and unplugging USB cables. The ShareCentral 5 makes it easy to allow anytime access to a printer, scanner, hard drive, or other frequently used USB device from either PC. As the name suggests, it supports up to five shared peripherals.

Kensington • us.kensington.com
\$79.99



Apple AirPort Express

Being tied to a desk doesn't mean having to forgo wireless networking. One of the easiest ways to add 802.11n Wi-Fi networking to a home is via Apple's AirPort Express. We love that it's beyond easy to set up, and managing it is equally fool-proof. A USB port enables printer sharing, and connecting a set of speakers makes it possible to stream music from a networked computer using iTunes. Plus, it's small—the size of a wall adapter.

Apple • www.apple.com • \$99



Altec Lansing Expressionist Bass

Someone on your list is probably still putting up with subpar sound from wimpy speakers that came bundled with the PC. The Expressionist Bass two-speaker system has two 4-inch subwoofers at the bottom of each speaker to deliver rumbling bass, while two 1.5-inch drivers handle middle and high frequencies. Besides an otherworldly design, this sound set features an auxiliary jack to connect to a secondary audio source, such as an MP3 player.

Altec Lansing • www.alteclansing.com
\$129.95

THE MUSIC AND VIDEO MAVEN

Accessories That Enhance Media Enjoyment



Griffin AirCurve

Shopping for an iPhone fanatic? The iPhone's built-in speakers are a nice plus, but they're far from audiophile quality. The AirCurve is a polycarbonate stand that channels the sound from the speakers and amplifies it. Best of all, it doesn't draw any power—as a matter of fact, plug in an iPhone charging cable, and the AirCurve serves as a charging stand, too.

Griffin Technology
www.grifintech.com • \$19.99

Logitech Pure-Fi Express Plus

An excellent accessory for an Apple iPod or iPhone owner, the Pure-Fi Express Plus delivers omnidirectional sound using two speakers, giving the impression that you're listening to a more expensive, multispeaker system. The unit can run off battery power for travel use, too, and also serves as a dock and charger. An alarm-clock function and a wireless remote round out the package.

Logitech • www.logitech.com • \$99.99



Iomega ScreenPlay TV Link

Forget elaborate wired and wireless setups. Iomega's ScreenPlay TV Link is a quick way to get digital music, photos, and video onto a big-screen television. Simply connect a USB hard drive or flash drive that's loaded with media files to the ScreenPlay, then plug the device into a television. The device includes a remote control for accessing the content. Plus, if you connect the ScreenPlay via HDMI, it will upconvert video to 720p or 1080i resolution.

Iomega • www.iomega.com • \$94.95

SanDisk Sansa SlotMusic Player

The size of a large stick of gum, the Sansa SlotMusic Player uses removable MicroSD cards for storage (supporting capacities up to 16GB).

File transfer is easy: Use a PC to load up a MicroSD card with music, then insert the card into the player. The device will also play albums in the new SlotMusic format: preloaded MicroSD cards containing DRM-free, high-fidelity MP3s from a variety of current and catalog artists.

SanDisk • www.sansa.com • \$19.99,
\$34.99 (artist branded)



Charitable Deduction

Got more tech than your household can handle? If you're looking to donate some still-viable tech items to a charity this holiday season, consider doing so in someone's name. Oftentimes, it's thoughtful gestures like these that count.



www.nVidia.com

Crytek® recommends NVIDIA graphic processors for Crysis®



www.crysis.ea.com



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The Pulse writing instrument packs an image scanner and a voice recorder into a pen that's actually svelte enough to use on a day-to-day basis. Perfect for meetings, the Pulse lets you take notes (on proprietary paper that the company sells) as you would with an ordinary pen. The pen then stores images of all your notes. While you're jotting down notes, you can use it simultaneously to record audio during the session, whether it's a conference call, a lecture, or an interview. To play back the audio, simply tap the pen anywhere on your notes, and it will play back the audio that was recorded at the exact moment you were writing that word.

Livescribe • www.livescribe.com • \$149

Targus Zip-Thru
How about giving the gift of less time spent at airport check-in? Your frequent traveler can avoid hassles at security with the Zip-Thru, a laptop case that meets TSA guidelines. The bag's design lets screeners scan it without the need to remove the laptop or any accompanying accessories. The case accommodates 15.4-inch-screened laptops, and it's made of durable ballistic nylon.

Targus • www.targus.com
\$99.99



Microsoft LifeCam Show

With its superthin design, the LifeCam Show is the perfect Webcam travel companion. This model features a 2-megapixel sensor and a noise-cancelling microphone. The lens has a 71-degree wide angle, so the user doesn't have to sit directly in front of the camera to be seen properly. Various attachment schemes enable mounting on a notebook or atop a stand.

Microsoft • www.microsoft.com • \$99.95



Duracell PowerSource Mini Charger

Your gift recipient may own lots of e-gear, but extra electricity is always welcome. When a power outlet isn't available and the portable equipment is down to the last bar, the PowerSource Mini Charger can save the day. This charger provides extra runtime for an iPod, cell phone, BlackBerry, or any portable USB-based device; dual USB ports let you charge two devices at once.

Duracell • www.duracellpower.com • \$34.99

Free Tech Gifts

Free gifts don't necessarily have to be cheap or hand-made—sometimes they can be tech items you get at the very same places you always shop. Many stores offer free-after-rebate specials on products that make excellent gifts. At press time, for example, Apple offered a \$100 rebate on a printer with the purchase of any computer. That means, after your rebate, you can score a Canon Pixma MP470 for free. When you're shopping this holiday season, watch for such offers and who on your list may want the relevant products.

THE SHUTTERBUG

Tools for Enjoying Digital Photos



Eye-Fi Explore

Sharing good times is the best gift, so wouldn't it be great if your giftee could share photos instantly with friends and family from a digital camera, before ever downloading them to a PC? The Eye-Fi Explore is a 2GB SD memory card with built-in Wi-Fi. If a wireless network is available, it automatically uploads photos to an online photo-sharing site. It also geotags them with location information. At home, the Wi-Fi functionality can transfer the photos directly to a computer. If you don't need to upload to the Web, Eye-Fi also offers a less expensive version of the card for \$79.

Eye-Fi • www.eye-fi.com • \$129.99

HP Photosmart A636

Sharing printed photos works, too. With a large, 4.8-inch touch screen, the A636 photo printer doesn't need to be hooked up to a PC. Just plug in your digital camera or a flash-memory card, and a makeshift photo lab is ready to print. The A636 can print photos up to 5x7 inches, and a host of editing and personalizing tools can give photos extra pizzazz.

Hewlett-Packard • www.hp.com

\$149.99



Epson Perfection V300

Most folks over the age of 30 have old photos lying around in a shoebox. Let a loved one digitize them—and share them with the rest of your brood—with the Perfection V300. Unlike the slow-to-warm-up scanners most of us are used to, the V300 uses an LED-based bulb, so startup is instant. Besides prints, the 4,800x9,600-dot-per-inch scanner scans negatives, too.

Epson America • www.epson.com • \$99.99

THE PHONE FIEND

Presents for Constant Chatterers



Motorola Motopure H15

A nonstop cell hound will certainly appreciate the comfortable-to-wear HTS. To deliver a great Bluetooth-headset experience, Motorola built in two microphones. One captures voice, and the other measures background noise, allowing the headset to adjust voice volume accordingly.

Motorola • www.motorola.com • \$129.99

MagicJack

Got someone you'd like to chat with more often, but stymied by sky-high long-distance charges? Get the MagicJack, a USB-based device that lets anyone make unlimited calls within the United States and Canada using Voice over Internet Protocol (VoIP). The beauty of the product: It works with any computer that has broadband Internet service, anywhere in the world.

MagicJack • www.magicjack.com • \$39.95 (device and one year of service; \$19.95 each subsequent year)



Online Freebies

You can find a lot of gift-worthy free stuff on the Web, and we're not just talking about items from Craigslisters trying to declutter their garages. Check out a price aggregator such as Dealnews.com, which often lists free or free-after-rebate items like magazine subscriptions, software, housewares, and museum admissions.

THE LITTLE TECHIE Fun Gizmos for a Budding Gadgeteer

LeapFrog Crammer Study & Sound System

The Crammer is a smart way to keep young minds sharp. We love that it lets you download more than 16,000 quiz questions based on leading textbooks and that you can create your own flash cards for studying. Since it doubles as an MP3 player, kids can put their music on it, too, for the ultimate study session.

LeapFrog Enterprises • www.leapfrog.com
\$59.99



Fisher-Price Kid-Tough Digital Camera

Designed for kids aged three and up, the Kid-Tough Digital Camera (available in blue and pink) offers a two-eye viewfinder for little tykes who haven't learned the art of winking. Plus, the latest iteration of this popular cam is now waterproof for up to 30 minutes in 3 feet of water. It stores up to 500 VGA-resolution pictures on its 64MB of internal memory, but it can also capture 1.3-megapixel shots.

Fisher-Price • www.fisher-price.com • \$50

Sony Children's Headphones (MDR-222KD)

Anyone who's traveled with children knows how important good headphones are, but earbuds are often painful for kids to wear, and adult headphones are usually too big. Sony designed the MDR-222KD headphones to comfortably fit children as young as eight years old. They're limited to a moderate volume level (to protect sensitive ears) and come in black or pink.

Sony Electronics • www.sonymstyle.com • \$14.99



The Gift Of Service

Instead of spending money, why not offer an even more valuable gift to your friends and family: tech support. It may not have the cachet of a slick new music player, but your wealth of tech knowledge will be much appreciated when it's really needed! Just make sure you're prepared to deal with frantic phone calls about retrieving lost e-mail messages or fixing a printer that crunches up paper.

Belkin RockStar

Putting a new spin on music sharing, the RockStar is a simple contraption that channels the audio from one music device to five headphone ports. Simply attach a pair of headphones or portable speakers, and your child can share tunes with friends.

Belkin • www.belkin.com • \$19.99



PC-Builder Bliss

Everybody knows one: an inveterate tinkerer who builds his or her own PCs, upgrades and fixes computers for friends and family, and has a desk strewn with PC parts. (Maybe that tinkerer is you.) These five gifts will please that do-it-yourselfer on your gift list.

ROSEWILL RTK-145 145-PIECE

COMPUTER TOOL KIT

A good tool kit makes any PC builder's life easier—and with 145 pieces, this set has all the wrenches, sockets, and screwdrivers an intrepid DIY maven could ever need. Plus, it comes with wire strippers, pliers, and the all-important soldering iron. If your gift recipient is prone to builder's rage when things go wrong, however, withhold the hammer until his or her latest rig is up and running. Look for it at Newegg.com.

Rosewill • www.rosewill.com • \$39.99

THERMALTAKE BLACK SATA HARD DRIVE DOCK

The BlackX is a great way to clone drives for a new PC build or make use of any internal desktop or laptop drives your builder might have lying around. This dock connects internal Serial ATA hard drives to a PC without the need to open a PC case. Just plug the BlackX base in via USB and drop a hard drive into it (gently). It's great for grabbing a few important files from a disused drive.

Thermaltake • www.thermaltakeusa.com • \$64.99

ACOUSTIPACK ULTIMATE PC SOUNDPROOFING KIT

Who ever thought layered sheet foam would ever make a great gift? If you know someone whose desktop PC makes enough noise to rattle the rafters, help tone it down with sound-dampening material from Acousti Products. The Ultimate kit includes three sheets, more than enough to silence a large case. The adhesive backing makes installing the material as easy as measure, cut, peel, and stick.

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Solid-state drives are fast, reliable—and really expensive. Are they worth it? We put eight to the test.

Solid-State

By Josh Norem



The mobile-tech industry is hailing solid-state drives (SSDs) as the future of storage. The drives have no moving parts, so they can't "crash" like typical hard drives with spinning platters. They also make no noise, consume just a trickle of power, create very little heat, and offer tremendous performance. Naturally, all this storage bliss comes at a high price. Though the cost per gigabyte for these drives is currently all over the map, even small-capacity SSDs can be painfully expensive, although prices are dropping rapidly.

To see if the technology delivers on its myriad promises, we rounded up eight solid-state drives from leading manufacturers and put them through a barrage of benchmark tests and real-world operations. (See the sidebar, "How We Tested.") All

drives we tested use the Serial ATA (SATA) interface, with some supporting the second generation of the spec, which is rated for up to 3Gbps maximum data transfers. Six of the drives employ the 2.5-inch form factor, making them candidates for installation in a laptop (check with your laptop maker first for details about interface and fit); a couple used the

standard 3.5-inch,



desktop-size design.

Our verdict: SSDs are indeed very fast, quiet, and cool—almost the perfect storage medium. What our benchmark tests don't detail, however, is arguably the drives' strongest selling point: the fact

that SSDs can't physically crash in the same way conventional drives can and that today's drives are likely to become obsolete before they wear out. It's this reliability that's rapidly making SSDs a must-have PC component—the new standard for speed-jockey PC storage.

Crucial 32GB Solid State Internal 2.5-Inch Drive

Editors' Rating: **6.8** out of 10

Pros: Decent overall performance; less expensive than other 32GB SSDs

Cons: Still expensive; low-to-average performance compared with other drives

Crucial's 32GB SSD shows just how tough the competition is in this fledgling class of hardware. Though the drive scored very well against a traditional mechanical hard drive, it failed to distinguish itself from the competition in any significant way. Also, its \$349.99 price is somewhat high for just 32GB of capacity.

In our boot test, the 32GB Crucial SSD took 40 seconds to reach the Windows XP Professional desktop. Though this time is 3 seconds faster than that of the stock 7,200rpm hard drive we tested it against, it tied for second-slowest in this group of drives. (Three other drives also had results in the 40s, so Crucial's drive has some company here.)

The drive delivered the third-best sequential-read speed in the group in HD Tach, with an average of 105.5MB per second. (A typical notebook hard drive offers speeds in the 40MB to 50MB range.) Its 0.5-millisecond (ms) access time was "slow"

Crucial 32GB Solid State Internal 2.5-Inch Drive

Memoright 32GB GT SSD



compared with other drives, but a few milliseconds are nothing to gripe about.

Similarly, its application load times (4 seconds to open a Word 2007 file, 16 seconds to open Photoshop) were fast but disappointing, matching those of the stock 7,200rpm hard drive we used for comparative testing, although faster than a 5,400rpm drive. In our 10GB read/write test, the Crucial drive placed fourth in write speed (7 minutes and 10 seconds) and third in read speed (6 minutes and 37 seconds).

Memoright 32GB GT SSD

Editors' Rating: 7.0 out of 10

Pros: Very good performance

Cons: Small capacity for the money

The \$749 Memoright 32GB SATA drive is the most expensive SSD we've tested at this capacity. It performed very well in our tests but was close enough to other, lower-cost drives to make recommending it a tough proposition.

The drive, which uses the standard 2.5-inch form factor, fit snugly into our test notebook with no difficulty. Its boot time of 36 seconds was in the middle of our test group and 7 seconds faster than that of our 7,200rpm test hard drive.

In HD Tach, the Memoright SSD performed very well, achieving a fourth-fastest sequential-read speed of 103MB per second—quite fast, even when compared with full-size desktop hard drives. Also, its almost-instantaneous 0.1ms access time was tied with two other drives for the lowest of the group.

In our application-loading tests, the Memoright SSD was near the top of the charts in both our Office 2007 and Adobe Photoshop trials, needing just 2 seconds to open a new Word document (tied with five other drives for second-fastest) and 12 seconds to open Photoshop (tied with two other drives, again for second-fastest). The Memoright was fifth-fastest in our 10GB read test, requiring 7 minutes and 15 seconds; in our

write test, it placed third, at a respectable 6 minutes and 50 seconds—45 seconds short of second place.

Mtron Mobi 64GB SATA SSD

Editors' Rating: 8.0 out of 10

Pros: Excellent overall performance; faster than more expensive drives

Cons: Relatively expensive

The \$769 Mtron Mobi is like the little brother of the Mtron Pro 7500, also reviewed here. Though it shares the same 3.5-inch form factor, it's rated for slower overall speeds, and it has a regular Serial ATA (SATA) interface, as opposed to the Pro model's faster SATA II interface. In our tests, however, it ran even with the Pro, making it an excellent choice for the money.

The Mobi's boot time of 34 seconds was tied for second-fastest we saw, 9 seconds faster than the stock 7,200rpm drive we used for comparison. HD Tach reported a sequential read speed of 87.8MB per second, which was the second-lowest in the group, but the drive's access time of 0.1ms ties the record for fastest access.

Like Mtron's Pro 7500 drive, the Mobi was incredibly fast at loading applications. It took just 2 seconds to open a Word 2007 document and



Mtron Mobi 64GB SATASSD

How Fast Are Two SSDs In RAID Level 0?

Enthusiasts have had a long-running love affair with RAID Level 0, two combined drives working in tandem and thus— theoretically, at least—almost doubling performance. The drawback, of course, is that if one drive fails, all data is lost, but because solid-state drives (SSDs) are much less likely to fail, it's a safer bet to put two of them together for a RAID Level 0 array.

In our tests, two 32GB Memoright SSDs in a RAID Level 0 array performed extremely well, placing the two-drive combination near the top of our benchmark charts. The only rub is that the speeds weren't any greater than what the Mtron drives were capable of performing all by themselves.

The array's 10GB read/write speeds of 5 minutes and 32 seconds and 6 minutes and 3 seconds were a hair slower than the fastest time, set by the Mtron Mobi. Its application-loading times of 2 seconds for Word 2007 and 7 seconds for Photoshop make the array second-fastest.

In HD Tach, a single drive reported sequential read speeds of 103.3MB per second but the two drives together produced 123.6MB—a nice bump, but less than we expected.

Overall, the RAID Level 0's performance was very good—second place is certainly nothing to scoff at. These drives cost \$749 each, however, so paying \$1,500 for the same performance you can get from a single drive is not something we'd recommend. Pairing up two less-expensive drives would be wiser.

a mere 4 seconds to start up Photoshop—both results right in line with the Pro.

The Mobi also kicked sand in the other drives' faces in our 10GB read/write tests. It took just 5 minutes and 30 seconds to read the file, and 6 minutes and 1 second to write it—faster than some of the other drives by several minutes.

Solid-State of the Union

Mtron Pro 7500 3.5 64GB SATA II SSD

Editors' Rating: **7.7** out of 10

Pros: Incredibly fast application load times; excellent read/write performance

Cons: Slow boot speed; extremely expensive. As its "Pro" moniker (and \$1,369 price) suggest, the Mtron Pro 7500 3.5 64GB SATA II SSD is a 3.5-inch drive rated to deliver higher overall speeds than Mtron's lower-end Mobi drive. This SSD may cost plenty, but it delivered smoldering performance in several of our tests.

Note that we said "several," not "all"—the drive took 40 seconds to boot into Windows in our test laptop, a poor showing. And the Mtron Pro was mediocre for this group in HD Tach's sequential read test, garnering a speed of 97.6MB per second. Its access time of just 0.1ms matched the lightning-fast times of two other drives here.

The Mtron Pro flattened the competition in our application-loading tests, however, taking a blink-and-you'll-miss-it 1 second to open a new Office 2007 Word document and just 4 seconds to launch



Mtron Pro 7500 3.5 64GB SATA II SSD

How We Tested

We subjected each of the eight SSDs to seven discrete trials. Our **Windows Bootup** test measured the startup time of Windows XP Professional, installed as a clean image on each drive; we measured the time it took for our test system to go from a powered-off state to reaching the desktop. The **Sequential Read** and **Access Time** measurements were both obtained using HD Tach (www.simplisoftware.com). The Sequential Read test approximates average drive throughput, while the figures obtained by the Access Time test are less meaningful for weighing the SSDs against each other (because the

numbers represent near-instantaneous access) than for comparing them, as a whole, with standard mechanical hard drives.

Our four "real-world" tests began with our **Word File Load** test, which measured the time it took to launch a new document in Microsoft Word 2007, and the **Photoshop Launch** test, which measured the startup time of Photoshop CS2. Finally, our **10GB Read** and **10GB Write** tests employed a test mixture of large files (approximately 500MB) and small files (pictures, Word docs, and the like) to simulate everyday data-transfer performance.

Photoshop. Though the other drives ripped at the Mtron Pro's heels in our Word test, none but its Mobi brother came even close to its amazing Photoshop time. We wouldn't have believed it had we not witnessed it.

In our 10GB read/write tests, though, the Mtron Pro placed second overall, barely surpassed in both tests by its little brother, the Mobi, which is supposedly the lesser of the two drives.

Patriot Warp 128GB SSD

Editors' Rating: **7.9** out of 10

Pros: Fast application-loading times; low cost per gigabyte

Cons: Slow read/write speeds

We were excited to test a 128GB SSD simply because it's the minimum capacity we'd ever consider for a boot drive. The \$449 Patriot Warp drive tied for second-fastest in our boot test, needing just 34 seconds to arrive at the Windows desktop from a powered-off state.

HD Tach reported a sequential-read

speed of 115.4MB per second, which is very close to the top contenders in this category. The Warp's 0.3ms access time is about average for these drives, but still nearly instantaneous.

In our application-loading tests, the Warp placed very well, taking just 1 second to open our Word 2007 test file and 12 seconds to start Photoshop. Though the Warp wasn't quite as fast here as the zippy Mtron drives, 1 second is still an outstanding Word score (tied with the Mtron Pro 7500, in fact), and its Photoshop time is respectable.

The Warp's overall speedy performance didn't translate to our 10GB read/write tests, however, where its times were on the



Patriot Warp 128GB SSD

FEATURE COMPARISON

	Crucial 32GB Solid State Internal 2.5-inch Drive	Memoright 32GB GT SSD	Mtron Mobi 64GB SATA SSD	Mtron Pro 7500 3.5 64GB SATA II SSD	Patriot Warp 128GB SSD
MODEL NUMBER	CT32GBFAB0	MR25-2-32S	MSD-SATA3035064	MSP-SATA7535064	PE128GSZSSDR
EDITORS' RATING	6.8	7.0	8.0	7.7	7.9
Capacity	32GB	32GB	64GB	64GB	128GB
Form Factor	2.5-inch	2.5-inch	3.5-inch	3.5-inch	2.5-inch
Interface	Serial ATA	Serial ATA	Serial ATA	Serial ATA II	Serial ATA II
Cost Per Gigabyte	\$10.90	\$23.41	\$12.01	\$12.39	\$3.51
TEST RESULTS*					
Windows Bootup	40 seconds	36 seconds	34 seconds	40 seconds	34 seconds
Sequential Read	105.5MB per second	103MB per second	87.8MB per second	97.6MB per second	115.4MB per second
Access Time	0.1ms	0.1ms	0.1ms	0.1ms	0.3ms
Word File Load	4 seconds	2 seconds	2 seconds	1 second	1 second
Photoshop Launch	16 seconds	12 seconds	4 seconds	4 seconds	12 seconds
10GB Read Test	6:37	7:15	5:30	5:34	7:28
10GB Write Test	7:10	6:50	6:01	6:05	8:45
COMPANY	Crucial/Lexar Media www.crucial.com	Memoright/Memoritech www.memoright.com	Mtron Storage Technology www.mtron.net	Mtron Storage Technology www.mtron.net	Patriot Memory www.patriotmem.com
MFR. EST. PRICE	\$349.99	\$749	\$769	\$1,369	\$449

* - Lower is better for all tests except sequential read

slow side for this group. It took 7 minutes and 28 seconds to read the file, then 8 minutes and 45 seconds to write it.

Samsung 64GB SATA II SSD

Editors' Rating: **7.5** out of 10

Pros: Fast boot times; competitive application-loading times; decent read/write speeds

Cons: Expensive; other SSDs are faster
Samsung's SSDs are available in several form factors, including 2.5-inch and 1.8-inch. Our \$797 review unit was the 64GB 2.5-inch model, and we had no trouble sliding it into our Gateway notebook for testing.

Though this drive reported the lowest sequential-read throughput of all the drives here—80.6MB per second—it still held its own in our tests. (It's worth remembering that 80MB per second is still about twice as fast as you'd see with a typical 5,400rpm notebook drive.)

The Samsung 64GB SSD returned an impressive boot time of just 32 seconds on our clean installation of Windows—the fastest time we saw—by compared with the other drives, its 10GB read time of 7 minutes and 30 seconds was definitely on the slow side (the slowest in the group, in fact). Its 10GB write time of 7 minutes was more in line with the other units.

In our real-world application-loading tests using Microsoft Office 2007 and Adobe Photoshop, the Samsung drive took just 2 seconds to load a new Word file and 12 seconds



Samsung
64GB SATA II
SSD

to open Photoshop. These times are consistent with what we've seen on other drives, with the exception of Mtron's Pro 7500 and Moli 64GB, both of which opened Photoshop in just 4 seconds.

Super Talent MasterDrive MX 60GB

Editors' Rating: **7.7** out of 10

Pros: Decent performance; affordable

Cons: Not as fast as other drives

Super Talent's offering is very similar to the Transcend 64GB SSD in price (\$226), performance, and cost, which isn't surprising since they both use the same multicell NAND flash memory. Its overall performance was similar to that of most of the other drives we tested.

The Super Talent's boot time was slow at 43 seconds, the same speed as the 7,200rpm drive we used for comparison.



Super Talent
MasterDrive MX
60GB

According to HD Tach, its sequential-read speed is a middle-of-the-pack 97.1MB per second, a bit slower than the Transcend drive's group-leading speed. Its access time of 0.5ms is "slow" compared with other drives, but you won't notice the difference.

The Super Talent drive performed admirably in our application-loading tests, taking just 2 seconds to open a Word 2007 document and 13 seconds to open Photoshop. These times place it very close to its peers, as most of them required more than 10 seconds for Photoshop and just a second or two to open the Word file.

In our 10GB read/write test, the

Super Talent achieved relative parity with the competition, though it lagged slightly behind several drives. Its read time of 7 minutes and 28 seconds was close to the slowest by a few seconds. It took 7 minutes and 40 seconds to write the data—comparatively slow, but not at the bottom of the list (that's the Patriot Warp 128GB SSD, at 8 minutes and 45 seconds).

Transcend 64GB SSD

Editors' Rating: **7.7** out of 10

Pros: Decent performance; relatively affordable

Cons: Not as fast as other drives

In terms of performance, Transcend's 64GB SSD doesn't really stand out from the pack, but its \$194 price makes it the most affordable cost-per-gigabyte option here. Performance among SSDs is quite close, so we suspect price will be the motivating factor for most buyers, making the Transcend drive an attractive solid-state offering.

Like two other drives here, the Transcend unit took 40 seconds to boot—the second-slowest showing in the group—but it was three seconds faster than the stock 7,200rpm drive we used for comparison purposes, so it's probably still an improvement over a mechanical drive. In HD Tach, however, the Transcend drive surprised us by ringing up the fastest sequential-read speed we saw: 129.3MB per second. Its 0.4ms seek time wasn't the fastest, but it's a big step up compared with the 7,200rpm drive's time of 18ms.

The Transcend's application load times were average: It took 2 seconds to open a new Word 2007 document and 13 seconds to launch Photoshop, placing it in the middle of the group. In the 10GB read/write test, it was once again mid-pack, with a read result of 7 minutes and 10 seconds and a write result of 7 minutes and 20 seconds.

All in all, the Transcend offers similar performance to the other drives, at a much lower price. In our book, that's a winning combination.



Transcend
64GB SSD

Samsung 64GB SATA II SSD	Super Talent MasterDrive MX 60GB	Transcend 64GB SSD
MCCE064CSMP-PVA	FTM60GK2SH	TS64GSSD25S-M
75	77	77
64GB	60GB	64GB
2.5-inch	2.5-inch	2.5-inch
Serial ATA II	Serial ATA II	Serial ATA
\$1245	\$376	\$503
32 seconds	43 seconds	40 seconds
80.6MB per second	97.1MB per second	129.3MB per second
0.4ms	0.5ms	0.4ms
2 seconds	2 seconds	2 seconds
12 seconds	13 seconds	13 seconds
7:30	7:28	7:10
7:00	7:40	7:20
Samsung www.samsung.com	Super Talent Technology www.supertalent.com	Transcend Information www.transcendusa.com
\$797	\$226	\$194

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THE INVISIBLE RAM

My computer has four memory slots and accepts up to 4GB of DDR 266/333/400 RAM. I currently have four 512MB sticks installed (for a total of 2GB). I want to install the full 4GB, but the tech guy at my computer store tells me that Windows XP Professional will recognize only 2GB, so there's no need to install more. Why would the system be built to accept 4GB of RAM if it can use only 2GB? Will adding the extra RAM improve performance?

DAN SHEFFIELD, VIA E-MAIL

The limitation your tech person alludes to isn't the hardware's fault—all fingers point to the operating system. Windows XP Professional—assuming you have the 32-bit edition—runs up against a wall endemic to all 32-bit operating systems: The amount of RAM in some current PC configurations now overruns the available memory-addressing space of the OS (in a nutshell, the physical locations in memory that can be manipulated at any given time). As a result, the OS can recognize up to a certain ceiling of RAM and no more.

In practice, this ceiling is usually between 3GB and 3.5GB, seldom as little as 2GB. (The maximum is diminished by the amount of dedicated graphics memory on your graphics card, as well as, to a much lesser extent, other particulars of your PC's hardware configuration.)

A 64-bit operating system, such as Windows XP Professional x64 Edition, can recognize and employ the full amount, which is why you see motherboards that accept far more than 4GB of RAM. That said, RAM is so cheap now that it's not a waste of money to install the full 4GB (say, as two 2GB sticks), even if you'll only make use of 3GB to 3.5GB of it.

IT JUST WON'T QUIT!

Lately, every time I try to shut down my PC, the system gets stuck at a window with the heading "SSMMGR.EXE" and the message "Ending Program...Please Wait." In that window, I need to click the button labeled "End Program" to get the PC to continue shutting down. Any idea what's the problem?

RICK LEITCH, VIA E-MAIL

It appears SSMMGR.EXE is a management and monitoring program for Samsung laser printers. Presumably, you have installed (or did at some point install) a Samsung laser, and this software is running in the background from the time you boot up.

The easy solution, if you're no longer using that printer, is to uninstall the utility. (Check Windows Control Panel's Add or Remove Programs utility if there's no uninstaller in the Programs menu.) If you're still using the printer, however, check Samsung's site for an updated version of the printer software, and perform an uninstall/reinstall.

DIAGNOSIS: DEAD DVDS

I've been using DVDs to back up my data, but recently I was given a box of DVD-Rs to use and I've had nothing but problems. When I put one into my USB writer (LG GSA-2166d), it spins up and recognizes that I have inserted a blank disc, but when I try to burn, the computer sits there and the writer just spins. I have to power off the writer to retrieve the disc.

All I can determine is that it always fails when I try to use a DVD-R disc. If I use a DVD+R disc, everything works fine. In both cases I am using Memorex media. I've tried using Windows Media Player and Roxio's Media Creator 10 to burn these DVD-Rs—both give me the same results.

NORM BROOKS, VIA E-MAIL



Your LG disc writer is indeed compatible with the "minus" flavor of DVD media, so that's not the problem. (Checking the drive's specs was my first thought; some early DVD burners were compatible with "plus" or "minus" DVD media, not both.) You've already performed two more of the diagnostic steps I'd have suggested: trying to burn a DVD-R in several different programs to eliminate the burning application as the cause, and burning to a DVD+R to ensure the hardware isn't faulty.

I'd also check the speed rating of the discs. Your LG burner is rated to burn DVD-Rs at up to 16x speed; I'd make sure the discs themselves are rated for 8x or 16x burning. It's possible, if the DVD-Rs you were given are old, cast-off 2x or 4x discs, that they disagree with your writer. Although burners can dial back their burn speed according to the media's burn-speed rating or software settings, some burners don't work well with discs whose write-speed rating is above or below the drive's maximum write rating for that type of media. It's usually best to buy 8x discs for an 8x-maximum burner, 16x discs for a 16x burner, and so on.

The last thing I would try is another brand of DVD-R discs, or at least discs from a new batch from the same manufacturer. On rare occasions, vendors turn out a bum batch of discs, and the only solution is to return them for refund or exchange. I've had this experience on a couple of occasions with DVD+Rs (and I've burned thousands of discs over the years); sometimes makers of even name-brand media turn out isolated clunkers. Also, because some media makers source their discs

C For more: computershopper.com/forums

from different disc factories at different times, the batch of blanks you buy today may not be made in the same factory (or even have the same chemical makeup) as the one you buy a month from now. (See the "Computer Cures" question "Contemplating (Data) Mortality" at computershopper.com/howto/computer-cures-march-2008 for more on the topic of variation in disc-media manufacturing.)

MY SOMETIMES SCREEN

I have been using my Dell 8400 and Windows XP as my system for a number of years, and during that time my CRT monitor came on without a hitch. I would turn off the monitor when not in use.

Recently, however, I turned on the monitor and nothing would appear on the screen—only after rebooting would the screen turn on. I don't experience this problem when the monitor is kept on. I checked Device Manager, and it appears that the display is functioning properly.

What could be the cause of the problem? Do I need to replace my monitor?
MIRIAM MEHLMAN, VIA E-MAIL

I wouldn't resign your monitor to the recyclers just yet. The exact cause of this behavior is uncertain, but from your question it sounds like you may be turning on the monitor after your PC has already begun booting up. It's best to have the monitor switched on for at least a few seconds before you power up your PC tower—you want to give your graphics card or your PC motherboard's onboard video chipset the chance to autodetect it. If you turn on the CRT after you power on the PC, the detection may not happen.

I've run into similar confounding situations with CRTs that repeatedly refused to display, even upon multiple reboots, if not powered on before the first boot. If you run into such a chain of trouble, unplug the monitor from AC power entirely for several minutes before plugging it back in and trying again.

THAT'S AN IE OPENER!

I need some quick help using Internet Explorer. Rather than go through dozens of listings on the IE Favorites tab looking for the right link, I place shortcuts on my Windows desktop for the top Web sites I visit. Problem is, if I already have my browser open, clicking a desktop shortcut replaces whatever current Web page is loaded with the new one from the shortcut I just opened. How can I make it so that it opens up in a separate browser window instead?

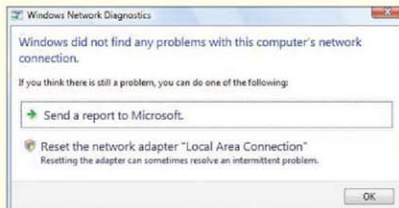
RUBEN GAMEZ, M.D., VIA E-MAIL

The tweak you need is a refreshingly hack-free one. In IE6, simply navigate to Tools > Internet Options > Advanced to view IE's huge list of settings minutiae. Scroll down to the Browsing subsection, and uncheck the box next to the option "Reuse windows for launching shortcuts." Now, double-clicking a desktop IE shortcut should launch your desired Web page in a new IE window.

The process is the same in IE7 (uncheck the same box), but the behavior is a little different: Your shortcut will launch in a new tab, not a new window.

TIP OF THE MONTH: A VISTA NETWORKING WAKE-UP CALL

*I'm in college, and a lot of my peers don't yet have a firm grasp of Windows Vista, so I'm often called on for networking problems. One of the most common things I see is people not figuring out how to get their network connections working. Usually, the fix is simple: resetting the network adapter and refreshing the IP. To do this, go to the Start menu, type **Network and Sharing Center** into the Start Search box, and hit Enter. On the sidebar of the resulting window, click "Manage Network Connections." Right-click on your network adapter icon, and choose "Diagnose." After Windows does its*



little scan, click either "Reacquire IP Address" or "Reset the Network Adapter." Assuming nothing is actually misconfigured and your network adapter just needs a kick in the rear to realize the network is working, that should fix it.

WINSTON MOY,

VIA THE COMPUTERSHOPPER.COM FORUMS

That's a handy tip. Over the years I've used the equivalent functionality in Windows XP many times (via the "Repair" function) to give my recalcitrant home-network connection a gentle prod, but in Vista, the access and naming conventions for this familiar function are somewhat different. I'm sure this advice will save many Vista-using readers a tech-support call at some point!

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Protect Your New Computer

BY MATTHEW MURRAY



GETTING A NEW COMPUTER is always exciting, and setting it up and trying it out can be a real thrill. But devoting just a few hours that first day to some simple precautions, and installing a few key software applications, can keep your system running efficiently and safely next week, next month, and next year. So if you've just unpacked and set up your new Windows Vista system and are raring to take it for a test drive, keep it idling long enough to perform these five easy tasks. You'll be glad you did.

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1 Install all available Windows updates

If you bought your computer directly from a major manufacturer, chances are Windows was as up-to-date as it could be before your computer shipped out. But things can change rapidly in the software world, and in the days or weeks your computer was en route, some important fixes or helpful driver updates could have been released. You want to verify that you have the most recent versions of everything, and that you're set to get new updates as soon as they're available.

In order to get these updates, you'll need to connect to the Internet, which means exposing your system to potential harm. So before doing anything else, get a firewall up and running. Almost any system from companies like Dell and HP will come with one installed and active, but on the off chance that yours doesn't, you'll need at least the Windows version working for you. Click the Start button (in the lower-left corner), then click Control Panel, then click Security. Under the Windows Firewall section, you'll see an option labeled "Turn Windows Firewall on or off." Click it, and make sure the radio button next to "On (recommended)" is selected. Click OK.

On this same screen, just below the Windows Firewall section, you'll see the Windows Update section. Click on "Turn automatic updating on or off." If the radio button next to "Install updates automatically (recommended)" is already selected, you're good



Vista can automatically check for and download updates on a schedule you specify.



Once updates have been found, you can install them by clicking just one button.

For more: computershopper.com/howto

to go. If it's not, click that radio button, and then use the two dropdowns beneath that option to specify how often you want Windows to check for updates (every day, every Sunday, every Monday, and so on). Also specify what time you want that check to occur; 3:00 a.m., the default, is generally a good choice (if you remember to leave your computer on). Also make sure that "Install recommended updates when downloading, installing, or notifying me about updates" is checked. Click OK.

You've now set up Windows to download updates automatically, but if it's not 3:00 a.m., you might not have all the updates you need, so force a check yourself. On that same Security screen, under Windows Update, click "Check for updates." If you see a message that says Windows is already up to date, congratulations. But if Windows has found updates to install, you can either click "Install updates" to start the process, or click "View available updates" to see what exactly Windows wants to change. From that screen, you can select which updates you want to install using the checkboxes next to the items in the list; when you're finished, click Install to download and install them.

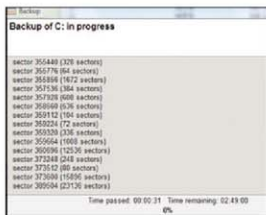
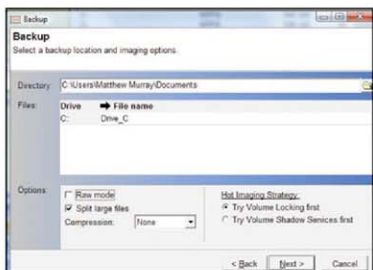
Depending on the updates Windows finds, you may need to restart your computer to finish installing them.

Ghost your machine

Your computer probably won't meet all your needs right out of the box. It might have some or even most of the functionality you'll want, but it's usually little more than a foundation. But there's real value in preserving that blank-canvas state for posterity.

If your Windows installation gets corrupted, or if you decide at some future point you just want to start over from scratch, having a backup of your system at its most pristine could save you a lot of time and money. So, before installing any other software, you should make a full backup of your entire drive—operating system and all. This process is generally known as "ghosting" your hard drive.

The best part is, it's easy and inexpensive. There are commercial software packages out there, such as Norton Ghost, that provide feature-rich ways to make full images of your hard drive. But you can also get solid, if basic, functionality from free downloads. We like DriveImage XML, available from www.runtime.org/driveimage-xml.htm, which offers a number of straightforward options for protecting your data. Just download the app (it's less than 2MB in size), install it, and start it up.



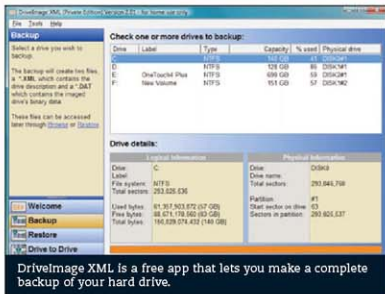
After you choose the drive you want to back up, select your options and then click Next to begin the backup process. The amount of time it takes depends on the size of your drive.

From the main application screen, click Backup. You'll then be asked which drive you want to back up; select it, and hit Next. (If you have only one drive, just hit Next anyway.) The drive-backup wizard will start, so click Next again. Now you'll need to make some choices.

The Directory field will let you specify where the backup files will go. If you have a second hard drive, or better yet an external drive, we recommend putting the files there so they'll be easier to restore if you ever have to. Either type in the pathname if you know it, or click on the Folder icon to navigate there. The Files field lets you specify the naming scheme for your backup; you can name the files whatever you want (and the software will add a number to the name so you know the sequence), but including the date will probably be the most helpful for organizational purposes.

By default, the checkbox next to the "Raw mode" option is unchecked. You should select this only if you want to make an image of your entire drive, including the unused portions, and if you have enough disk space; otherwise, DriveImage XML will only back up the parts of your drive containing data. "Split large files" starts checked, and will break the backup file into pieces small enough to store on CDs. (You also have to use this option if your hard drive has FAT formatting, as FAT can't handle single files larger than 4GB.) The software offers three compression choices: None (meaning your final backup will be exactly the size of all your data), Fast (which will result in somewhat smaller files but won't take very long), or Good (which saves you the most space, but takes the longest). In our tests on a freshly installed system, we found that Good finished in about half an hour. Under "Hot Imaging Strategy," you can just leave the default option, "Try Volume Locking first," checked.

Now just click the Next button to start your backup. When it's finished, you'll be left with one or more files preserving your system in its most unblemished state.



DriveImage XML is a free app that lets you make a complete backup of your hard drive.

3 Set up a backup routine

You've just backed up your machine, but it won't stay that way forever. Once you start sending e-mails, writing your novel, or storing photos and videos, you'll be adding new data every day that you'll also want protected. So before doing anything else, set Vista to back up your crucial files for you, so you'll be prepared if the worst should happen.

As with step 2, you can save your backed-up files anywhere, including your primary hard drive, but if something happens to that drive you could be out of luck. A second internal hard drive, if you have one, is a better choice, and safer still would be an external hard drive that you can

connect or disconnect as needed, so it won't be damaged if your PC's power supply blows and takes everything else with it (which has happened to us). Another option is a blank CD or DVD, but then you'll need to remember to leave a blank disc in your optical drive every time your system is scheduled to back up.

Deciding where to store your files might be the hardest part—Vista's built-in backup tool is incredibly easy to use. Return to the Control Panel,

then under System and Maintenance click "Back up your computer," and then click the "Back up files" button. First, you'll be asked where you want to save your backup files. "On a hard disk, CD, or DVD" is selected by default; if that's what you want to use, select available locations from the dropdown. If you have a network set up, you can store files on it: Just click the "On a network" radio button, then either type the location or click the Browse button to find it. Click Next once you've decided.

Now you'll be asked what type of files you want to back up. Windows offers Pictures, Music, Videos, E-mail, Documents, TV shows, Compressed files, and Additional files as categories, and these are all selected by default. (Windows won't back up system files, program files, or temporary files, though.) Uncheck anything you don't want, and click Next to continue.

Finally, Windows will ask how often you want the backup to occur. You can do it daily, weekly, or monthly, on any day of the week, at any hour of the day. Once a week, either while you're asleep or off at work, is probably sufficient, unless your vital data



changes particularly often. You'll just need to have your computer powered on (and, if you're backing up to CD or DVD, a blank disc in the optical drive) when the backup is set to kick off.

Once you've made your choice, click "Save settings and start backup." Windows will now back up all the file types you specified, as well as keep you and your data safe in the future.



4

Install security software

The first software you install should always be security software to keep you protected whenever you're connected to the Internet. At the absolute minimum, you'll want a virus scanner, and other tools such as antispyware or antiphishing apps could save you a lot of trouble depending on how you use your computer.

If you bought your computer from a major manufacturer, it probably already has a security suite installed. If it does, the software might have a year's subscription already activated, or it might just be a 60- or 90-day trial version. If your computer didn't come with any security software, that should be your first purchase—check out our reviews of Norton Internet Security 2009 and Kaspersky Internet Security 2009 on page 48 for two options, or learn about others at computershopper.com/software.

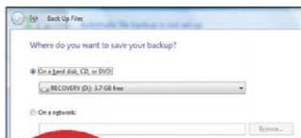
Whether you have to install it yourself or it comes preinstalled, activate the software and run a scan immediately. Also be sure to configure the software to scan and update automatically, just like you did when you set up your backup. You never know when a threat can strike, so don't take chances.

While Windows comes with its own program, Windows Defender, to protect you from invidious spyware that can slow down or cripple your machine, it probably won't be enough. The more antispyware apps you have at your disposal, the more likely you are to catch current threats and those no one knows about yet. Two of the best free ones are Ad-Aware and Spybot Search and Destroy, both available at computershopper.com/downloads. Spybot is especially useful, since in addition to scrubbing your hard drive of potentially malicious stealth programs, it also immunizes your computer to keep them away in the first place.

5

Install everything else

Yeah, we love Microsoft Word and Peggle, too. But productivity packages, games, and everything else have to take a backseat to safety, so don't even think about installing them until you've protected your computer with steps 1 through 4 above. Then, and only then, are you ready to start using your computer however you want. If you're feeling really adventurous, you might even want to crank up Drivelmage XML again, so you can have a complete image of your system at full strength, too. Just don't lose or delete your baseline backup or forget to keep your security software running and up-to-date. Hopefully you'll never need it, but if you do, you'll be glad you took the time to set everything up right.



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Spreading joy

Memory-module heat spreaders are a prosaic lot, but Thermaltake spices up this product category with the **RamOrb**. An aluminum sleeve that fits over a RAM module, the \$25 RamOrb carries away heat via its copper heatpipe and fin assembly. You can adjust the angle of the protruding fan-and-fin portion as your case interior demands. The 50mm fan draws power from a standard four-pin power connector. Note: The cooler supports DDR and DDR2 memory only. Thermaltake Technology, www.thermaltake.com



Tiny Atomic desktop

The Atom processor isn't just for netbooks anymore. The diminutive **Shuttle X27** barebones desktop kit isn't much bigger than your average external hard drive, and at \$189 it's got a small price to match its size. It comes equipped with a motherboard, a 1.6GHz Intel Atom processor, and a whole lot of glossy style. Add your own RAM, drives, and operating system, and you have a cool, quiet PC that will fit just about anywhere. Shuttle Computers, us.shuttle.com



Super-spacious storage

If you need the maximum amount of storage space in your small PC case, Seagate has you covered with its cavernous 1.5-terabyte **Barracuda 7200.11** desktop drive. Spinning its four platters at 7,200rpm, the drive can serve your data at up to 120MB per second, and it comes with up to 32MB of cache. Seagate also offers a free-fall sensor, all the more important given the massive amount of data you could lose by dropping this drive. The list price is \$450, but the drive sells for a lot less online. Seagate, www.seagate.com

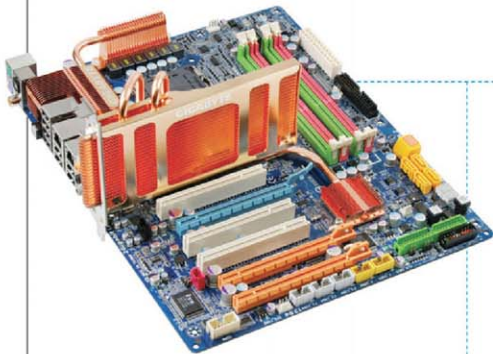
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BUILD YOUR OWN

Big fan of yours

With case fans, bigger is usually better, because larger fans push more air while spinning slowly—and slow-spinning fans mean less noise from your machine. The \$109.99 **AeroRacer Pro** case from AeroCool.US sports the biggest case fan we've ever seen. At a monstrous 400mm,

it's as large as the entire side door of the case, and it reportedly pushes out over 250 cubic feet of air per minute—about eight times the air of an average 80mm case fan. The front panel comes in a choice of black or red and features a large “car-style” power switch, as well as front USB and audio ports. *AeroCool.US, www.aerocool.us*



PC-tweaker's paradise

Gigabyte's \$270 **EP45T-Extreme** motherboard packs more features and ports than some motherboards costing \$100 more. Compatible with multicore Intel processors that employ up to a 1,600MHz front-side bus, and supporting DDR3 RAM, the board has a copper cooler for the Northbridge chipset that's so large it mounts in an expansion slot. Two CrossFire-friendly PCI Express 2.0 slots are good for extreme gaming, and eco geeks will love the Dynamic Energy Saver option, which throttles down the CPU and other systems when they're not under heavy load. Also, the BIOS comes packed with enough overclocking options to please even the most power-mad power user. *Gigabyte, www.gigabyte.com.tw*

Cavernous and quiet

The \$139.99 **Whisper** gaming case from NZXT keeps components quiet with 10mm-thick noise-dampening foam on its walls and ceiling, a padded power-supply holder, and rubber grommets for silencing drive vibration. With six 5.25-inch tool-less drive bays and space for nine hard drives, this full-size case has plenty of room for the beefiest of builds, and it even supports extended ATX (eATX) motherboards. Pre-drilled holes for wire management will keep things tidy while facilitating air flow, with the help of four fans, including a large blue LED-lit intake. The bottom-mounted power supply is also walled off from the main compartment, which should keep extra heat from reaching the motherboard. *NZXT, www.nzxt.com*



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What is a... Solid-State Drive?

An up-and-coming PC-storage alternative, solid-state drives (SSDs) differ radically from traditional hard drives, which store your data on magnetized, rapidly rotating circular platters. SSDs are based on **flash memory**, and they start up and access data faster and more quietly than a hard drive can. (In a conventional hard drive, the platters take time to spin up and move to the proper position under the drive's reading heads.)

SSDs also give off less heat and, with their **no-moving-parts design**, there's less risk of hardware failure that could jeopardize your data. All of these factors have made them a particularly good choice for laptops and especially compact netbooks such as the Dell Inspiron Mini 9 (see our review on p. 22), which can get jostled a lot en route from place to place.

The one design downside: SSDs can have a **shorter lifespan** than hard drives, since flash-memory cells can only be written to a limited number of times. You probably won't encounter this limitation, as a typical SSD is good for a million or more write cycles.

The big concerns with SSDs are price and capacity. SSDs offer much less storage space (most current ones top out at 64GB) for hundreds of dollars more than you'd pay for a traditional hard drive. But if you need the extra speed and ruggedness, the outlay is worth it.

For our tests of a broad selection of the SSDs that are currently on the market, check out "Solid-State of the Union" (p. 84), as well as our review of Intel's X-25M (p. 13).

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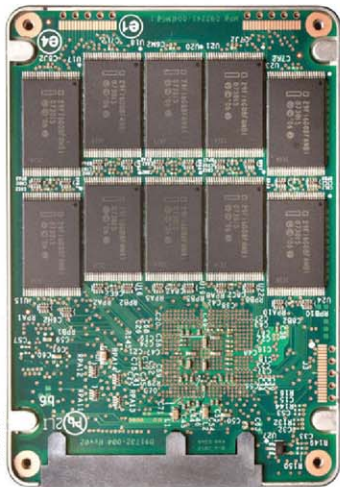


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