Our Dream Case: Reviewed!
Cooler Master's new enclosure is a builder's ultimate fantasy

Best Web Software
15 awesome new web apps you've never seen before!

WIN THIS ALIENWARE LAPTOP! p79

MAXIMUM PC

MINIMUM BS • OCTOBER 2007

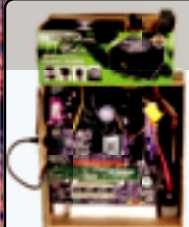
11 GAMES
that will bring your system to its knees

EXCLUSIVE CRYSIS INTERVIEW INSIDE!

DirectX 10 games: Their beauty is matched only by their PC-crushing fury! Are you ready?

- ✔ Crysis
- ✔ Assassin's Creed
- ✔ Bioshock

... and more



$500 PC Building Challenge

Two editors face off in a budget building battle. Who can build the best cheapo rig?

$8.99US $10.99CAN
10
Future MEDIA WITH PASSION
0 74808 03353 9

HOW TO Organize Your MP3 Collection — The Right Way!

Ed Word

Savoring the E3 Love

Please send feedback and sunshine and lollipops to ***will@maximumpc.com.***

I just returned from Los Angeles, where I attended the new "improved" E3, and after spending a week playing the games that will ship in the next year, I wrote this month's feature on 11 PC titles that will rock your system (see page 22 for the full scoop). But longtime readers know that I'm a gamer first and a PC gamer second, so I also managed to sneak in a little time with some console titles. Here are the games I'm most interested in playing—across all platforms. We'll call it Will Smith's Best of E3.

NO. 6 MASS EFFECT: BioWare's next single-player RPG looks like it picks up where KOTOR left off. I love big RPGs, and with a whole galaxy to explore, Mass Effect should deliver the kind of enormous world that KOTOR is missing. It's Xbox 360–only for now, but I'd be shocked if a PC version isn't out by Christmas '08.

NO. 5 BIOSHOCK: Who could say no to a steampunk adventure—set under the frickin' sea. After a lengthy hands-on, I can tell you that I haven't played a game that reminds me so much of the brilliant System Shock 2 since, well—System Shock 2.

NO. 4 HALO 3: Would I rather be playing this game with a mouse and keyboard instead of a controller? Yes. But Halo 2 multiplayer was the single best team deathmatch experience I've had since QuakeWorld. After spending time with the Halo 3 beta, I expect more of the same awesome battles on Xbox Live.

NO. 3 SUPER MARIO GALAXY: I started gaming with my TI-99/4A, but I found my first love when I played Super Mario Brothers on the NES. Mario's debut on the Wii looks to be a return to form, with skill- and timing-based platforming action but none of the crutches introduced with Super Mario Sunshine. It's Mario, but in space.

NO. 2 CRYSIS: Most beautiful shooter ever. Blah, blah, blahbity blah. Yes, Crysis looks gorgeous, we all know that. What we didn't know is that the kids at Crytek have built a true successor to Far Cry that looks poised to take shooter gameplay to a whole new level.

NO. 1 ROCK BAND: I've come to accept that my imaginary band—7 Minute Ass—will never headline Madison Square Garden or open for Pearl Jam, but Rock Band will let me live out my fantasy to rock out as Phil Collins—working the drums and lead vocals before an imaginary crowd of superfans.

Features

MAXIMUM PC

EDITORIAL
EDITOR IN CHIEF **Will Smith**
MANAGING EDITOR **Tom Edwards**
EXECUTIVE EDITOR **Michael Brown**
SENIOR EDITOR **Gordon Mah Ung**
SENIOR EDITOR **Katherine Stevenson**
ASSOCIATE EDITOR **David Murphy**
EDITORIAL ASSISTANTS **Lauren Barnard, Nathan Edwards**
CONTRIBUTING WRITERS **Rick Broida, Norman Chan, Tom Halfhill, Thomas McDonald, Dan Stapleton, Robert Strohmeyer**
EDITOR EMERITUS **Andrew Sanchez**

ART
ART DIRECTOR **Natalie Jeday**
ASSOCIATE ART DIRECTOR **Boni Uzilevsky**
PHOTO EDITOR **Mark Madeo**
ASSOCIATE PHOTOGRAPHER **Samantha Berg**

BUSINESS
GROUP PUBLISHER **Stacey Levy**
650-238-2319, slevy@futureus.com
ASSOCIATE PUBLISHER **Rob Smith**
650-238-2503, rsmith@futureus.com
WESTERN AD DIRECTOR **Dave Lynn**
949-360-4443, dlynn@futureus.com
WESTERN AD MANAGER **Gabe Rogol**
650-238-2409, grogol@futureus.com
EASTERN AD MANAGER **Larry Presser**
646-723-5459, lpresser@futureus.com
EXECUTIVE DIRECTOR, GAMES GROUP **David Cooper**
646-723-5447, dcooper@futureus.com
ADVERTISING DIRECTOR, GAMES GROUP **Nate Hunt**
646-723-5416, hneal@futureus.com
ADVERTISING COORDINATOR **Jose Urrutia**
650-238-2498, jurrutia@futureus.com
SENIOR MARKETING MANAGER **Alison McCreery**
MARKETING COORDINATOR **Michael Basilio**

PRODUCTION
PRODUCTION DIRECTOR **Richie Lesovoy**
PRODUCTION COORDINATOR **Dan Mallory**

CIRCULATION
CIRCULATION DIRECTOR **Peter Kelly**
NEWSSTAND MANAGER **Elliott Kiger**
NEWSSTAND COORDINATOR **Alex Guzman**
INTERNET SUBSCRIPTION MARKETING MANAGER **Betsy Wong**
PRINT ORDER COORDINATOR **Heidi Hapin**

FUTURE US, INC
4000 Shoreline Court, Suite 400, South San Francisco, CA 94080
www.futureus-inc.com

PRESIDENT **Jonathan Simpson-Bint**
VICE PRESIDENT/COO **Tom Valentino**
CFO **John Sutton**
GENERAL COUNSEL **Charles Schug**
PUBLISHING DIRECTOR/GAMES **Simon Whitcombe**
PUBLISHING DIRECTOR/BUSINESS DEVELOPMENT **Dave Barrow**
EDITORIAL DIRECTOR/TECHNOLOGY **Jon Phillips**
EDITORIAL DIRECTOR/MUSIC **Brad Tolinski**
DIRECTOR OF CENTRAL SERVICES **Nancy Durlester**
PRODUCTION DIRECTOR **Richie Lesovoy**

Future
MEDIA WITH PASSION

Future US, Inc. is part of Future plc. Future produces carefully targeted special-interest magazines, websites and events for people who share a passion. We aim to satisfy that passion by creating titles offering value for money, reliable information, smart buying advice and which are a pleasure to read or visit. Today we publish more than 150 magazines, 65 websites and a growing number of events in the US, UK, France and Italy. Over 100 international editions of our magazines are also published in 30 other countries across the world.

Future plc is a public company quoted on the London Stock Exchange (symbol: FUTR).

FUTURE plc
30 Monmouth St., Bath, Avon, BA1 2BW, England
www.futureplc.com
Tel +44 1225 442244

NON-EXECUTIVE CHAIRMAN: **Roger Parry**
CHIEF EXECUTIVE: **Stevie Spring**
GROUP FINANCE DIRECTOR: **John Bowman**
Tel +44 1225 442244
www.futureplc.com

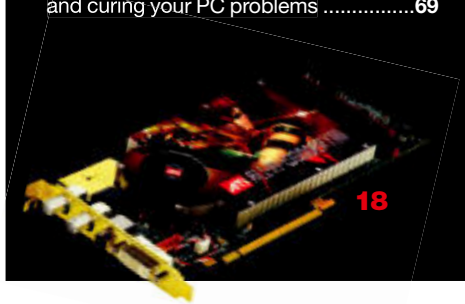
REPRINTS: For reprints, contact Ryan Derfler, Reprint Operations Specialist, 717.399.1900 ext. 167
or email: futurenetworkusa@reprintbuyer.com

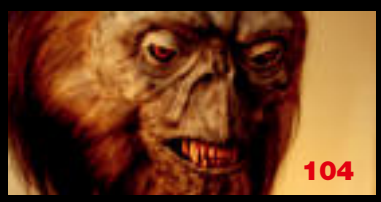
SUBSCRIPTION QUERIES: Please email customerservice@maximumpc.com or call customer service toll-free at 800.274.3421

Maximum PC ISSN: 1522-4279

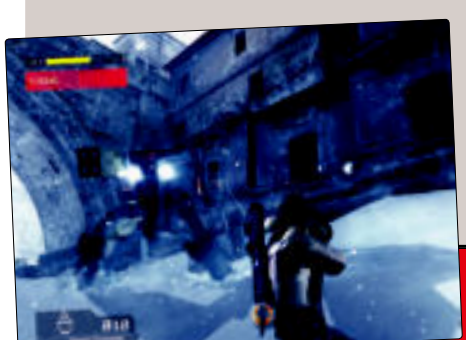
Contents

Departments





Reviews



Gaming

Net Radio on the Brink

New royalty rates threaten to shut down many Internet radio websites

Features unique to online radio, such as customizable stations and music recommendations, will not be sustainable under new royalty rates.

In March of this year, the Copyright Royalty Board—a group comprised of three U.S. copyright royalty judges—established new royalty rates for the broadcast of music over the Internet. Its proposal, which was finalized after reviewing several thousand pages of testimony, would require commercial webcasters to pay a retroactive rate of .08 cents per song, per listener, which would increase annually to .19 cents a song by 2010. While it's conceivable that large webcasts such as Yahoo's LAUNCHcast and AOL Music could survive the price hike, it puts the fate of independent broadcasters in jeopardy. Popular indie site Pandora.com, for example, would effectively be shut out of business if forced to pay the new rates, which are triple what it currently pays.

The SaveNetRadio coalition is working with congressmen like Jay Inslee of Washington to pass the Internet Radio Equality Act.

Since the CRB's ruling, webcasters large and small have united in the SaveNetRadio campaign to reverse the board's decision. Their primary negotiations have been with SoundExchange, a nonprofit corporation that collects royalties and then distributes them to artists, record companies, and copyright holders. In a press release issued by SoundExchange, John Simpson, the company's director, stated, "While we want Internet radio to succeed, it is only fair that artists be compensated for the value of their work, which forms the basis of their business." But under the CRB ruling, U.S.-based webcasters would be the only music broadcasters required to pay a per-song rate. Other music outlets, such as satellite radio, pay fees that are calculated as a percentage of their revenue, while terrestrial stations pay no performance royalties at all (although online streams of their broadcasts would be affected).

At press time, discussions between both parties have progressed, but no compromise satisfying all sides has been reached. SoundExchange has granted a stay on the new rates, which were to go into effect on July 16. According to Tim Westergren, founder of Pandora.com, "We are currently in a phase of 'supervised negotiations,' following the direct intervention of a number of congressional allies." Pandora, along with other webcasters, has urged its listeners to pressure their congressional representatives to address the issue, resulting in the proposed Internet Radio Equality Act. More than 130 members of congress have sponsored the bill, which would return the industry to a percentage-of-revenue-based model. "The ideal compromise is a rate that allows webcasting to grow, while fairly compensating artists. This rate should also reflect some level of parity with other forms of radio," says Westergren.

At the end of the day, there's no guarantee that negotiations will yield an agreement that won't put some webcasters out of business to meet the monetary demands of music labels. Fans of Internet radio should contact their congressional representatives and ask them to take notice of the situation. Making your voice heard will go a long way toward ensuring that Internet radio survives.

Will the Net Be Neutral or Not?

A Federal Trade Commission report dated June 27 entitled "Broadband Connectivity Competition Policy" dismisses the need for net neutrality, saying there is no evidence of preferential treatment of certain data by broadband providers. The report suggests that the market is capable of determining what's best for consumers (an interesting conclusion, considering how far the U.S.'s telecom-dominated broadband market lags behind the rest of the developed world) and that it's too early to tell what effect priority delivery for certain content would have on low-priority content.

But that's hardly the final word. The Federal Communications Commission (which is also looking into the matter) received nearly 27,000 responses to its notice of inquiry—an invitation for public comment on this particular issue. Senators, consumer-interest groups, and, of course, the MPAA and RIAA all had something to say on the matter. Consumer advocates are worried that if net neutrality laws aren't enacted, the telecoms will be able to charge for priority or guaranteed delivery, or throttle certain types of bandwidth-intensive traffic (BitTorrent, P2P, video) unless consumers pay for tiered access.

The MPAA, for its part, wants to make sure that net neutrality "does not interfere with the efforts of broadband companies and content providers to solve the problem of freeloading." The organization offers no specifics on how net neutrality laws would encourage piracy or how a non-neutral net would curb it; the MPAA seems merely to want to make its interests known. Meanwhile, the debate rages on.

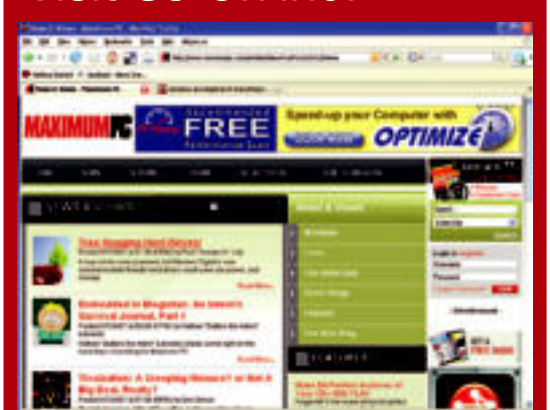
Firefox Closes in on IE

Nowhere is Internet Explorer's weakening hold on the browser market more apparent than in Europe. French research firm XiTi Monitor reports that 28 percent of the continent's web surfers now use Firefox, up from 21 percent last year. In some countries—Slovenia, Slovakia, and Finland—use of the alternative web browser exceeds 40 percent.

Wal-Mart Sells Sub-$300 PC

America's largest mega-merchant is now offering a fully outfitted computer for a mere $298. Wal-Mart's Everex Impact GC3502 won't win any performance contests with its 1.5GHz VIA C7 CPU and integrated graphics, but those parts along with 1GB of RAM, a DVD burner, an 80GB hard drive, and Windows Vista Basic suffice for all standard computing tasks. Most noteworthy, however, is the inclusion of OpenOffice.org's open-source office suite and the complete absence of crapware.

Visit Us Online!



Get your geek on anytime the urge strikes! MaximumPC.com provides a daily dose of technology news, reviews, and commentary. The website is also home to our weekly No BS Podcast, in which the magazine's editors and guests talk off the cuff about issues affecting computer enthusiasts.

TOM **HALFHILL**

Out-of-the-Box Experience

Recently I helped my brother get his first new home computer in eight years. (Geek genes don't run in our family.) Civil War General William T. Sherman said war is hell, but he never had to set up a new PC. My brother and I spent two days on the job—and this system was an off-the-shelf Acer with Windows Vista preinstalled. I've built PCs from scratch in less time.

What went wrong? Everything. We had trouble with the monitor, computer, printer, cable modem, optical drive, operating system, and even the blank DVDs and CDs we bought. Nothing was outright defective—replacements wouldn't have made a difference. No, our problems were mostly caused by poor instructions, crappy product design, maddening customer service, and clueless tech support.

Example: the LCD monitor. Out of the box, the screen tilted toward the floor. We couldn't straighten it and were reluctant to apply too much force. We couldn't find a lever that might release the spring tension. The instructions were as terse as a teenager's text messages, saying nothing about adjustments. We had purchased the system at Best Buy, so we called the Geek Squad. Incredibly, they told us the screen wasn't adjustable. Finally we reached a lowly salesperson who confirmed that brute force was OK.

Vista Premium was "preinstalled" on the hard drive, but it took nearly an hour to boot and configure itself during the first powerup. Heck, I remember when clean-installing Windows from floppy disks took less time. For hours afterward, Vista's pop-up dialogs nagged us for permission before allowing trivial actions. But when I accidentally bumped the hair-trigger power button on the computer's front panel, Vista promptly shut down the system without asking for confirmation.

Instructions for the Lexmark printer told us to install two ink cartridges. We searched the box in vain for the missing black-ink cartridge. Another call to Best Buy brought an admonition to read the fine print on the box: black cartridge not included. The instructions lied.

I could continue, but I'm running out of space, and you get the idea. Doesn't anyone care about customers anymore? I bet it will be eight more years before my brother buys another PC. And I don't blame him.

Tom Halfhill was formerly a senior editor for Byte magazine and is now an analyst for Microprocessor Report.

GAME THEORY

THOMAS MCDONALD

The Wii Effect

Nintendo is justifiably cocky about the cross-market success of the Wii, but does this mean anything for gamers as a whole and PC gamers in particular? Is Nintendo's claim of driving a 69 percent growth in the gaming industry for real or mere bluster?

There is absolutely no question that the Wii has an appeal that crosses generations, markets, and demographics. Yet the games with the most newb appeal are not what we'd call "gamer games" but rather simple pick-up-and-play titles like Wii Sports. Predicting some kind of ripple effect that will wash across the entire industry assumes that a) the Wii is more than a mere fad and b) its unique control and design elements will have an effect on other platforms.

We can dispense with the control element quickly, as far as the PC goes. Wii-style motion control is a nonstarter for the PC as long as it remains deskbound. Plenty of space and a very large screen are required for a Wii-mote to work, and until people get more comfortable running their PCs through their TVs, this just isn't going to happen.

Game design is more intriguing, since a strong element of the "Wii effect" is the device's ability to bridge the divide between hardcore and casual gamers. We can see a glimmer of this design potential on the Xbox 360, where the games Catan and Carcassonne (both from veteran PC developers) are near-perfect embodiments of the netherworld between casual and serious gamers. Both are deep and reminiscent of PC games but instantly accessible to nongamers.

In the end, it's not how the Wii will affect design on the PC, but what the Wii will do to the gaming market. Nintendo claims it's bringing millions of freshly minted newbs into the gaming fold (true) and that it can then challenge them with increasingly more complex, yet still accessible, designs (debatable). Essentially, the company claims to be building a new generation of hardcore gamers with the Wii as the "gateway drug" to bigger and better things, and all gamemakers will benefit. The success of this Wii effect is impossible to predict right now, but the vision is certainly appealing, and the technology is clearly in place to make it happen.

Thomas L. McDonald has been covering games for 17 years. He is editor-at-large of Games Magazine.

MiJam Wassup

The Wassup (is it a blind bunny, or an egg with ears and legs?) is supposed to dance, spin, and flash its LEDs to the tune of your iPod's music playing on its scratchy-sounding monophonic speaker. But the only thing it did for us was spasm its way to the edge of our desk and fall off.

$25, www.b2stuf.com

Valve Drops the Other Shoe on PhysX

Id Software's John Carmack gave Ageia some physics action—namely, turbulence—when he told Bootdaily.com that he is "…not a believer in dedicated PPUs." It looks as though Valve isn't prepared to join the PhysX faithful, either.

"Physics routines such as those in Half-Life 2 were achieved in 2004 on millions of non-PPU-enabled PCs," said Valve's director of marketing, Doug Lombardi. "Multicore CPUs open the door for advanced AI, advanced physics, and more. It's going to require something truly wicked and only possible on a PPU to move customers and developers."

Ageia's arguments for PhysX dovetail nicely with Lombardi's latter comment. As Ageia's VP of marketing, Michael Steel, argues, physics acceleration requires "…hardware that is massively multicore; high amounts of floating-point throughput; highly independent processing to handle the irregular nature of physics, which GPUs don't have; and high amounts of memory bandwidth, which CPUs don't have."

In the end, however, it may be the installed base that matters. As Lombardi puts it, "There's a bigger question mark with respect to adoption rate, and that has a real-world impact on how many games will support these PPUs. We all hate cliché's, but it's the chicken-or-the-egg problem." For more details see Michael Brown's blog at **http://tinyurl.com/ysrw77**.

Google, Verizon Take Sides in Wireless Auction

A chunk of the electromagnetic spectrum is opening up, and everyone wants a piece

In January 2008 a 60MHz band within the 700MHz range—currently reserved for analog television signals—will be auctioned off by the FCC to the highest bidder. Consumer advocates are calling for an open-access policy, noting that the availability of this spectrum has the potential to allow nationwide wireless broadband access. It's a stance supported by at least one of the five FCC commissioners, as well as Google, which has pledged to bid at least $4.6 billion if the FCC commits to keeping the spectrum impartial to specific software and devices. Verizon, on the other hand, is opposed to such "regulation," preferring, naturally, that the market sort things out. AT&T supports keeping 22MHz of the spectrum open to all, but, of course, has its own ideas about what to do with the rest.

We tackle tough reader questions on...

✓My Book Workaround ✓Reliability Benchmarks ✓Dream Machine Power

OLD MR. RELIABLE

Having enjoyed reading the magazine for many years now, I have to say that I like some of the changes you guys have made to the reviews. The reliability test you have been running has been a nice addition. I would like to see that become an official benchmark with a pass/fail value. With the increasing prices of the computers you review, its nice to see them being evaluated on more than performance alone. In a recent review, a nearly $7,000 computer, the Digital Storm Twister Ultra 4 (July 2007) was talked about like it was a bargain when compared to a Falcon Mach V. It might be cheaper than the Mach V, but I wouldn't consider it a bargain. I know that performance is considered above all else, but how about reviewing some computers that are a little more affordable?

I have also been wondering how well your benchmark results can be applied to similar configurations when using other software. Is the Premiere score able to suggest how a computer would work with MyDVD? Are the benchmark scores the only thing considered when evaluating a videocard? Almost all new cards can produce frame rates higher than what our eyes can see, so is the quality of the video produced taken into account?

—Travis Sturm

SENIOR EDITOR GORDON MAH UNG RESPONDS: One of the stress tests that we have used, ProShow Producer, will be rolled out as an official benchmark when we update our test suite. Unfortunately, the price for performance can get pretty high when CPUs cost $1,200 and SLI videocards are $1,600. I should also point out that we just recently did a system roundup of $2,500 PCs (December 2006).

Concerning extrapolating our benchmark scores for performance with other apps, I haven't

CUTCOPYPASTE

Our review of iAsus Concepts's Mobile Amp incorrectly identified iAsus Concepts as being a division of Asus. The company is neither a subsidiary nor an affiliate of Asus. We regret the error.

In our review of Halo 2 for Vista, we inadvertently listed November 2005 as the release date for the Xbox version of the game. The game was released in November 2004.

Speeding up the My Book

I applaud you guys on the excellent coverage of most new hardware. However, I have to disagree with your verdict on the My Book World Edition II NAS enclosure in the August issue. After you recommended the device in the "Awesome Upgrades" article (June 2007), I bought one.

I also ran into an issue with the proprietary software causing sluggish response on my system. However, I discovered a fix. After you initially set up the enclosure and create an Administrator account, you don't need the software installed on your system to access the drive! Just make sure to write down the extended user name and password provided during the initial setup process and you're set.

From that point, all you have to do is log in to the drive's maintenance web application, change the drive to use a static IP address, and access it through your network places on your system. When accessed through network places, you should see the drive ID listed; once double-clicked it prompts you for a user name and password. Enter the user name and password and you're now free of the software! Bypassing the annoying software really speeds things up but still allows the functionality of accessing the drive from the MioNet website if you so desire. The only drawback is that I have not been able to set up the drive for remote access while bypassing the MioNet website without remotely accessing my system first.

—Thomas Heine

ASSOCIATE EDITOR DAVE MURPHY RESPONDS: Good point, Thomas. You can indeed use the My Book as a network box sans the MioNet software. However, part of the as-shipped condition of the drive is the implicit understanding that most users will undoubtedly install MioNet to configure the drive. We try to review products based on what a typical user would do, and while your workaround is an awesome solution, we think that most users will be affected by the drive's horrible MioNet-based speeds. Consequently, we find it hard to give a positive review to a drive that instructs you to install such a performance-degrading piece of software.

used MyDVD in some time, but the scores from Recode 2 and Premiere Pro would probably be reasonably consistent with those from other video encoding and editing applications. Finally, frame rates aren't the only thing that applies to a graphics card. Video decode quality also counts (see our stand-alone videocard reviews for our take on video decode quality).

SERVER TRANSFORMER

Is there any way to turn a server into a desktop computer? I ask because the opportunity to get some high-speed servers very cheaply has come my way. They have either eight 2.8GHz parallel processors or four 3.2GHz parallel processors and between 4GB and 6GB of RAM.

Could I stick a videocard and soundcard into such a machine and make a half-decent PC out of it? I don't want to spend much money, and I figure this would be cheaper than upgrading my PC if it would work.

—Max

SENIOR EDITOR GORDON MAH UNG RESPONDS: You could do it, but there are a few sticking points that may make it inadvisable. The first is noise. Servers are typically locked up in air-conditioned rooms and pack the shrillest fans you've ever heard. If you want to save power, an eight-CPU server is not the answer either. Finally, the OS will be an issue. Windows XP Pro limits you to two physical processors, as do all versions of Vista, (save for Vista Home Basic, which limits you to one CPU). To run the eight-proc box, you'll need Windows 2003 Server Enterprise SP2; to run the four-proc machine, the standard SP2 version is fine. However, getting games to run on Windows 2003 Server will be a challenge. So, converting a server into a general-use desktop machine? I wouldn't do it. However, being a hardware hoarder, I'd probably still jump on one of those eight-proc machines just for kicks.

QUICKTIME EQUALS ICKTIME

When will you drop the horrible QuickTime encoding from the discs? I want to copy the freebie programs onto a hard drive, and having to carry around 100 frappin' DVDs whenever I'm called to fix somebody's computer is a real deal-breaker.

—James Delashmit

ASSOCIATE EDITOR DAVE MURPHY RESPONDS: If the movies on the monthly CDs are driving you insane, you can access the disc's contents directly using Windows Explorer. Click the CD icon, then click the Assets folder, and open up the Data folder. You should be able to figure out which files correspond with the programs you want.

IS IT SLEEPY-TIME ALREADY?

Just wanted to say thanks for the great article on configuring computers to use S3 sleep mode rather than S1. I used to let my computer run 24/7, so I always had access to files on it over my wireless network and so that it would sync up with my laptop. I'd say that single article paid for my subscription several times over.

—Dan Olson

DREAM MACHINE POWER

It seems that you have another winner with this year's Dream Machine (September 2007).

However, the article didn't mention how many watts or amps the total system requires when operating at 100 percent. I was wondering how much it costs to operate such a powerful machine and if the average home user would need a dedicated circuit to run it. But then again, if you could afford the total package price, you probably wouldn't flinch when your utility bill arrived parcel post.

—Bradford Hinkle

SENIOR EDITOR GORDON MAH UNG RESPONDS: Fortunately, Dream Machine 2007 consumes far less power than a hair dryer or microwave. Unfortunately, you don't run your hair dryer or microwave for hours on end. At the socket, the Dream Machine consumed between 400 watts and 650 watts, depending on the load. That's just the box proper, not including the monitors and speakers, so expect to add another 400 watts to be safe. In most modern homes, you shouldn't need a dedicated circuit to run the Dream Machine. At the same time, I would not want to plug it into a circuit also running any power-guzzling appliances. As to how much it costs to operate, that depends on your local rates. MPC

LETTERS POLICY: ***MAXIMUM PC*** invites your thoughts and comments. Send them to **input@maximumpc.com.** Please include your full name, town, and telephone number, and limit your letter to 300 words. Letters may be edited for space and clarity. Due to the vast amount of e-mail we receive, we cannot personally respond to each letter.

COMING NEXT MONTH IN MAXIMUMPC'S

LET'S TALK TURKEY

NOVEMBER ISSUE

HEAL AND INOCULATE YOUR PC

A rig that frequents the Internet is susceptible to all sorts of ills. Get your PC into tip-top shape with our complete guide to rooting out bugs and keeping your machine safe from future harm.

RAID DONE RIGHT

Redundant Array of Inexpensive Disks—you've heard of it, but do you know how to use a RAID to your advantage? We'll explore how multiple hard drives can work in tandem and which variables affect the success of a RAID setup.

WI-FI ROUTER ROUNDUP

The Wi-Fi Alliance has finally certified draft 802.11n hardware, but before you pick up a new router, read our complete buyers guide and reviews of the leading certified products.

Spin Precession and You

Researchers uncover the real culprit behind hard-drive data loss

How a hard drive works is no big secret. When the drive's magnetic head passes over the platter, it flips the polarity of an area on the disk to either a positive or a negative charge. But new research from the University of California, Santa Cruz and Hitachi Global Storage Technologies suggests that the jump isn't like flicking a light switch.

Physicists from the two institutions have shown that atoms on a hard drive's disk actually wobble as their direction of spin changes. This "spin precession" can affect the phase of neighboring atoms, similar to the ripple from a drop of water hitting a puddle. A chain-reaction of unintended phase changing leads to data loss.

Data loss becomes more common as a drive's capacity (and areal density) increases, but better magnetic dampening material can alleviate avalanche-like phase changing.

Data-nappers Demand Ransom

"If you want to see your music collection again, do not contact the police. Meet us on the Internet at midnight with $11." OK, that's a dramatic re-creation, but it's not far from the truth.

The latest trend in viruses has individuals trying to extort cash from unwitting computer users. The Trojan works by supposedly encrypting document files on an infected computer and deleting the originals. A "ransom" dialog box then asks for $10.99 to be sent via Western Union to have the files decrypted. Once every 30 minutes a random file will be deleted until the ransom is paid.

Fortunately, according to antivirus firm Kaspersky Lab, the new code, dubbed Ransom.A, is a bluff. Kaspersky Lab says while real ransomware has existed for some time, malware writers are now exploiting media exposure on the topic and trying to scare people into coughing up cash. No matter what, Kaspersky Lab advises, don't pay up.

Miro for the Masses

The free open-source video platform formerly known as Democracy Player gets a new name and some new and improved features

With Miro (www.getmiro.com), you can partake of more than 1,800 program channels, create your own video channel, or search and save from any other online video site, such as YouTube, Google Video, and blip.tv.

FUNSIZENEWS

GOOGLE AIDS AND ABETS

Two criminals may have overestimated their abilities when they plotted an after-hours heist of a Colorado Springs amusement center, but at least they understood the power of the Google when their plan went awry. After spending more than an hour trying to crack the center's safes, the burglars queried "how to crack a safe" on Google. The search was apparently successful; $12,000 was stolen and the burglars remain at large.

NOBEL LAUREATE PUBLISHES ONLINE

Elfriede Jelinek, author of *The Piano Teacher* and the 2004 recipient of the Nobel Prize in Literature is making her latest novel available for free online. The Austrian writer is agoraphobic and thus relies on the web for most of her social contact. Her affinity for the medium is behind her decision to publish her new work—"a mixture of blog and prose"—on the web as she writes it.

RIAA MUST PAY

After a three-year-long legal battle over copyright infringement (Capitol v. Foster), the RIAA is being forced to pay Debbie Foster $68,685.23 in attorneys' fees. In November 2004, the organization alleged that Foster's ISP account was used for music sharing and offered her a $5,000 settlement. Proclaiming her innocence, Foster refused; the case went to court but was later withdrawn by the RIAA. Now the org must pony up for Foster's legal expenses.

WINDOWS 7 ON THE WAY

With Vista barely yet a household name, Microsoft is already heralding the coming of Windows 7—the working title for the company's next major OS—with a target release date of 2010. According to company officials, Microsoft is now all about frequent OS releases: a significantly overhauled OS every four years, with minor updates falling in the interim years. The ultimate goal is to move users to an OS subscription model, thus "annualizing" software revenue.

GYROSCOPIC MICE

Gyration Universal Remote Control **vs.** Logitech MX Air

In a world measured in dots-per-inch, crazy lights, and truckloads of buttons, it comes as little surprise that the latest innovation in the fanciful land of computer mice removes the desk from the equation entirely. We've entered the gyroscopic era, a time when you can surf the web and play games from the comfort of your bed, if your bed is across the room from your PC, that is.

The devices in this competition, however, serve two different masters. Their underlying gyroscopic technologies are similar, but Gyration's Universal Remote Control is obviously designed for multipurpose living-room-style use. In contrast, the sleek Logitech MX Air looks like it fell off the *Star Trek* prop table and is actually a mouse/pointer hybrid, with the awesome ability to sense when it's being used on a flat surface or thrust about in the air.

Pitting the multibuttoned Universal Remote Control against the MX Air is a true test of features versus functionality. It's the ultimate gyroscopic showdown!

BY DAVID **MURPHY**

LOGITECH MX AIR
$150, www.logitech.com

round 1 ERGONOMICS

What do you do with mice? You hold them. Basic as it may sound, the ergonomics of a pointing peripheral is one of the most important aspects of the device. Even more so with gyroscopic mice, as you'll be doing a lot of gripping, clicking, waving, and gesturing as you go about accessing your computer from across the room.

The big-ass, bulky Gyration is mildly uncomfortable to hold for extended periods of time. The ever-comfy MX Air, however, feels as though it was built from a mold of your hand. It's perfectly designed for maximum happiness in both normal-mouse and airborne-pointer mode. The buttons are easy to access and offer soft backlighting—perfect when you're trying to pause movies in the dark.

WINNER: LOGITECH MX AIR

round 2 GAMING

Trying to run through an Unreal 2004 deathmatch with

on the merry-go-round from hell. Looking around while running through levels is simply too difficult to do when the mouse isn't confined to a flat surface.

We could perform reasonably well in a bot match with the MX Air. It's tough to use both buttons in rapid succession, but manipulating the scroll "wheel" is as easy as using a typical wired mouse. And if you need extra control, just slap the MX Air on a table and it will instantly revert to "standard mouse mode."

Using the Gyration to frag is but one word: impossible. You have to double-tap a button to put the remote into "constant mouse mode," but it doesn't always stay in that mode—not cool when the rockets are flying your way.

WINNER: LOGITECH MX AIR

round 3

CUSTOMIZABILITY

Gyration's Universal Remote Control is the WYSIWYG of input devices—you can't change a single element of the interface. It can learn functions from your other remote controls, but that's absolutely meaningless for a PC user. In fact, the Gyration device doesn't even come with a CD! No drivers, no software, no anything.

The MX Air's configuration utility is absolutely wonderful by comparison. You can assign a multitude of actions and options to the device's six configurable buttons. Taking it one step further, the MX Air even lets you customize button profiles for individual programs. And we love the handy taskbar-like menu you can pull up with the device; it's great for selecting programs from a distance away.

WINNER: LOGITECH MX AIR

GYRATION UNIVERSAL REMOTE CONTROL
$150, www.gyration.com

round 4

PRECISION

We didn't set up a target and have *Wild Wild West*–style aiming tests with these pointers. But we did test their range using a highly scientific "walk down the hall and wave your arm" test, and both devices dropped out at about 30 feet.

We found that the Logitech MX Air was typically more responsive and less jittery than the Gyration device during daily use. Adjusting speed and acceleration using Windows's built-in mouse configuration panel helped the Gyration's responsiveness a little bit, but it simply can't compete with MX Air's software utility.

Worse still, the Gyration's mouse pointer frequently veered to the left on its own, and achieving picture-perfect accuracy with it was a hit-and-miss affair.

WINNER: LOGITECH MX AIR

round 5

FUNCTIONALITY

What a bummer. We thought this would be the one category in which the Gyration mouse would surely put up a fight. It's hard for a mouse with three buttons to compete against a freakin' remote control, after all. The Gyration can control your TV, your cable box, and your PC, although it's specifically designed to work with Windows Media Center (and is touted as "Vista-ready").

These features look great on paper, but we found that the Gyration, in fact, does *not* work with Vista. We followed the instructions to the letter (plug in the USB transmitter, use remote), but no amount of cajoling could get Media Center to pop up and the media-friendly buttons wouldn't work properly.

WINNER: LOGITECH MX AIR

And the Winner Is...

For those playing the home version of this month's Head2Head, the final score is five for the Logitech MX Air and zero for the Gyration Universal Remote Control. We've given good reviews to Gyration's standalone mice, but this remote just isn't up to par.

The Logitech can do just about everything the Gyration can do. Granted, you can't use the MX Air to control your television, but we'd much rather have a mouse that can be used for any computing task whatsoever and *still* function as an acceptable couch-surfing controller. You don't even need half the buttons on the Gyration remote, considering most of its button-based options are point-and-clickable within Media Center itself.

Nothing beats a remote control for your entertainment center; however, Gyration got greedy and tried to cram too much into a single device. MPC

Millie, ***watchdog of the month***

Our consumer advocate investigates...

✓Microtek's Dead Bulbs ✓Intel's Quad Erratum ✓Why the All-in-Wonder Won't Work

THE BULB'S DEAD, AND SO IS MICROTEK'S SERVICE

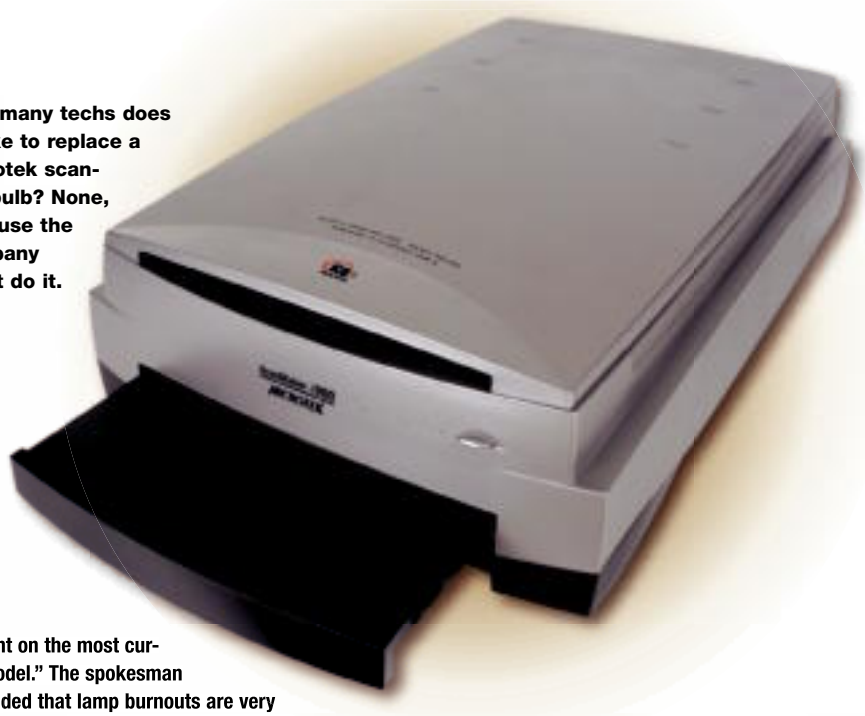
I purchased a Microtek I900 scanner in July 2005 for more than $500. One of the scanning lamps recently burned out, so I contacted Microtek to have it serviced but was told that the company does not replace bulbs because it does not have a service facility in the United States. The only option I was given was to pay $250 to have the scanner replaced with the same model. And that replacement would have only a 60-day warranty. This response is not acceptable. I feel that the public should be made aware of this company and its policies.

— Robert Belin

The Dog spoke with a Microtek representative who said the company understands Robert's frustration but that the policy is fair considering the rather poor outlook on the scanner market these days. He said lamp burnouts are rare but can happen, depending on use.

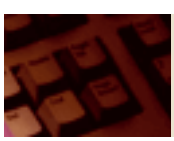
When the Taiwan-based Microtek decided to spin off its U.S. entity, it also jettisoned its service center. For a scanner to be repaired, it would have to be shipped back to the factory in China. It is simply cheaper for the company to replace a defective unit with another unit. The spokesman said the cost of the replacement depends on how old the scanner is. If it is under warranty, the cost is covered by Microtek. For a unit that is one year out of warranty, the price is $250. If it is two years out of warranty, the cost increases further. The spokesman did apologize for the situation and said, "I understand [his] dissatisfaction, and it is totally reasonable to be dissatisfied." However, the spokesman said he believed that the policy was in line with Microtek's competitors' as well.

The Dog checked with Canon to see if that's true. Surprisingly, it is. A Canon spokesman said in-warranty units are exchanged immediately with a new product. "If they are outside of warranty, customers can call the call center or visit a service facility and take part in the loyalty program. The loyalty program will give them a discount on the most current model." The spokesman also added that lamp burnouts are very rare, and with Canon's move to LED lighting, the char



How many techs does it take to replace a Microtek scanner bulb? None, because the company won't do it.

Canon's scanners, however, don't quite play in the same expensive playground as some of Microtek's devices. To see how Epson handles scanner repairs, the Dog called the company's support number, claiming he had an Epson 4990 Perfection Photo that he bought two years ago for $500 (a similar price and vintage as Robert's Microtek unit). The tech said that no parts were available from Epson for the end user and the company would not repair it, but repairs were available through approved third parties. When the Dog contacted a local service facility, CompuTronix in Emeryville, CA, a tech said it would cost $45 for a diagnosis to determine what was wrong with the scanner. Parts and labor would then be calculated into the total (with the $45 being prorated into the bill). Without seeing the unit and finding out what exactly was wrong, he said he could not give an estimate on bulb replacement. But the CompuTronix tech did say that while the scanner *could* be repaired, that might not be a wise move. The tech explained that sometimes it's cheaper to buy a new device that has a full warranty and



Got a bone to pick with a vendor? Been spiked by a fly-by-night operation? Sic the Dog on them by writing **watchdog@maximumpc.com.** The Dog promises to answer as many letters as possible, but only has four paws to work with.

ALL IN BLUNDER

I built my computer about a year and a half ago, finally upgrading to Windows XP from Windows 98. The graphics card I chose was the then-new ATI All-in-Wonder 1800XL Pro. I recently found a great deal on Vista Home Premium from a company going out of business (yes, it's legal and legit).

I checked to see if all my hardware was compatible; the only part that was questionable was the videocard. Now here's the bad news: AMD/ATI's website states that there is no software application that enables TV-tuner functionality. I thought this just meant no ATI Multimedia Center software and assumed the hardware was still there and the new drivers would enable the TV tuner with Microsoft Media Center. Wrong!

I called ATI support and was told that the company is discontinuing its All-in-Wonder cards, the cards are not supported in Windows Vista, and I would have to buy a separate TV card.

I love the idea of having all the functions in one slot, and I can live with ATI's decision to discontinue it, but come on, no support for a product that is only a year and a half old? ATI knew Vista was coming soon.

Tuner functionality in the All-in-Wonder series was broken by Microsoft Vista, not ATI.

And the company had the gall to tell me to go back and buy another product that I basically already own? For now I'm going back to XP, which is not an easy task.

Please bark up the ATI tree (I already did) to get it to change its website notice, make WDM drivers to support its current products for Vista, and maybe offer rebates or discounts because of the lack of product support.

— Scott Schwarz

The Dog had a lengthy discussion with AMD/ATI officials about the situation, as it seems perfectly reasonable to support a year-and-a-half-old product with Windows Vista drivers. But the answer is a bit more complicated than you would expect. AMD officials told the Dog that the problem is not a simple driver rewrite—it's a problem with how the All-in-Wonder is designed. The capture and tuner drivers operate as child drivers of the main display driver. Under the driver rules in Windows XP that's fine. However, in Windows Vista, when the child driver tries to allocate a 3D space, it is unable to because Windows Vista doesn't give child drivers that capability. "We have looked for a workaround but have not been able to find one," the spokesman said. Not all is lost though. The spokesman said that AMD recently certified SnapStream's Beyond TV (www.snapstream.com) as a solution for All-in-Wonder cards under Windows Vista. AMD was also in the process of certifying Arcsoft's TotalMedia 3 (www.arcsoft.com) as well. The reason those two applications do function with the All-in-Wonder while Media Center does not is because the pair of applications do not run as a service, officials said. The company said support for the tuner was intentionally discontinued when it was unable to find a workaround for the problem with Windows Vista. Officials also wanted to point out that the 2D and 3D functionality of the card does work and is supported with drivers. What about rebates or some way for AIW owners to get a break on Beyond TV or TotalMedia 3? You have a better chance of getting money out of a pyramid scheme. Woof.

ERRATUM TO THE CORE

Dog, I tried contacting Intel about an erratum in its Core 2 Duo and Core 2 Extreme CPUs but could not get a response. The Erratum is called AK39 and says: "AK39. Cache Data Access Request from One Core Hitting a Modified Line in the L1 Data Cache of the Other Core May Cause Unpredictable System Behavior. Problem: When request for data from Core 1 results in a L1 cache miss, the request is sent to the L2 cache. If this request hits a modified line in the L1 data cache of Core 2, certain internal conditions may cause incorrect data to be returned to the Core 1."

Intel says an erratum on its quad-core CPUs will not impact performance.

Intel says the fix is a BIOS workaround. But I want to know if the BIOS workaround affects performance. I don't see how it couldn't. I also want to know when a fixed stepping is expected?

— David Galbi

The Dog queried his contact at Intel, who tersely said that the workaround did not cause a performance hit. The spokesperson also said that the company does not comment on stepping releases, so the Dog can't provide the scoop on that topic. Is Intel telling the truth about the BIOS fix? Probably. Intel and AMD (as well as Nvidia and ATI) are very closely watched companies. If a BIOS workaround had any noticeable performance impact on a CPU, people would bark. Heck, people howled to the moon about the minor L2 cache changes in the 65nm Athlon 64 that slowed things down by a tiny margin in only a few benchmarks, so the Dog believes that testing would have revealed a problem by now. The Dog should also point out that if Intel were trying to hide such a flaw, it probably would not publish it as a known erratum on a document that it distributes to the public and its hardware partners. MPC

11 GAMES THAT WILL PUNISH YOUR PC

DirectX 10 games are finally here, and they're all that we've been waiting for. But even the upcoming games using older tech look gorgeous. Here's the scoop on this year's latest and greatest titles

BY WILL SMITH

Never has there been a better time to be a PC gamer. This year's crop of games delivers all the pulse-pounding action we've come to crave beneath a candy shell of glorious graphics—the likes of which we've never seen before. Leading the graphics charge is a bevy of DirectX 10 titles that will stress a system to its limits, and the promises long made by proponents of the Games for Windows initiative are finally starting to show fruit.

What's more, even DirectX 9–level titles are taking advantage of the prodigious power available in today's high-end graphics cards to deliver experiences that look better than we ever thought DirectX 9 capable of.

So, to all console ever-lovin' folk who are claiming for the *nth* time that PC gaming is dead, we say, "Shut your pie holes!" We can't wait to kick back in our office chair, embrace our mouse and keyboard, and get our game on!

SUBAQUATIC STEAMPUNK

BIOSHOCK

Brilliant game graphics aren't only about technology, they're also about artful design. Bioshock serves up a bucketful of both. This first-person role-playing game puts you in the middle of a disaster in an undersea utopia run by—who else?—an out-of-control megalomaniac.

In addition to traditional FPS-style weapons, you'll also gain the use of special powers, which let you manipulate the elements to freeze or ignite objects (or people), alter the environment in other ways, and even set elaborate Rube Goldberg–style traps.

But the game would be just a fancy sandbox without its cohesive steampunk set design and profoundly disturbing story line. When you factor in support for DirectX 10, Bioshock becomes a must-have title.

LET'S TAKE IT NUCLEAR

WORLD IN CONFLICT

Imagine that the Cold War never ended—instead it actually caught fire. That's the scenario facing you in World in Conflict. Russian tanks are rolling across Europe, and it's your job to stop them in their tracks.

Instead of utilizing the traditional two-phase combat system—build your base, then attack the bad guys—World in Conflict does away with the first part of the equation and has you jumping straight into blowing up Commies. Unlike most real-time strategy titles, World in Conflict includes some super-high-end graphical effects, including volumetric fog that swirls around your vehicles, destructible buildings and environments, and real-time lighting.

You won't want to play World in Conflict from a satellite-high perspective, lest you miss any of the game's glorious detail.

DEMONIC DESTRUCTION

HELLGATE: LONDON

Flagship's first game is the spiritual successor and follow-up to Blizzard's seminal Diablo series. It's not Diablo III, but it's made by the same folks that made Diablo. Hellgate pits you against demons in near-future London, a setting that won't just challenge your skills, but also dazzle your eyes.

The game plays very differently depending on the faction you choose. The Cabalist and Templar fill the standard RPG ranged and melee archetypes. But when you play as a Hunter, you'll play the game from the first person perspective with traditional RPG elements—and utilize your twitch skills.

Naturally, Hellgate will turn on the eye candy too. We know that the game will support DirectX 10, but the graphical wizards at Flagship haven't announced what they'll be using it for, yet.

NOW WITH BAZOOKAS!

BROTHERS IN ARMS: HELL'S HIGHWAY

Welcome to Operation Market Garden, gentlemen. Our favorite tactical World War II shooter returns with a trip to Monty's folly powered by a spiffy new version of the Unreal Engine and a cargo plane full of new features.

Hell's Highway implements a much more realistic cover system. You duck behind an object, pop out to shoot, then duck back down before Jerry draws a bead on you. The only problem with this approach is that the game has a real materials engine, and much of the cover will get chewed up under a constant barrage of fire. Destructible cover sounds like fun, but it's a double-edged sword—you can tear up the Germans' cover, but they can do the same to you!

WE WERE TIRED OF KILLING NAZIS TOO

CALL OF DUTY 4: MODERN COMBAT

Let's face it, by now most gamers have been fighting World War II longer than the war actually lasted. We've killed more virtual Nazis than ever existed. So Infinity Ward's decision to move beyond WWII is a welcome respite.

Call of Duty 4 is set in a hypothetical conflict in the former Soviet bloc. You can expect a heaping helping of small-squad action across a wide variety of terrain types—we've seen missions in burnt-out towns, grassy savannahs, and even forested hillsides.

The amazing thing is that Call of Duty 4 is a DirectX 9 game, eschewing support for DirectX 10's bells and whistles for higher frame rates and still-unbelievable graphics in the legacy API.

CROWD SURFER

ASSASSIN'S CREED

You take a contract, find your target, and kill him. It's that simple. Except it's not. Instead of another modern-day version of Hitman, Ubisoft: Montreal has created a medieval Agent 47 who makes his way through the sandbox that is Crusades-era Jerusalem.

The catch is that you're a free-running assassin, and your biggest problem isn't the mark firing arrows at you or the town constabulary, but rather the thronging crowd filled with beggars, merchants, and other townsfolk. How do you catch your target without drawing too much attention to yourself? Simple, you get off the streets and instead climb walls, swing from scaffolds, and dance across rooftops. Unlike Prince of Persia, in which your wall-walking is limited to specific areas, in Assassin's Creed, if you can see it, you can climb it.

HALF-LIFE 2 BY ANY OTHER NAME

THE ORANGE BOX

Valve calls its latest addition to the Half-Life series The Orange Box, but we call it freaking awesome. With the newly updated Source engine—now with better graphics, courtesy of increased system requirements at the shallow end of the pool—Gordon Freeman and Alyx have never looked better.

By ditching support for legacy DirectX 8 graphics cards, Valve opened the door for a much better looking Half-Life that is superior to both Episode 1 and Lost Coast.

Battling the pack AI of the new hunters is well and good, but we're nearly as excited about the hot puzzle action that Portal promises, and certain editors are actively lusting over Team Fortress 2.

AUSTIN POWERS—THE GAME
THE AGENCY

Sony Online's crazy concept MMO, The Agency, puts you in charge of a top-secret spy agency dedicated to protecting the world from standard-issue megalomaniacs. The Agency is impressive for more than its clever game design and highly stylized art direction.

You see, the game progresses even when you're not logged in. If you set your science branch to design a new type of weapon, gadget, or car, the research will happen whether you're logged on or not. When the gizmo's ready for you to test, you'll get an email or text message with the good news.

The in-game combat is particularly interesting, with many varied missions. The one we saw was reminiscent of an old-fashioned dungeon crawl. First, you fight your way through the goons, then you rescue the person who needs rescuing, and then you track down the big boss.

OVER-THE-TOP ACTION
GEARS OF WAR

Something not so subtle happens to our pleasure centers when we lovingly apply chain saw to skull in order to finish off a deathmatch foe. Gears of War on the PC adds a whole new chapter to the single-player campaign and a handful of multiplayer maps to the Xbox 360 version.

In addition to new content, the team at Epic ratcheted up the texture resolution and removed some of the more annoying features (like depth-of-field blurring) for the PC version of Gears. But more than anything else, we're looking forward to the mission editor, which will let players create custom game types and play them with their pals using Games for Windows Live. That's something to get excited about.

DEATHMATCH FURY

UNREAL TOURNAMENT III

Sometimes games look good, sometimes they look great, and sometimes they look like Unreal Tournament III—un-freakin'-believable. Mega-high-poly models and glorious displacement-mapped surfaces deliver a shiny fascia over the raw deathmatch action that we all know and love, in full Unreal Engine III glory.

UT3 showcases what Epic's third-gen Unreal Engine is capable of. It features an all-new renderer and supports high-dynamic range, per-pixel lighting; physics acceleration; and a whole lot more.

We can't wait to register our first M-M-MONSTER KILL!

INTERVIEW!

CEVAT YERLI DISHES ABOUT CRYSIS

We sat down with Cevat Yerli, executive producer and director of Crysis to talk tech—specifically about the most beautiful game we've ever seen. Here's our exclusive chat with Yerli; we talk about DirectX 10, the problem with hardware physics, and shooting trees.

Maximum PC: Will there be obvious visual or performance differences for people running Crysis in DirectX 10 mode vs. DirectX 9 mode? Can you describe some of the differences people who've upgraded to Vista and DirectX 10 can expect to enjoy?

Yerli: The DirectX 9 version of Crysis will be the one for the bulk of current-generation PC gamers. It will feature the maximum fidelity you can achieve with DirectX 9 standards, alongside high dynamic range rendering, advanced skin and vegetation shaders, soft shadows, and more. In DirectX 10, however, you will experience a quality of Crysis that is deeper in lights and shadows and atmospherics and has a full-motion gameplay experience.

MPC: CryENGINE2 in general, and Crysis in particular, obviously utilizes physics-based gameplay. It's equally obvious that physics requires lots of processing horsepower. Where will the engine and the game look to get those processor cycles? What will be the best solution for gamers: A multicore CPU, a multiple-GPU rig with graphics running on one GPU and physics running on the other, or a dedicated physics processor?

Yerli: We are not supporting GPU or dedicated physics processors for a variety of reasons. The main one is that we did not want to change the core gameplay physics for our min-spec configurations. We have been optimizing our dynamics code for many years now, so it can run robust and as optimally as it can on CPUs of previous generations while also taking advantage of newer multicore architectures. So you are best equipped with a quad core (if you have the budget), but Crysis will do great on dual-core configurations as well.

MPC: As the game nears its release date, has the development team found it necessary to scale back any features in order to obtain reasonable performance on midrange hardware, with midrange being defined as an Intel Core Duo E6600 CPU (or AMD equivalent), 2GB of memory, and either a Radeon HD 2900 XT with 512MB of memory or a GeForce 8800 GTS with 640MB of memory.

Yerli: If that's midrange for you, then not at all! This spec is well within our plans. Most important to us is that we scale Crysis from a three-year-old configuration (by release date) to a current and next-gen configuration and take maximum performance from the available hardware. Our benchmark has been to compete for various generations of hardware alongside the generations of games shipped around them. For example, our min spec is competing with Far Cry, and that's over three-and-a-half years old.

MPC: Will Crysis be made available on Steam or another digital distribution source? Or will it follow the more traditional model of boxed-copy sales only?

Yerli: We are going to be available for digital distribution through the EA Link Service. We see only benefits in this model; it's our goal to serve the customer, and giving them choices is a great way to do that.

MPC: How many execution cores will the game support? What will you use the different cores for?

Yerli: Our multicore implementations encompass physics, AI, game logic, and particles and are balanced over two or four cores to take next-generational advantage. Of course, we also run on single-core highly optimized.

MPC: How will gameplay be affected by multicore? Will there be any noticeable differences for people with multicore systems, or just better performance?

Yerli: Nope, smoother and higher frame rates in simulation is the key here for us.

MPC: Will players be able to play Crysis in DirectX 10 mode on high-end hardware at high resolutions (1600x1200 or higher) using current-gen hardware (GeForce 8800 GTS and up, or Radeon 2900 series boards)?

Yerli: I believe in maximum settings you will run at 1280 resolutions, but to run even higher you need a better configuration. However, that is because we feature out-of-the-box future-proof technology and settings that will keep Crysis state-of-the-art looking even for the next next-generation hardware, allowing the PC gamer to take advantage of evolution!

MPC: Have you ever actually tried to shoot down a real tree? It's much harder than you guys make it look in the game!

Yerli: Hee hee, did you ever run into a camp and fight alone for survival? It's much harder in real life. :) Getting your point though! :) MPC

PHYSICS PHUN

CRYSIS

There's not much more that we can say about Crysis that hasn't already been said. Crysis was the first DirectX 10 game we saw that truly rocked us, and while it won't be the first DirectX 10 game to ship, it will definitely set the standard for both graphical goodness and environment interaction.

The thing about Crysis is that it's not just another pretty face. The game's nanosuit lets you play however you want—use stealth, brute force, amazing aim, or a combination of all three. The weapons are customizable: You can add scopes, stabilizers, and silencers to the arsenal that's available.

We've played precious little of Crysis so far, but the time we've spent has convinced us that it's a worthy successor to Far Cry.

ANOTHER MAXIMUM PC CHALLENGE

The $500 PC Build-Off

Hot on the heels of our annual Dream Machine—arguably the best hand-built rig that money can buy—two of our editors face a far more difficult undertaking: building a desktop system where money is an object and sacrifice is the name of the game.

Our intrepid staffers—Senior Editor Gordon Mah Ung and Associate Editor David Murphy—must navigate these unfamiliar waters with just $500 apiece. Let loose in a local electronics store, they'll be given just 90 minutes to choose all the parts they need (other than tools) to build their respective budget boxes. We're graciously allowing them to transfer a Windows XP license from a retired machine, so they can save some dough on the OS.

Assuming they survive the purchasing phase of the challenge, the editors will have a single afternoon in which to build their PCs, load the OS, and ensure their rigs' stability. Then it's on to the final phase: Each editor must benchmark and review his competitor's finished product.

There are so many opportunities for mishaps and mayhem that we can barely stand the suspense. Let's get started!

PHOTOGRAPHY BY SAMANTHA BERG & MARK MADEO

We challenge two *Maximum PC* editors to shop for and build a budget PC under brutal time constraints. Which rig benchmarks best? Which machine will reign supreme?

The 90-Minute Shopping Spree

Neither editor expected to use the full time allotted to them, but the vast selection of parts had both guys mentally mixing and matching possible configs, recalculating their price lists, and waiting on pokey sales clerks until the very last minute

GRAPHICS: With just three minutes left to grab a GPU and get to the checkout line, Gordon reached for a rock-bottom GeForce card, which actually offers DirectX 10 capability! His big worry is that DX10 support is nothing more than a checkbox feature, due to the budget card's low clock speeds.

CPU: Intel's budget Allendale CPU core features 2MB of L2 cache and an 800MHz front-side bus (down from the Conroe's 1,066MHz FSB). But it still rocks the Celeron D's world.

POWER SUPPLY: Gordon immediately thought, "Let's hope we don't have a burnout," when he considered running this bargain-bin system on the free 380-watt power supply that Raidmax includes with its case. But, hey, at least Gordon thought to buy a case....

GORDON'S PURCHASES

PART	PRICE
CPU: Intel Core 2 Duo E4300	$130
MOTHERBOARD: ECS P965T-A	$59.42
RAM: 1GB Crucial DDR2/667	$39.99
VIDEOCARD: EVGA e-GeForce 8500 GT	$113.99
HARD DRIVE: Maxtor	$49.99
OPTICAL DRIVE: (refurb) Hewlett-Packard DVD840ri	$24.99
CASE: Raidmax ATX528B	$39.99
MISCELLANEOUS: Ghirardelli chocolate bar	$2.99
SALES TAX (8.25%)	$37.82
Total	**$499.18**

DAVE'S PURCHASES

PART	PRICE
CPU: Intel Core 2 Duo E4300	$120.00
CPU COOLER: Cooler Master X Dream P775	$17.99
MOTHERBOARD: ~~ECS RC410L/800-M~~ ECS P4M900T-M	~~$47.40~~* $65.99
RAM: Kingston DDR2 1GB (2 x 512MB) PC5300	$54.99
VIDEOCARD: EVGA GeForce 7600GS	$99.99
HARD DRIVE: Maxtor 200GB 6L200MO SATA	$49.99
OPTICAL DRIVE: HP DVD740 External 16x LightScribe (refurb)	$29.99
PSU: Raidmax ATX528B	$39.99
SALES TAX (8.25%)	$39.50
Total	**$518.43** OVER BUDGET!

**Initially Dave was within the budget, but a major oversight had him doing a parts exchange that would cost him money… as well as his pride.*

CPU: Dave chose the Core 2 Duo E4300 because of its reputation as an insane overclocker. He planned to take the proc to 3GHz and possibly beyond. That's a far cry from its stock speed of 1.8GHz, and the reason he splurged on an aftermarket cooler. "I'm going to try and crank this baby," says young Murphy.

MOTHERBOARD: Dual core, Core 2 Duo, what's the diff? That's what Dave thought when he picked up an ECS RC410L/800-M motherboard on his first trip to the store. That mobo supports an Intel dual-core chipset compatible with the Pentium D, not the Core 2 Duo he bought. "I'd like to blame the speed of purchasing and the English language for this screwup," he says; "Dual core means two cores, regardless of the CPU generation." His motherboard begged to differ.

CASE: What, no case? In a frantic effort to save money and impress *Maximum PC* readers with his mad scissor skills, Dave chose to do without a standard computer case. Since the rules require the PCs to be both functional and moveable, his mad scheme is to fashion an enclosure out of the very cardboard boxes that contain his purchases. Utter brilliance? Pointless stupidity? A complete waste of packing tape? We'll soon find out.

Gordon's Budget Box

How Gordon built his box of modest means, with cash left over for candy

Nothing makes you love quality parts like working with crappy ones.

My original strategy going into the challenge was to forgo graphics performance for greater CPU power. But when I dug up an ad from a competing store that had a GeForce 8600 GT for $130 ($70 less than Fry's), I started to seriously consider the possibility of a more balanced box. My strategy was contingent on the store price-matching, but it still wasn't a lead-pipe cinch. I'd have to cut corners elsewhere. I briefly considered cutting the RAM from 1GB to 512MB but feared the hit I'd take in our Photoshop CS2 test. And since I was already opting for single-channel RAM over dual channel to save $10 and using DDR2/667, I realized I couldn't risk it.

As the clock ticked on, I found myself repeatedly rethinking and recomputing my configuration. Then another wrinkle arose: If I went with the 8600 GT, I'd need a PSU with a six-pin PCI-E power plug, something my $40 case/PSU combo certainly didn't offer. Thus, I'd need an additional $3.99 converter. Plus, I wondered, would the PSU have the chops to run the 8600 GT?

All such questions became moot. With a mere 10 minutes left on the clock, I realized there wasn't enough time to price match (which could easily take 20 minutes of haggling), so I ditched plan A and went with an all-around moderate system using a GeForce 8500 GT. Good for applications, good for gaming—at least if you're playing two-year-old games at low resolutions.

Building the system was a snap; it posted on the first boot and I had the OS installed inside of 20 minutes. The ECS P965T-A motherboard, however, lived up to its poor reputation. The NIC was flaky, and worst of all, I couldn't reliably overclock. I was confident the E4300 could run at 2.4GHz or 3GHz, but the mobo wouldn't cooperate. Since the NIC was defective, our rules allowed me to exchange the board for another one that would potentially overclock, but another $60 mobo wouldn't salve my overclocking woes; I remembered why I love premium $250 motherboards so much: They just work. To be fair to ECS, the board I bought was a return (which saved me $10). On the other hand, half the boards on the shelf were returned.

Despite the problems, this is a decent system for a newb. It has a dual-layer 16x DVD burner, supports quad-core processors, and is DirectX 10 ready. Not bad for $500. And since it's in a case, it won't get accidentally recycled by your mom.

WHAT I'D DO DIFFERENTLY

First, I would have shaved more money from my graphics card purchase to buy a better mobo. That would have let me overclock the E4300 to 3GHz and would have given me the edge in our CPU-intensive applications tests. This would be a calculated risk, since I'd certainly lose the gaming benchmarks, but they wouldn't be spectacular in a $500 box anyway. The ultimate solution, but one that's difficult to come by, would have been to locate Intel's new Pentium Dual Core procs. Basically, declawed Core 2 chips, those puppies should overclock as well as an E4300 for the price of a Celeron D.

Dave's Low-Cost Creation

Our associate editor tackled his tasks with some controversial choices

Sadly, the process of building a $500 rig was more a battle of shopping know-how than computer savvy. I had a feeling Gordon and I would be stuck with nearly identical parts, as there's not much wiggle room once you deduct $40 from the total for sales tax and plunk down cash for a generic power supply, optical drive, and hard drive. I correctly assumed we'd be purchasing the same CPU, the much-overclockable E4300, but I thought we'd at least see a bit of a shoot-out in videocards—at the $100 level there are some options.

ATI cards ended up being too expensive for consideration in this challenge, so I went with an Nvidia-based 7600 GS. It's not the best card on the market, but I was relatively confident I'd be able to get decent performance out of it. If I remember correctly, I did see a cheaper 8500 when shopping. But for my money, the 7600 is the better choice—no DirectX 10 support, but let's be honest: The very few DX10 titles available right now bring even 8800-model cards to their knees. There's no way an 8500 would ever be able to run a DX10 game, so I'd rather bank on a solid DX9 card.

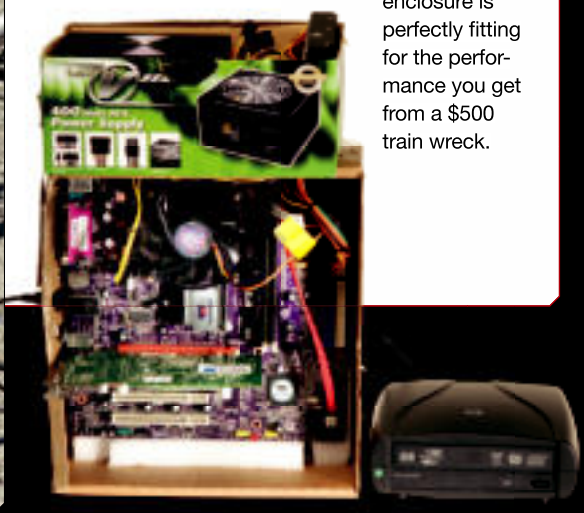
It didn't take long at all for me to assemble my PC—a big advantage to working without a case—and load the OS, but it would be hours before my machine was truly finished. After several failed attempts at booting, I realized that my mobo was incompatible with my CPU, and I had to drive back to the store for a replacement. And while the new mobo was able to boot just fine, it proved virtually worthless at overclocking. I was only able to push the CPU to 1.99GHz, a far cry from the potential 2.5GHz + I was envisioning during the initial checkout. This cheap motherboard absolutely destroyed my plan and has firmly convinced me to not skimp when it comes to mobos—not if I want to tweak my system to awesome levels, that is.

The videocard overclocked nicely, but when I say nicely, it's like the difference between fourth and inches and fourth and a few more inches. Sure, my rig destroyed Gordon's in the graphics-heavy tests. But that freaking motherboard and its horrible VIA chipset ended up counterbalancing any performance gains I expected from an overclocked processor. This motherboard was the gatekeeper to my grand design. Of course, in this case, it's more a flaming bridge between the rock and the proverbial hard place.

It's easy to build a machine when you're not confined to working within a case!

WHAT I'D DO DIFFERENTLY

Did I learn anything from the building experience? Yeah, don't build a PC for $500. Would I do anything differently? I'd stick with a stock cooler and save myself a whopping $10. As for the case, I still wouldn't bother. You just can't dress a turd. Putting these parts into a chassis implies that what's inside is a functional computer. A cardboard enclosure is perfectly fitting for the performance you get from a $500 train wreck.



Gordon's Rig

Dave weighs in on the merits of his competitor's machine

f only *Maximum PC* put a lot of stock in aesthetics, Gordon's machine might earn a more favorable review. But, alas, we're all about performance when it comes to PCs. And Gordon's rig functions just a tad better than a graphing calculator on the ol' benchmarks.

Strangely, Gordon opted not to clock his machine in the slightest, omes as a wonder considering the unholy combination of his slowest parts, a 1.8GHz Core 2 Duo and a horrific 8500 Nvidia card. How bad does it get? If you want to turn FEAR into a turn-based 12fps first-person shooter, then by all means, follow Gordon's lead. Quake doesn't fare much better, offering a paltry 19fps.

The real deal-breakers for Gordon's "rig" are the workhorse CPU benchmarks—our Premiere and Nero tests. In the time it took to run both benchmarks, I could have cooked and eaten two frozen pizzas, consecutively. I could have watched a single episode of *24*. I even could have taken a nap. I suppose the machine earns points for finishing the tests within the span of an eight-hour workday; I had my doubts, but that's hardly a consolation for this horrifically slow machine.

I'll be the first to say that a crap machine is a crap machine. But Gordon could have at least made a passing attempt to pull as much performance as possible out of his little computer that couldn't. He didn't, instead opting to throw this poor PC to the wolves. I suppose we'll never know how fast Gordon's beyond-lean machine could have been.

Dave's Rig

Tell us what you *really* think about this PC, Gordon

Think of the most incredible, luxurious, badass system that you have seen. Now think of the polar opposite and then jog another 200 yards past that and you get the Dave Murphy $500 Hobo Special. Straight out of Bum Junction and perfectly suited for hopping a hot-shot Santa Fe train, the only thing this cardboard wonder lacks is the manual bundled up on the end of Dave's bindle.

First, there's no power or reset switch. Hell, there's no frigging front panel. To power up this abomination, you have to panhandle a dime so you can short the power switch jumpers and boot the ugly bastard. But be careful you don't jiggle the GeForce 7600 GS or you may blow up the whole contraption. In fact, don't touch it at all, lest the cardboard box burst into flames.

While the Hobo Special has the same HD, amount of RAM, and CPU as my $500 beauty, it lacks upgrade options. Where are the empty RAM slots to go beyond 1GB of memory? Where are the DirectX 10 graphics? What about CrossFire or SLI support? And a VIA chipset versus my Intel P965?! Pee on you, mister.

Its benchmarks are nothing to brag about either. We wouldn't boast about these scores to that crazy old guy who keeps talking about how awesome the Amiga was. It's best to just skulk away and live in a Unabomber-style shed for the next 12 years. What's incredible, however, is the fact that a $500 hobo playpen is nearly as fast as our once state-of-the-art Athlon 64 FX-60 box. How the mighty have fallen.

Despite what Murphy might say, the only area in which his "rig" bests my PC is gaming. Of course, even his "winning" scores don't really represent playable frame rates here. And when DX10 catches on, that piddly frame-rate advantage drops to zero, rookie. MPC

The Benchmarks

	ZERO-POINT SCORES	GORDON'S BUDGET BOX	DAVE'S LOW-COST CREATION
SYSMARK2004 SE	275	N/A	N/A
PREMIERE PRO 2.0 (SEC)	3,000	**3,000**	3,024
PHOTOSHOP CS2 (SEC)	295	**319.3**	324
RECODE H.264 (SEC)	2,648	3,173	**3,212**
FEAR 1.07 (FPS)	80	12	**19**
QUAKE 4 (FPS)	110.5	19	**23**

Best budget scores are bolded. Our current desktop test bed consists of a dual-core 2.6GHz Athlon 64 FX-60, 2GB of Corsair DDR400 RAM on an Asus A8N32-SLI motherboard, two GeForce 7900 GTX cards in SLI, a Western Digital 4000KD drive, a Sound Blaster X-Fi soundcard, a PC Power and Cooling Turbo Cool 850, and WinXP SP2.

The 15 Best Web Apps You've Never Heard Of

Don't let their obscurity fool you—these powerful online apps will supercharge your life!

BY ROBERT STROHMEYER

If popularity were a reliable indicator of a product's greatness, the Big Mac would be the world's best burger, Coca-Cola would be nutritious, and Microsoft wouldn't have to spend billions to convince you to buy its software. Savvy computer users know that sometimes the best program is the one you haven't yet used. So when we set out to find the ultimate online apps, we skipped the big sites that everyone already knows.

Sure, you can track your schedule with Google Calendar, watch videos on YouTube, and share pictures with friends on Flickr, but while these popular web apps certainly serve up great features, none of them is perfect. Meanwhile, the Internet is brimming with underdogs that are dreaming up some kick-ass new concepts—and putting them into action right now.

The rise of easier-to-use web development tools like Python and Ruby on Rails has caused an explosion of cool new web services that do everything from organizing your thoughts to tracking airfares across multiple travel sites to replacing your entire Office suite—and almost everything is free. Even as you read this, the world of web apps is expanding with cool new sites that take the features of your favorite old standbys and give them new, innovative twists. Some are terrible, but many are just plain brilliant, and we've narrowed down the field to 15 apps that will fundamentally change the way you use the web.


Zoomr
Discover / One Hundred
Ajax
findmeister
wayfaring
yousendit
meebo

MAPPING

Wayfaring

On the road of life, it's best not to go it alone

If all you want is directions to the nearest diner or coffee joint, MapQuest and Google Maps have you covered. But if you really want to explore your world, Wayfaring's social mapping is a better way to go. The service is based on Google Maps but enhances the basic direction-finding service with a social networking interface that lets you create custom maps and share them with friends. Visiting a new town? Before you shell out for a guidebook, log on to Wayfaring and check out customized maps created by people who've actually been there. From dining options to museums to obscure attractions, you can pinpoint just about anything on Wayfaring.

Free, www.wayfaring.com

PHOTO

Zooomr

Three O's, unlimited uploads

Whether you're fed up with daily upload and bandwidth limits or you're just tired of letting Yahoo control your online life, Zooomr's online photo-sharing features are bound to be greeted as liberators. The site's biggest draw is its Infinite Upload interface, which lets you select every last bandwidth-hogging image on your hard drive and toss it onto Zooomr in one massive batch. You also get the usual array of captioning, organizing, geotagging, and sharing tools. At press time, Zooomr had just launched a paid Pro service, which adds video support and eliminates ads.

Free for basic account/$20 per year for pro account, www.zooomr.com

ORGANIZATION

Backpack

Simple organization for chaotic minds

Anyone with a Google account can track their calendars and to-do lists, but what if your needs are a little more unconventional? Backpack's simple, customizable pages make it easy to organize your thoughts, no matter what you're working on. Create lists and reminders; add notes, links, and versatile write boards; and share your pages with collaborators—or make them public. You can then link to them from other pages or email new entries to your pages from any device. The free service limits you to five custom pages, but the premium service enables up to 1,000 pages, a calendar, 500MB of file storage, and SSL encryption.

Free for basic accounts/$5–$14 per month for premium accounts, www.backpackit.com

REMOTE ACCESS

SoonR

Get to your PC from any phone or browser

When you need remote access to your files but don't want to lug a laptop along, you need Soonr. This lightweight desktop utility syncs your files and Outlook email to SoonR's website while you're working and then serves them up via a clean web interface. The mobile-optimized service worked like a charm on every phone we tried it with, letting us grab and view images, Word docs, and spreadsheets easily. It also sports an organizer interface for Outlook calendars and lets you call your Skype contacts from your cell phone.

Free, www.soonr.com

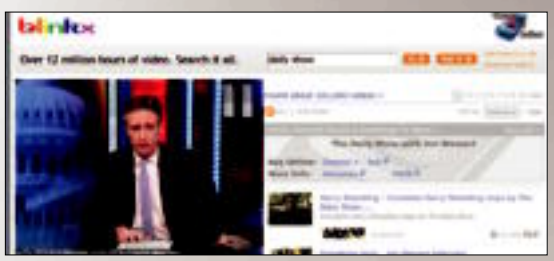
VIDEO

Blinkx

12 million hours of video. No stupid self-submissions

Some people love whiling away the hours sifting through idiotic home-video footage on YouTube. If you don't, try Blinkx. Built on a powerful search engine, Blinkx scours the web for videos, then analyzes and tags them for retrieval. So when you search for "White Stripes," you'll find the band's videos, not a bunch of homemade vids of teenyboppers lip-synching to "Icky Thump." Blinkx grabs videos from across the entire web, so it's got everything YouTube, iFilm, Veoh, and the rest have, only more organized and with full-motion thumbnails. It includes a Safe Search control to filter out the dirty stuff—or not—and clicking a video's title will take you straight to its source, so you can see it in its original context.

Free, www.blinkx.com



MUSIC

Slacker

Cut your tunes some slack, man

Forget Last.fm. Never mind Pandora. Don't even think about iTunes. If you want the ultimate in fully customizable Internet radio, get your slackin' ass over to Slacker.com. Like Last.fm and Pandora, Slacker.com makes it mindlessly easy to create custom radio stations by typing in an artist you like and letting the site automatically compile a playlist of similar or related artists. The interface is way slicker than its competitors', but that's just the start of its draw. Soon Slacker will offer a portable player that'll let you take your stations on the road and a satellite player for your car.

Free (player hardware to be sold separately), www.slacker.com

WEB

Widgetbox

Hundreds of widgets for your online life

Most blogs are about as interesting as the cracks in a sidewalk. Some even less so. Widgetbox gives you the tools to add cool, dynamic content to your blog in the form of hundreds of widgets for just about any purpose. Need to add instant lolcats to your front page? Select the I Can Has Cheezburger widget, copy the code, and paste it into your blog. But there's more to the site than mere diversions. Widgetbox also gives you the tools to create your own widgets—either by turning your blog into a "blidget" that others can subscribe to or by coding something unique and adding it to the Widgetbox collection.

Free, www.widgetbox.com

OFFICE PRODUCTIVITY

Ajax13

A free MS Office alternative that lets you rock while you work

Work sucks. If they didn't pay you so well to do it, you probably wouldn't bother. So why would you want to drop a few hundred bucks on a suite of business apps when you can get the same features online? Ajax13 is one of many free office suite web apps, offering a word processor, an Excel-compatible spreadsheet program, a drawing app, and a PowerPoint-compatible presentation program. These aren't sloppy editors, either—each includes a standard button bar that's loaded with familiar tools. Plus, Ajax13 comes with ajaxTunes, a mini music player loaded with Internet radio stations, so you can chill with some tunes while you labor for the Man.

Free, www.ajax13.com

INSTANT MESSAGING

Meebo

One-stop IM shop for your web browser

Why anyone even bothers running a single-service IM app anymore, we just can't figure out. And now Meebo is giving us cause to wonder whether installed clients are even worth the trouble these days. With its clean Ajax-powered interface, Meebo gives you slick, intuitive access to all the major IM services, including AIM, MSN, Yahoo, ICQ, Google Talk, and Jabber. The Meebo client runs within your browser, and like Google Talk, pops up with a single click. Just create a Meebo account and then link it to all your IM accounts for one-login access without having to bloat your PC with some overblown, adware-ridden chitchat client.

Free, www.meebo.com

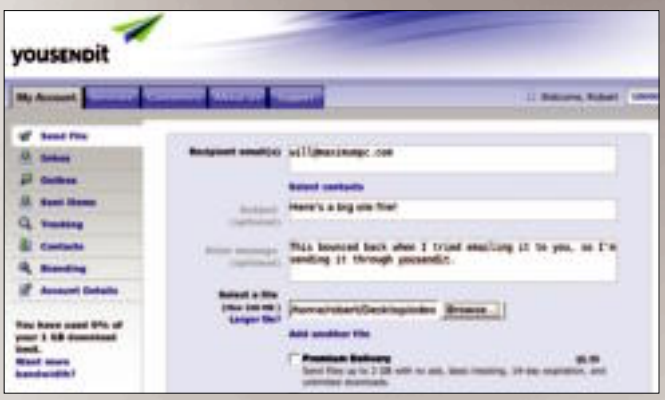
FILE MANAGEMENT

Yousendit

Share big files without making enemies

Remember when 1MB was considered a large file attachment? Well, even if it doesn't seem all that big anymore, many mail servers still won't accept more than a megabyte of attachments on a single message. And even if they did, it would be just plain rude to jam your friends' inboxes with massive files. Yousendit lets you send single attachments of up to 100MB for free and gives you 1GB of bandwidth. If you need more than that, premium accounts let you send 2GB files with up to 200GB of bandwidth per month.

Free for basic account/$5–$30 per month for premium account, www.yousendit.com



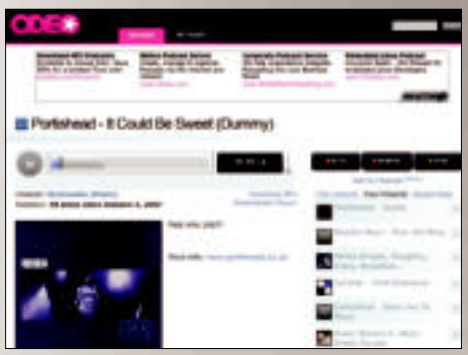
PODCASTS

Odeo

Podcast-topia for short attention spans

You don't need much to start your own podcast. In fact, a PC, a mic, and a free Odeo account will do the trick. After about 30 seconds of setup, you can start recording your own podcasts—up to one hour each—to host on Odeo's website. Along with your content and thousands of other podcasts, Odeo hosts some 3.6 million MP3s that you can play online or download to your hard drive, and the site also offers a music player that you can stick on your blog, your MySpace page, or wherever else you're able to paste widgets.

Free, www.odeo.com



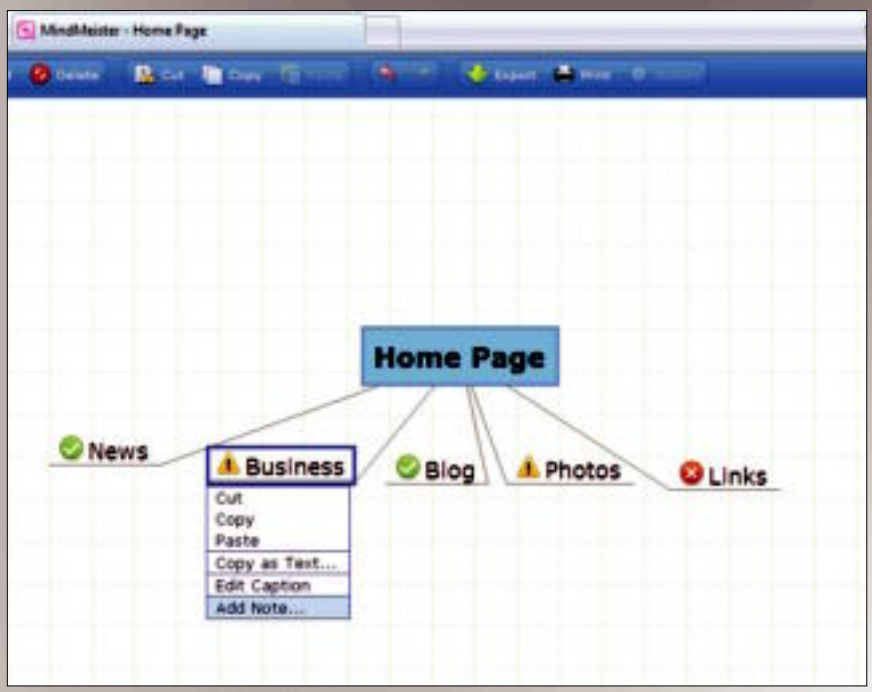
COLLABORATION

Mindmeister

Like a Vulcan mind meld, only without the creepy touching

No matter how well you work with others, collaborating on big projects can be a logistical nightmare. Mindmeister helps you get your groupthink on with a simple mind-mapping interface that makes it easy to organize your thoughts—or help your buddies organize theirs. The shared workspace is a basic grid on which you and your colleagues can map out ideas. Just start with a central concept, and you can both add to it and edit the idea flow simultaneously while chatting over Skype, which you can launch from within the Mindmeister interface.

Free for basic service/$4 per month for premium service, www.mindmeister.com



TRAVEL

Yapta

Don't be just another tourist sucker

There was a time when it was simple to find the best possible price for airline tickets online, but those days are long gone. Now every website on the planet claims to have the best fares—and they can't possibly all be right. Once you download the Yapta tagger, it sits in your system tray waiting for you to go shopping. When you do, it adds a "Tag It with Yapta" link to the site you're shopping on—be it Orbitz, Expedia, United, or a number of other sites. Once you've tagged a fare, go to **www.yapta.com** and tell Yapta to alert you when the price drops.

Free, www.yapta.com

ENTERTAINMENT

Joost

Watch what you want, when you want

Thanks to Joost, PC TV tuners might soon be obsolete. With a fast broadband connection, this free service brings you hundreds of full-screen shows from major broadcasters (and a few lesser-known ones, too). But instead of waiting around for your show to start, you just click the channel you want to watch and then browse for the show you're interested in. Click it, and it starts. Plus, Joost adds social networking features, so you can chat with others and get user ratings while you watch. We wish all TV worked this way.

Free, www.joost.com

SOCIAL

Twitter

Express yourself freely, one tiny tweet at a time

Loved by some, reviled by others, Twitter's bite-size blogettes can be relentlessly addictive. The site's insanely simple interface streamlines microposts of no more than 140 characters (called tweets), so you can tell the world you're "Shopping for biscuits at Trader Joe's!!1!" while you're standing in line at the checkout counter. Post updates via the web and SMS, and get your friends' updates slung at you on your mobile phone so you'll never have to wonder what they're up to. Twitter's tweets make an interesting addition to your regular blog, so you can keep your site updated even when you don't have time for a full-length post. See the sidebar on this page for Twitter tweaks.

Free, www.twitter.com

TWITTER HACKS

Two easy tweaks to your Twitter tweets

1 PLAY TUNES ON TWITTER

A simple little tool called Play Twitter turns Twitter into a music-sharing machine. Go to **http://gonze.com/playtwitter/** and drag the Play Twitter link to your bookmarks toolbar. Then you can use the bookmark to enter a URL for any MP3 file, and Play Twitter will convert the link into a bookmarklet you can tweet about.

2 FEED YOUR BLOG TO TWITTER

Twitter was made for tiny posts, but that doesn't mean you have to use it that way. To serve up your regular blog posts via Twitter, use Twitterfeed. Once you've signed in to Twitterfeed.com with your OpenID, you simply enter your Twitter username and password, paste in the URL for your blog's feed, and choose the update frequency. You can create as many feeds as you like, and there's no law that says it has to be your own blog that you feed.

Clean up Your MP3 Library

Tired of inconsistent volume, messed-up metadata, and missing album art? Here's how to fix all three.

TIME 04:00 HOURS:MINUTES

If your digital-music library is more than a few years old, chances are it contains songs from a variety of sources: ripped CDs, peer-to-peer services, online music stores, good-hearted friends, and so on. The only problem with such an eclectic collection is that nothing's consistent: Volume levels jump up and down from one song to the next, album art shows up sporadically, and the ID3 tags—well, let's just say the band that sings "American Idiot" isn't named Greene Dye. Thankfully, these are easy problems to fix, if you have the right tools. We'll show you how to change tags and find album art as well as tweak volume levels using freeware apps.

BY RICK **BRODA**

WHAT YOU NEED

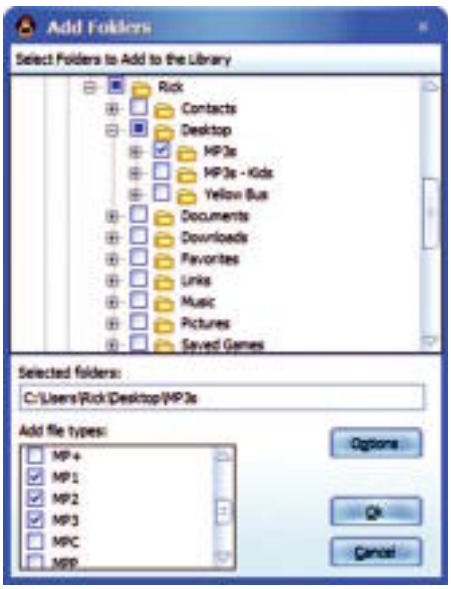
- **MEDIAMONKEY**
  Free, www.mediamonkey.com
- **MP3GAIN**
  Free, mp3gain.sourceforge.net

1 Download MediaMonkey

First, download and install MediaMonkey (**www.mediamonkey.com**). You might be enticed to pay $20 for the full version, but for our purposes, the free version gets the job done. We used MediaMonkey 2.5, though at press time a 3.0 version was in beta testing.

2 Add Your Tracks

The first time you run MediaMonkey, it will scan your hard drives for audio files. You can let it scan everything or only the folders you choose. You can also specify what file types you want it to add (the program supports just about every format under the sun, from FLAC to WMA). Want MediaMonkey to check for duplicate tracks? Click the Options button and enable the appropriate checkbox.

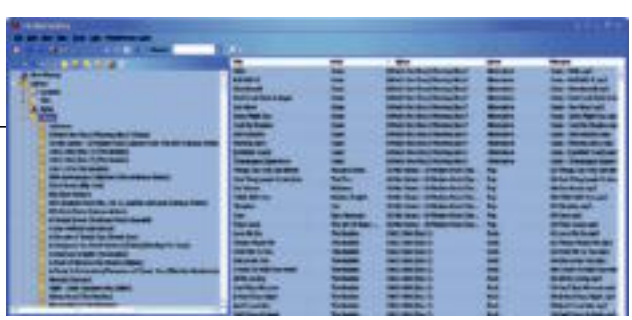


Start by choosing the folders that contain your music collection.

3 Get Organized

The easiest way to fix album art and ID3 tags (aka metadata) is to sort your library by album, which will allow you to apply changes and updates to multiple tracks at once. You'll have to attend to singles individually, but Album view still provides the most efficient means of making changes.

In MediaMonkey's navigation tree, click Album. You'll see your songs in the track list (the main window) sorted by the album name listed in the metadata. This is where things can get a bit tricky because if you have missing or inaccurate tags, the list itself won't be accurate. Fortunately, you can spot-check songs as you go, examining track title, artist, and other tags—along with the actual file name, which is usually correct.



For optimal sorting of your song library, choose Album View.

4 Fix Incorrect Tags

Fixing errors in a band's name (or adding a name) is a snap. First, select all the tracks in the album you want to fix. MediaMonkey lets you apply global changes to multiple tracks: Press Shift-Enter to open the Edit Properties box; then type the correct name into the Artist field. If other global changes are needed, make them now as well. Just be sure to leave Track Title and Track Number alone, or you'll overwrite the information for all the tracks you selected, giving them all the same name.

Use the Edit Properties dialog to apply global changes to an album's worth of ID3 tags.

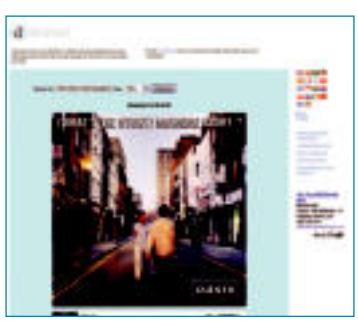
If you're not thrilled about making manual adjustments to your songs' tags or you're just not sure you have the right information, there's an automated (albeit riskier) option in step 6.

5 Find Missing Album Art

Some people may not feel album art is essential, but for completists it *is* a necessity. If you're an iTunes user, you've no doubt discovered that the program can now fetch art for all the songs in your library. However, this art doesn't get embedded in the actual song files, so if you play your music elsewhere, the images won't appear. It's a similar situation with Windows Media Player, which places artwork files in the folder containing the album. Not all portable players will absorb these files when you sync with your PC.

MediaMonkey does it right, adding album art to each song's metadata, so the art goes where the song goes. Select one or more tracks for a particular album and then fire up your browser and head to **www.albumart.org.** Search for the album in question, right-click the appropriate image, and copy it to your clipboard. Head back to MediaMonkey, right-click in the empty Album Art pane, and choose Paste. An options box will appear; all the default choices should be suitable, so click OK and you're done.

You can accomplish this task more quickly by using the automated method described in the next step.



The Albumart.org site is a great resource for album covers, which you can copy and paste into MediaMonkey.

6 Fix Tags and Album Art Automatically

MediaMonkey can automatically retrieve both metadata and album art, thus saving you a bit of time over using the aforementioned manual methods. However, you still have to select the songs and initiate the process, which goes like this:

After selecting your songs, press Ctrl-L to launch MediaMonkey's Auto-Tag from Amazon feature. In a moment, you should see a page of album info, including cover art and a song list. If it didn't fetch the right info (which happens sometimes, especially if your ID3 tags are out of whack), clear the search field and try entering the album name manually. You can also click the search field's pull-down tool to see if there are any results that match more closely.

Make sure the checkboxes for all the desired tag elements are selected: Album, Artists, Release, Label, and Songs. If you didn't already update your album art and want that fixed too, check that box. The box at the bottom shows you a preview of the post-fix tracks. If everything appears to be in order, click the Auto-Tag button. Presto: MediaMonkey updates the metadata for the selected tracks with the information gleaned from Amazon.

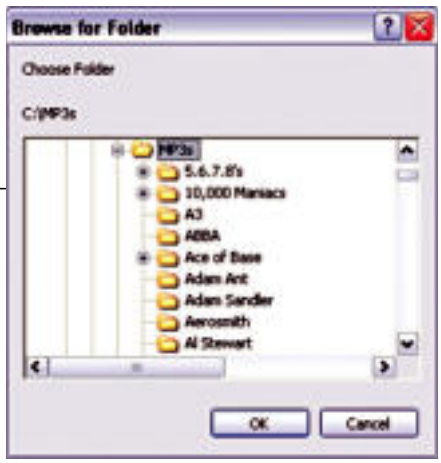
The only thing that remains is to repeat the process for all your songs and albums. Depending on the size of your library, this could take a few hours, a weekend, or longer—but it's worth it to end up with a squeaky-clean, art-enhanced music collection.

MediaMonkey can look up tag information and album art from Amazon.

7 Introduce MP3Gain to Your Music

Download MP3Gain from **http://mp3gain.sourceforge.net.** True to its name, the program supports only MP3 files. If the bulk of your library is in a different format, consider waiting for MediaMonkey 3.0, which will improve its existing volume-leveling capabilities (which aren't great) to more closely match MP3Gain's.

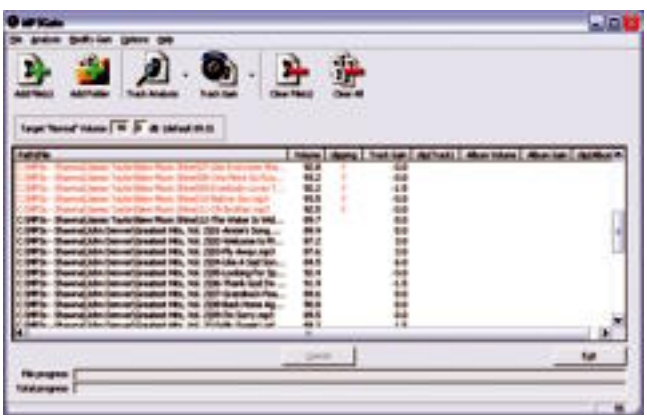
Once you've downloaded and launched the app, click the Add Folder button; then choose the folder containing your music (MP3Gain will automatically scan subfolders as well). MP3Gain makes no physical changes to your MP3 files, so there's no loss of quality. The app merely adds volume-level information to your songs' metadata.



MP3Gain lets you add only one folder at a time, but it automatically scans subfolders.

8 Analyze and Level Your Tracks

Now it's decision time. MP3Gain can analyze each individual track in your library or analyze by album. The latter method will keep the volume consistent across each album, but if you often shuffle-play your entire music library, don't be surprised if the volume still jumps or dips from one track to the next. This choice is largely a matter of personal preference, but we think there's little downside to opting for the track-analysis method. You can always reverse the process and switch methods later on.



MP3Gain's track analysis shows you how much gain is required to meet the designated normal volume setting.

By default, MP3Gain strives for a volume level of 89dB, but you can change this value in the Target "Normal" Volume box. After that, click the Track Analysis button and then be prepared to wait while the program analyzes your selected folders. This can take quite a while, depending on the size of your collection.

Once MP3Gain completes the analysis, you can review the results (the help file provides detailed descriptions to help you understand the results) or simply start the leveling procedure by clicking Track Gain. This will take even longer than the analysis, so be prepared to wait a while.

When you're done, fire up MediaMonkey and test your tracks. They may not have perfectly consistent volume, but they should be closer. If they're too soft or too loud, you can always go back to MP3Gain and raise or lower the Target "Normal" Volume a few decibels. MPC

Ask the Doctor

Diagnosing and curing your PC problems

IT'S GETTING HOT IN HERE

I have an AMD FX-57 with 2GB of RAM on an Asus A8N-SLI Premium with two Asus 7800 GTXs running in SLI. Everything is clocked at stock speeds. I recently replaced the factory CPU cooler with a Zalman CNPS7700-CU, but I began to have problems. Windows XP ran fine, but many games, even some older ones, such as Painkiller, locked up or caused a blue screen. After trying numerous software-based fixes, I was at my wit's end. I decided to remove the Zalman and reinstall the original cooler. Once I did that, everything ran OK.

At idle, the CPU is 47 C and the mobo is 52 C. The Nvidia control panel says my GPU temp is 64 C. While playing Painkiller, the temps will go up to 61 C, 56 C, and 85 C, respectively. My room temp is about 30 C. These temps seem high compared to some of the numbers you report in your cooler reviews, especially at idle. Do I need to be concerned with the GPU's temp?

—Jim Schreiner

The temperatures you're seeing on both your CPU and GPU are fairly consistent with what typically happens when you use your computer. When we crank up our Lab test machines to a 100 percent load, we frequently see CPU temperatures in the high 40s. Granted, we're using FX-60s, whereas you have an FX-57, but they should be in the same ballpark in terms of temps. The Doctor isn't entirely sure why you'd be seeing a BSD after you install the Zalman, unless the fan isn't working or you have a bad seal. Reinstall the cooler; be sure to use thermal grease. Also see if you bumped something you shouldn't have. If you want better performance, make sure the fan speed on your cooler is cranked up.

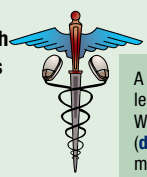
On a side note, your graphics cards seem a bit hot. You should definitely triple-check and make sure you don't have any overclocking going on through the Nvidia control panel. Barring that, you're sort of stuck with the GPU coolers you have, unless you want to get an aftermarket model or install water cooling, which the Doctor hesitates to recommend, as he hates being accused of using it as the de facto solution for all heat-related issues. Remember, a fan only does as much good as the ambient air surrounding it. And in a non-air-conditioned room in the summertime, you'll certainly see higher computer temperatures. You don't need to be concerned with the temperatures you're seeing, but running a card that hot will certainly shorten its lifespan. If you're seeing any graphical artifacts while sending demons back to the grave, however, you should cool those suckers down.

THE WIDE WORLD OF GAMING

I just purchased a 19-inch widescreen LCD with a 2ms pixel-response time. I've been told that to keep the picture from being stretched, the LCD must run at its native resolution. That's all fine and dandy, as long as it doesn't make the icons too small. Do games support widescreen resolutions, or will all the people I take down in Counter-Strike and Battlefield 2 look short and wide? I guess that would make them easier shots, but I'd rather have proportional resolutions than, well, anything else. Basically, did I make a mistake in purchasing a widescreen for games?

—Luke MacDonald

You're not alone in opting for a widescreen LCD—as you've probably noticed, that formfactor is now pervading the market. Consequently, almost all modern games (including Counter-Strike) will run in a wide format. Most will offer wide resolutions from within the menu, but in games that don't, it's possible to enable a wide format with a command line (go to the Widescreen Gaming Forum http://tinyurl.com/yug3fy for specific game instructions). Still, a widescreen format is impossible in some games; in the case of Battlefield 2, EA says it would be an unfair advantage for only some players to have a wide vantage point. In such instances, you can either play with the stretched view or adjust the picture to a 4:3 aspect ratio in your videocard's control panel—this will add black or gray bars to the sides of the picture. MPC



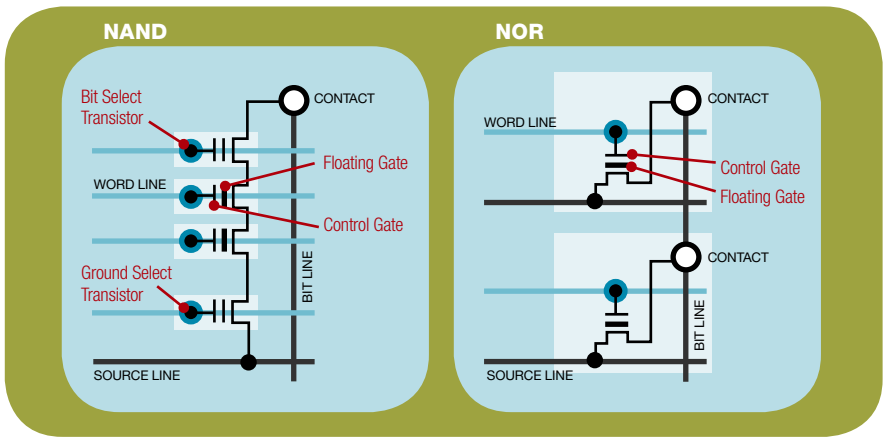
A digital enchantress transformed the Doctor into his current problem-solving form after he accidentally team-killed her in a World of Warcraft battleground. If he doesn't solve your computer problems (**doctor@maximumpc.com**) by the time the last pixel in his LCD monitor burns out, he'll be doomed to remain the Doctor for all time!

White Paper: Flash Memory

Most every gadget, gizmo, whatsit, and whosit uses this technology. Here's how it works.

BY MICHAEL **BROWN**

COMPARISON **NAND vs. NOR flash memory cells**



NOR flash memory has a contact point for each cell, which renders it capable of fast random access, much like RAM. NAND flash cells operate in series but deliver much faster write and erase operations. This renders NAND well suited for file storage.

Flash memory is one of the most useful, and ubiquitous, tech inventions of the last 25 years. It's become the portable storage media of choice for small devices such as USB thumb drives, digital cameras, cell phones, and digital media players, and it looks poised to replace the spinning hard drives in laptops.

Although Toshiba invented the technology, Intel was the first company to introduce a commercial flash memory chip, and it currently holds the lion's share of the market (followed by Samsung). This technology was dubbed "flash" because the process of erasing its contents evoked images of flash photography. Flash memory is a nonvolatile (meaning it does not require electrical power to retain the information stored in it) type of EEPROM (Electrically Erasable Programmable Read-only Memory) that can be erased and programmed in large blocks. Other types of EEPROMs, such as those used to store a BIOS, must be erased in their entirety before new data can be written. Flash memory stores data in an array of cells with a transistor at each intersection of a row and column. It erases and writes data in chunks, instead of one byte at a time, so it does not suffer from the same limitation typical of EEPROMs.

Flash memory stores data in an array of cells consisting of two transistors—a floating gate and a control gate—separated by a thin layer of oxide insulation. When sufficient voltage is applied to the control gate, excited electrons are pushed through the oxide layer (in a process known as "tunneling") and accumulate inside the floating gate. When this happens, the cell changes its stored bit value from 0 to 1. Under normal conditions, the electrons trapped on the other side of the floating gate won't discharge for many years, giving the medium its nonvolatile nature.

Single-level cell (SLC) devices store one bit of data in each cell. Multilevel cell (MLC) devices can store more than one bit of data in each cell by accumulating different levels of electrical charge inside the floating gate. A two-bit cell, for instance, can distinguish between four distinct voltages.

IT'S LOGICAL

Memory-chip designers use one of two methods of data mapping, NAND or NOR (these terms describe the type of logic gates deployed), to interconnect memory cells. Neither approach is universally superior; rather, each is best suited for a particular application. NOR flash memory cells are connected in parallel, so each individual cell can be read and programmed individually. NAND cells are connected in series and must be read from and written to in series.

The upshot is that data can be read from NOR flash in much the same way that it's read from random-access memory (RAM). Thanks to this attribute, most microprocessors can use NOR flash memory as execute-in-place (XIP) memory. In other words, NOR flash memory can store and execute software programs without writing the instructions into RAM first. NOR flash memory can also be partitioned, so an application can run in one partition while data is simultaneously read, written to, or erased from another. For these reasons, NOR flash memory is often deployed in handheld devices, such as cell phones, and in embedded systems.

Toshiba developed NAND flash memory later, but it lacks the random-access nature of NOR memory. That precludes it from use as a replacement for system ROM. On the other hand, NAND boasts much faster erase and write times, and it provides greater storage density and a lower cost per bit of storage. NAND cannot be partitioned and data must be read from it one segment at a time. These characteristics render NAND similar to other types of secondary storage, such as hard drives and optical discs. You'll find NAND memory in Compact Flash (CF), Memory Stick, MultiMediaCard (MMC), all forms of SecureDigital (SD), and xD-Picture Card media. The technology has also been tapped for use in solid-state hard drives.

FLASH FILE SYSTEMS

Most removable flash media has an embedded microcontroller. This enables SD, CompactFlash, and USB thumb drives to be formatted using the familiar FAT file system that Microsoft developed for MS-DOS.

Flash memory devices that *don't* have an embedded microcontroller typically use FTL (Flash Translation Layer), a file system that makes a flash memory device look like a FAT (File Allocation Table) disk to the operating system but that also performs wear leveling. JFFS2 (Journaling Flash File

System vers. 2) was developed for using flash devices with Linux; it supports both NOR and NAND flash.

SPEED AND DURABILITY

The retail price of NAND flash-memory products—SD, CF, xD, and so on—is determined largely by two factors: capacity and speed. The first concept is easy to understand; the second is more confusing than it should be because manufacturers measure performance in different ways.

Patriot Memory, for instance, rates the speed of its 2GB CompactFlash card (part number PSF2G50CF, street price $21) as being "50x." Read the spec sheet, however, and you'll find that the 50x refers only to the read speed; no rating is given for write speed. Assuming 1x is 150KB/s (with KB/s defined as 1,024 bytes per second, the data transfer speed of the first compact-disc drives), Patriot's card is capable of transferring data to its host device at a rate of 7.32MB/s.

SanDisk, on the other hand, lists separate read and write speeds for its Ultra II 2GB CompactFlash card (street price $36) of 10MB/s and 9MB/s, respectively. But since its spec chart measures 1MB as one million bytes, you'll need to do a little math to obtain a true comparison. (Using Patriot's terminology, SanDisk's device delivers read speeds of 9.53MB/s and write speeds of 8.58MB/s.)

NOR and NAND flash memory both have a finite number of erase-write cycles—anywhere between 10,000 and one million—but this limitation is typically offset by wear-leveling instructions in firmware that count the number of write cycles for each cell and dynamically remap the blocks so that erasures and writes are distributed evenly across the medium.

Many NAND flash memory devices have an embedded microcontroller that performs a routine known as bad-block management. If a write operation fails, the microcontroller can remap the data to a spare sector of memory. In fact, most NAND devices are known to have bad blocks when they leave the factory, but since those bad blocks are known, they're mapped so they don't get written to. This helps increase yield and hold down costs because not every component needs to be perfect as long as the device delivers at least the amount of storage its manufacturer claims for it.

Thanks to bad-block management, wear leveling, and the absence of any moving parts, most flash memory media should outlast any device that uses it. That's not to say it's infallible, however; anyone using it to store digital photos or other valuable content would be well advised to make backup copies. MPC

CompactFlash Memory

CompactFlash memory cards use NAND flash memory because it's well suited to file-storage applications. Here's what one looks like on the inside.

PROTECTIVE SHELL
This metal shell protects the memory and prevents RF leakage and interference.

MICROCONTROLLER
The microcontroller, located on the other side of the PCB (and not shown here), performs bad-block management and wear leveling.

NAND CHIPS
This is the actual NAND flash memory. This CompactFlash card has four 256MB chips, three of which are mounted on this side of the PCB.

BUS INTERFACE
Data is read from and written to the CompactFlash card via this bus interface. Some of these pins carry power, some carry data.

Any requests? What hardware—new or old—would you like to see go under *Maximum PC*'s autopsy knife? Email your suggestions to **input@maximumpc.com.**

MICHAEL **BROWN**

Tests Videocards with Vista

And feels dirty for having perpetuated DirectX 10 hype

Both of these screenshots were taken from a beta version of Massive Entertainment's World in Conflict. The one on the top is running on DirectX 9 and Windows XP; the one on the bottom is running on DirectX 10 and Windows Vista.

I've experienced enough problems with Vista—and heard about plenty more—to justify keeping the new OS off my videocard test bed. But Will finally grew tired of my procrastination and laid down the law: "Test the latest videocards with Vista," he commanded, "or I'll suspend your Friday bagel privileges."

I really like bagels, so I didn't have much of a choice. Besides, I was curious to find out how well the folks at ATI and Nvidia had learned to write Vista drivers (let's just say that their first efforts were lacking). And there are finally a few games that use DirectX 10, so I wanted to see what developers had accomplished with Shader Model 4.0. I proceeded to set up a dual-boot rig with XP and Vista and embarked on an eye-opening ride.

I tested an EVGA GeForce 8800 GTS with a 640MB frame buffer first. Relic released a DX10 patch for one of my favorite RTS games, Company of Heroes, back in May, so I thought the game would provide a good real-world test. Running on XP (with the game at 1920x1200 resolution and all other settings at their maximum values), I achieved a playable frame rate of 42.3 frames per second—just about what I expected. I then rebooted and launched the game on Vista and DX10. Frame rates plummeted to a creaky 20.2 frames per second: a 48-percent dive. But the kicker is that the game looked nearly identical running on DX10 as it did on DX9! Where's all the eye candy? Where's the smoke and fog that reacts to the movement of characters and objects in the game? Where are the realistic shadows? Not only did I not see much benefit to running the game on Vista, but performance dropped. What's up with that?

OK, let's not get too excited. Relic has been busy working on the game's stand-alone expansion pack, Opposing Fronts; maybe the company couldn't afford to put too much effort into a patch for COH. Preferring not to believe that I'd been wrong about DX10, I turned to a game so new it was still in beta when I benchmarked it: Massive Entertainment's World in Conflict. This game looks absolutely stunning on DX9, but those looks are costly in terms of frame rate: Asus's mighty GeForce 8800 GTX squeezed out just 31fps at 1920x1200 running on XP. When I switched over to DX10 on Vista, frame rates dropped to 22fps. The minor visual improvements—a few more particles, slightly better-looking smoke—are absolutely not worth a 30-percent hit in performance. Look closely at the World in Conflict screenshots above: Can you see a difference?

As disappointed as I was with Nvidia's Vista performance, nothing could have prepared me for what happened after I wiped the drive clean and installed ATI's Vista drivers: The system would not boot, period. Print deadlines being what they are, I didn't have time to call ATI's tech support for help, so I can't explain why I encountered such a disastrous problem. It also wouldn't be fair for me to assign blame without further investigation, so I'll report my findings on my blog at **http://tinyurl.com/3bwngh**.

To date, my DX10 videocard reviews have concluded that the cards are damned good with DX9 but that we can only guess at their DX10 performance. Now we know it sucks. I now also know that I'm guilty of hyping the need for consumers to future-proof their videocard investment by ensuring that they buy a card that's DX10 compatible. I fell into the trap of believing in the stunningly beautiful demos that Nvidia and ATI had shown me, and I took faith in the logic that Microsoft used to explain why DX10 was so superior to DX9. Based on what I've seen of real-world DX10 so far, my convictions were out of order.

BENCH**MARKS**

	COMPANY OF HEROES (DX9)	COMPANY OF HEROES (DX10)	WORLD IN CONFLICT (DX9)	WORLD IN CONFLICT (DX10)	LOST PLANET (DX9)	LOST PLANET (DX10)
EVGA GEFORCE 8800 GTS (640MB)	**42.3**	20.2	**23**	16	**26**	12
ASUS GEFORCE 8800 GTX (768MB)	**52.3**	26.2	**31**	22	**38**	18
ATI RADEON HD 2900 XT	**45.3**	WNR	**25**	WNR	**28**	WNR

All scores represent frames per second. Best scores for each card are bolded. Benchmarking performed on an EVGA 680i SLI motherboard with a 2.93GHz Intel Core 2 Extreme X6800 CPU and 2GB of Corsair DDR2 RAM.

How We Test

Real-world benchmarks. Real-world results

Computer performance used to be measured with synthetic tests that had little or no bearing on real-world performance. Even worse, when hardware vendors started tailoring their drivers for these synthetic tests, the performance in actual games and applications sometimes dropped.

At *Maximum PC,* our mantra for testing has always been "real world." We use tests that reflect tasks power users perform every single day. With that in mind, here are the six benchmarks we use to test every system we review.

SYSmark2004 SE: This is an update of the SYSmark2004 benchmark, which uses a suite of such common applications as Microsoft Word, Excel, PowerPoint, Macromedia Dreamweaver, Flash, and Winzip to test general performance. It isn't heavy in multithreading, but it does feature multitasking tests.

Adobe Premiere Pro 2.0: We finally ditched our old standard-def Premiere test for one that uses high-def source material. The test is multithreaded, uses the GPU for transitions, and is brutal. It takes about an hour on our zero-point to render a short two-minute, 46-second benchmark movie in the program.

Adobe Photoshop CS2: We start with a RAW photo shot with a Canon EOS 20D, and apply a crapload of filters and other tasks from CS2 to see just how fast a rig can chew through the workload. Because we use every filter we can, the test is more fair and balanced than the usual cherry picking of Photoshop tests.

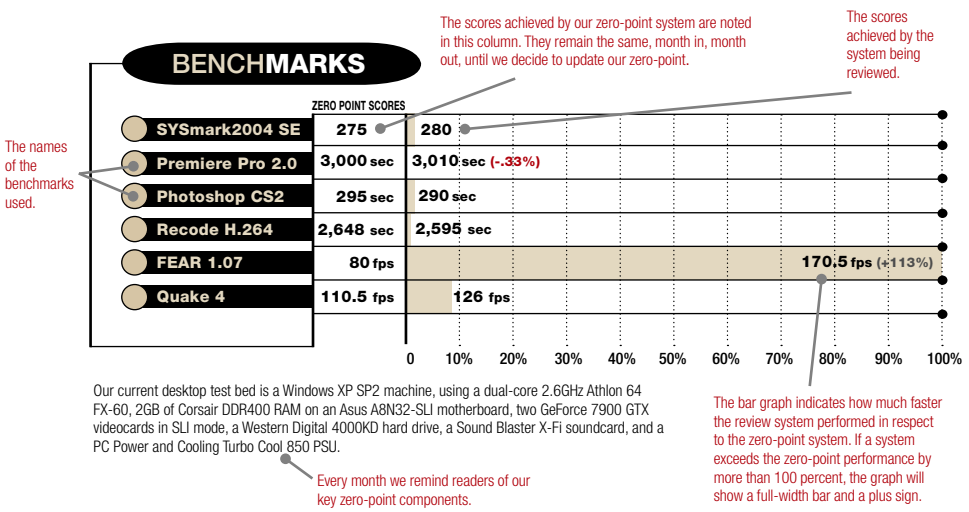
Ahead Nero Recode 2.0: Nero Recode 2.0 is one of the fastest video-transcoding utilities. We copy unencrypted VOB files to the hard drive, then convert the movie to an H.264 file formatted for the Apple iPod's screen. The version included with Nero 7.5, is the only multithreaded H.264 encoder we've found thus far and is optimized for dual-core CPUs.

Quake 4: Based on the Doom 3 engine, Quake 4 is a popular OpenGL game. We run our test at 1600x1200 with 4x antialiasing and 4x anisotropic filtering. Generally, more robust OpenGL drivers yield better performance. We use a custom timedemo recorded using the 1.2 patch, which supports Hyper-Threading and dual-core processors.

FEAR: Monolith's FEAR is a cutting-edge DirectX game that pushes PCs and graphics hardware to the limit. We run FEAR at 1600x1200 with soft shadows, physics, and audio acceleration enabled, using the 1.07 patch.

How to Read Our Benchmark Chart

Maximum PC's test beds double as zero-point systems, against which all review systems are compared. Here's how to read our benchmark chart.



Our monthly category-by-category list of our favorite products. New products are in red.

High-end videocard
XFX GeForce 8800 Ultra

Midrange videocard
PowerColor HD HD2900 XT 512MB DDR3

Soundcard
Creative Labs X-Fi XtremeGamer Fatal1ty Pro Series

Hard drive
Hitachi Deskstar 7K1000

External backup drive
Western Digital My Book Pro II

High-Def burner
LG GGW-H10N

DVD burner
Samsung SH-203B
Finally, a worthy replacement for Plextor's now-defunct PX-755SA.

High-end LCD monitor
Dell 2707WFP

Budget LCD monitor
Samsung SyncMaster 206BW

Socket AM2 Athlon 64 mobo
Gigabyte GA-M59SLI-S5

Socket 775 Core 2 Duo mobo
Asus Striker Extreme

HD-based MP3 player
Apple iPod

Flash-based MP3 player
SanDisk Sansa Connect 4GB

5.1 speakers
Gigaworks S750

2.0 speakers
Audioengine 5

Midtower case
Antec Nine Hundred

Full-tower case
Gigabyte 3D Aurora 570

Games we are playing Lost Planet, World in Conflict Beta, Quake Wars Beta, Desert Conflict, UT2004, Fallout

Asus C90S

Is this the upgradeable laptop we've been waiting for?

The Asus C90S is the first notebook to use a desktop Core 2 Duo.

Normal folk are looking to notebooks as replacements for their desktop PCs. But you ain't normal folk—you want power, flexibility, and upgradeability in your mobile rig.

We hoped Asus's C90S would provide all this with its use of a *desktop* Core 2 Duo socket. That LGA775 socket gives the C90S a big price advantage over other laptops; a desktop 2.4GHz Core 2 Duo E6600 will set you back about $200, less than half the price of a mobile 2.4GHz Core 2 Duo T7700. Desktop CPUs are also far easier to find than their mobile brethren.

But the C90S's real promise is in upgradeable graphics. It sports an MXM Type II module, which is equipped with a GeForce Go 8600M GT part, but Asus plans to offer a faster DX10 part to replace it someday.

The laptop's bottom cover is attached with four screws and easily slides off, making it simple to install parts on this rig. We replaced the stock 1.86GHz Core 2 Duo with a 2.66GHz Core 2 Duo in under a minute. Changing the GPU is a little trickier but can still be done in just a few minutes.

The C90S packs in most notebook must-haves, including 802.11g/b, a fingerprint reader, a camera, Bluetooth, and not one, but two Mini PCI Express slots. The C90S also sports an HDMI 1.3 port and an eSATA port in addition to an ExpressCard slot.

Sounds good so far, but a few fundamental problems impact the upgrade story. The C90S uses Intel's older 945P chipset, so Penryn support is unlikely. The real bummer is that quad-core support is also out of the question due to thermals and the chassis's power limitations.

Asus originally claimed that overclocking would be one of the C90S's niftiest features—the thinking was that you could overclock a 2.4GHz Core 2 up to 2.93GHz. Our second review sample would not allow BIOS overclocking, but the company said manual overclocking would be included in production notebooks. While the 1.86GHz Core 2 part we used let us overclock by as much as 20 percent using the Windows app, we couldn't get the 2.66GHz part to run faster than 2.93GHz.

The thornier problem centers on GPUs. Although the C90S uses an MXM Type II module, Nvidia's spec isn't quite as "specific" as one would hope, but a new revision is in the works. It's unlikely you could buy an upgrade module from another vendor and use it in the C90S, but the good news is that Asus has pledged to offer module upgrades directly to consumers. We must point out, however, that most companies don't have long enough attention spans to carry through with these policies for more than a few months. So until we see Asus actually offer videocard upgrades for this machine, we'll withhold judgment.

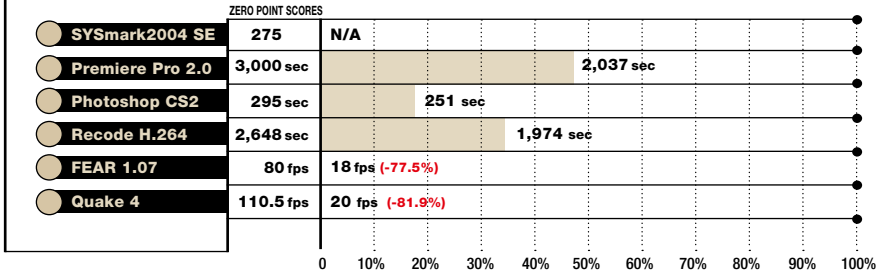
The C90S offers pretty good performance numbers, even when compared to a desktop rig. It's actually faster than a 2.6GHz Athlon 64 FX-60 in Adobe Premiere Pro 2.0, Photoshop CS2, and Nero Recode 2. Because the notebook sports a relatively low-res screen (1280x800), we had to hook up an external monitor to run our game tests. In them, the C90S gave us disappointing runs of 20fps in Quake 4 and 18fps in FEAR.

Battery life, as expected, is not good, but Asus makes no apologies for this because the C90S is designed to be a desktop replacement that will likely never leave the home. At most, DTRs need just

UNDER THE HOOD

BRAINS	
CPU	Intel Core 2 Duo E6700 (2.66GHz overclocked to 2.93GHz)
RAM	2GB Patriot DDR2/667 (two 1GB sticks)
LAN	802.11G/Gigabit
HARD DRIVE	Seagate 80GB SATA
OPTICAL	TSST TS-L462D
PORTS	HDMI, eSATA, three USB ports, VGA out, TV out, IEEE-1394, ExpressCard, modem
BEAUTY	
VIDEOCARD	GeForce 8600M GT
SOUNDCARD	RealTek HD Audio
CHASSIS	Asus
BOOT: 15 sec.	DOWN: 27 sec.

BENCHMARKS



Our current desktop test bed is a Windows XP SP2 machine using a dual-core 2.6GHz Athlon 64 FX-60, 2GB of Corsair DDR400 RAM on an Asus A8N32-SLI motherboard, two GeForce 7900 GTX videocards in SLI mode, a Western Digital 4000KD hard drive, a Sound Blaster X-Fi soundcard, and a PC Power and Cooling Turbo Cool 850 PSU.

Removing a single panel provides access to just about every component you would want to swap out in the C90S.

Don't rub your eyes, you're seeing an LGA775 desktop socket in a notebook and a user-changeable graphics card.

enough power to go from the kitchen to the patio or from the living room to the bedroom.

However, the run time isn't as poor as we initially expected. We looped the punishing 3DMark06 test for 80 minutes before the battery went flat. With a desktop CPU and 8-series GPU onboard, that ain't half bad.

What's bad is the noise. The C90S is able to run a toasty desktop processor by using a massive four-fan "Turbo" vent. With the proc overclocked to 2.93GHz and running a CPU-intensive encode, all four fans spool up to unbelievably loud levels. You can set the notebook to quiet mode, which gives it the acoustics of a normal notebook, but you can't overclock as much.

In the end, the C90S is clearly flawed. Under a heavy load, it's loud and hot. The low- to midrange 8600M GT part is also pretty lackluster, considering this rig is supposed to compete with gaming notebooks. However, we'd be lying if we said Asus's concept behind the C90S doesn't have potential. With a slightly larger chassis and support for quad-core procs and a faster GPU, we think there's something here.

—GORDON MAH UNG

ASUS C90S

BRUCE LEE
Laptop with an upgradeable CPU and GPU now a reality.

BRUCE BANNER
Won't take a quad-core CPU; ships with a midrange GPU; loud!

6

$1,600, www.asus.com

Project War Machine M1 Elite

This rig isn't quite ready for special-ops duty

The heatsinks on the EVGA Ultra cards forced Project War Machine to 86 the soundcard.

Sometimes you go to war with the hardware you have, not the hardware you'd like to have, and that's what newcomer Project War Machine does with its M1 Elite, making controversial trade-offs in the name of stability.

Paint it black. Really, paint everything black!

Although it may look like yet another Cooler Master CM Stacker, the M1 Elite's case sports a number of accents that set it apart, including a menacing skull-and-gear logo that's laser cut into both side panels and the front door and a skull under the machine's power button.

The company told us reliability was of top concern, so the rig uses air cooling instead of water. While air is more reliable, it lacks maximum cooling power, so overclocking was kept to a minimum. The new 1,333MHz FSB Intel Core 2 Extreme QX6850 is bumped from the stock 3GHz to a mere 3.33GHz. That's a pretty conservative overclock. The builders also ditched RAID 0 in favor of a single Raptor drive and a 750GB Seagate.

The M1 Elite's strong suit is graphics; it sports a pair of "superclocked" EVGA GeForce 8800 Ultra cards in SLI that pushed all DirectX 9 games we tested at any resolution we desired. The problem with the superclocked cards, however, is the massive heatsinks on the backsides of the PCB, which prevent inserting an X-Fi card into the PCI slot; this forced the company to equip the M1 Elite with onboard audio. Project War Machine's rationale for onboard audio is that most gamers use headphones anyway. That may be true, but the onboard RealTek audio part isn't our first, or even third, choice for onboard sound.

Despite the reliability message PWM is promoting, our PC rebooted whenever we tried to copy benchmark files to it from a USB drive. We traced the problem to the Corsair Dominator RAM, which was clocked at a whopping 1,142MHz (stock is 800MHz). For this review, we ran the RAM at 800MHz.

The M1 Elite didn't break any records, but it was very competitive with the latest crop of PCs we've reviewed. The M1 Elite loses to Digital Storm's 3.46GHz quad box (reviewed in July) in our CPU-intensive tests by about 5 percent and takes a bigger hit in Photoshop CS2 due to the lack of RAID 0. In gaming, however, the overclocked Ultras are more than a match for the Storm's GTX cards—FEAR ran 8.6 percent faster and Quake 4 came in 4.5 percent faster on the M1 Elite.

Although it is 5 to 10 percent slower than the recent quad-core boxes we've reviewed, it is considerably cheaper—about $5,000 less than the Falcon Northwest Mach V (reviewed in June) and $2,500 less than the Overdrive Core2.SLI (reviewed in August). But is it a good deal? We'd be OK with losing X-Fi if the board had competent onboard sound, but we can't stomach RealTek. We were also a bit concerned that the company couldn't immediately solve our problem with the RAM. It's a pretty obvious sign that these builders are still a bit green.

—GORDON MAH UNG

UNDER THE HOOD

BRAINS	
CPU	Intel Core 2 Extreme QX6850 (3GHz overclocked to 3.3GHz)
MOBO	EVGA 680i SLI
RAM	2GB Corsair Dominator DDR2/800 (two 1GB sticks)
LAN	Dual Gigabit LAN (Nvidia)
HARD DRIVES	One 150GB Raptor (10,000RPM SATA) and one Seagate 750GB Barracuda
OPTICAL	Lite-On LH-18A1P
BEAUTY	
VIDEOCARD	Two EVGA GeForce 8800 Ultras in SLI mode (655MHz core, 1,200MHz RAM)
SOUNDCARD	Onboard RealTek
CASE	Custom Cooler Master CM Stacker, Silverstone 850 PSU
BOOT: 32 sec.	DOWN: 7 sec.

PWM M1 ELITE

THE WAR NERD

Unique case, despite it being the same model we've seen all year long.

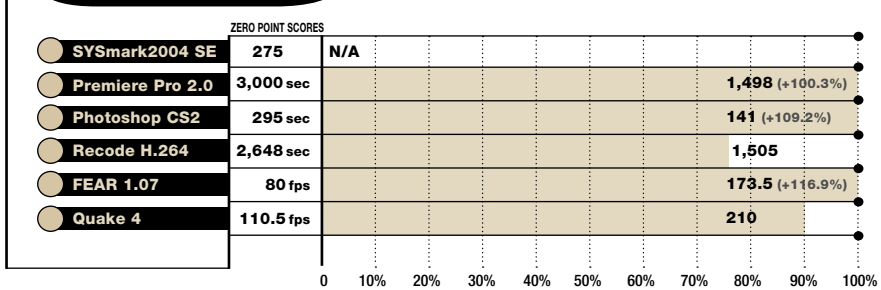
THE DOGS OF WAR

RAM problem initially caused reboots that the company could not solve.

5

$4,800, www.projectwarmachine.com

BENCHMARKS



Our current desktop test bed is a Windows XP SP2 machine, using a dual-core 2.6GHz Athlon 64 FX-60, 2GB of Corsair DDR400 RAM on an Asus A8N32-SLI motherboard, two GeForce 7900 GTX videocards in SLI mode, a Western Digital 4000KD hard drive, a Sound Blaster X-Fi soundcard, and a PC Power and Cooling Turbo Cool 850 PSU.

SATA DVD Duel

Our search continues for the Best. DVD Drive. Ever

We wanted to love Plextor's PX-810SA, but couldn't.

Ever since Plextor stopped manufacturing the PX-755SA DVD burner, we've been on the hunt for a worthy replacement. We loved the Plexy's SATA interface, so we're not settling for anything less going forward. (It's just plain foolish to opt for a drive with an oversized, outdated parallel connector when SATA models are available.) Since SATA drives from Lite-On and Asus failed to win us over in the August issue, we corralled a couple new contenders: Plextor gets a chance to defend its crown with a brand-new SATA burner, but it could face stiff competition from Samsung's impressively spec'd model.

—KATHERINE STEVENSON

SAMSUNG SH-S203B

Samsung's DVD burner didn't waste any time strutting its stuff: In our first burn test, in which we fill a single-layer DVD+R disc, the SH-S203B turned in a time of 5:00 (min: sec) flat. That's a Lab record, folks, and proof that the burner's 20x DVD+R write rating pays off. We saw a similarly speedy score of 5:06 from the Lite-On 20x burner we reviewed in August, but only when we used pricey, hard-to-find Taiyo Yuden media. With Verbatim media, that drive's 5:49 burn time doesn't even come close to Samsung's.

Samsung's SH-S203B doesn't look all that different from the competition, but it stands out plenty in performance.

We expected great things from Samsung's double-layer performance as well, given its 16x write rating for DVD+R DL. And sure enough, the burner blew away the competition by writing 7.96GB of data to a disc in 13:10—that's a good four minutes faster than any other drive we've tested. The SH-S203B turned out a time of 14:31 when writing 4.38GB to a DVD+RW disc—a respectable showing for rewriteable media.

Based on performance alone, we're smitten with the SH-S203B, but Samsung sweetens the deal further with 48x CD-R burn speeds, support for DVD-RAM, and a host of Nero apps, including Nero Express 7, Nero BackItUp, and Nero Recode. Looks like we've found ourselves a new fave.

SAMSUNG SH-S203B

WILD TURKEY
Record-breaking burn speeds; nice Nero bundle.

COLD TURKEY
Rewriteable speeds could be faster; nothing special in the looks department.

9

MAXIMUM PC KICKASS

$70, www.samsung.com

PLEXTOR PX-810SA

We were a little perturbed to find that the PX-810SA doesn't come with a SATA cable; it's a negligible expense, but seeing as this is one of the more expensive DVD burners we've tested of late, the cable really should be included (as it has been with other drives). The PX-810SA boasts a DVD+R write rating of 18x, so it's not surprising that it took almost a full minute longer than Samung's drive to write 4.38GB of data to a single-layer disc (5:57). But Plextor's drive also fell behind the 18x Asus drive we reviewed in August in both read and write speeds (see chart below).

The PX-810SA regained its composure somewhat when burning to double-layer media. It took 15:37 to fill a DVD+R DL disc, which is faster than the Lite-On and Asus drives we reviewed in August but not up to the speed of Samsung's burner. The drive also fell within the middle of the pack with DVD+RW burn times of 15:12.

The bundled EasyMediaCreator 9 is a nice addition, but it's not enough to bridge the gap between this drive's average burn speeds and its premium price.

PLEXTOR PX-810SA

FIGHTING COCK
Decent double-layer and rewriteable burn speeds; EasyMediaCreator 9.

COCK FIGHTING
No SATA cable; average burn speeds; higher cost.

8

$90, www.plextor.com

BENCHMARKS

	SAMSUNG SH-S203B	PLEXTOR PX-810SA	ASUS DRW-1814BLT
DVD+R WRITE SPEED AVERAGE	**13.45x**	11.39x	12.76x
DVD+R READ SPEED AVERAGE	12.13x	9.36x	**12.16x**
ACCESS TIMES (RANDOM/FULL)	**116/198ms**	123/222ms	117/210ms
DVD+DL WRITE SPEED AVERAGE	**9x**	8.05x	6.66x

Best scores are bolded. All tests were conducted using the latest version of Nero CD-DVD Speed and Verbatim media. Our test bed is a Windows XP SP2 machine, using a dual-core 2.6GHz Athlon 64 FX-60, 2GB of Corsair DDR400 RAM on an Asus A8N-SLI motherboard, an ATI X1950 Pro videocard, a Western Digital 4000KD hard drive, and a PC Power and Cooling Turbo Cool 850 PSU.

Coolink Silentator

Hasta la vista, heat

We're always suspicious of cooling devices that promote their silent functionality. Quiet devices tend to use less-powerful fans or run normal fans at painfully slow speeds. And while this can do wonders for one's hearing and general peace of mind, our reasonably noisy stock AMD cooler performs much better than the quieter devices we've tested.

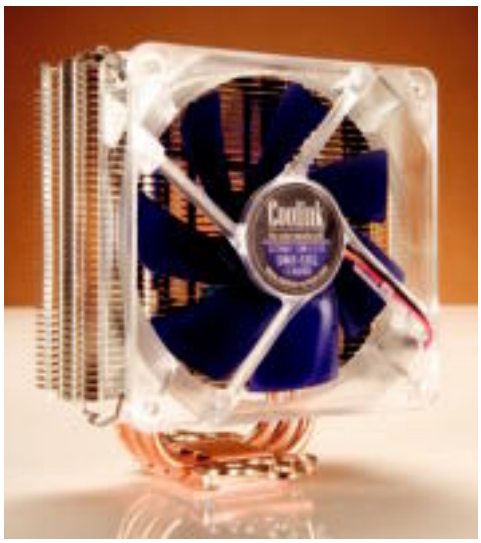
So when a cooler comes in with the word "silent" right in its name, you can understand our skepticism regarding the product's potential for heat removal. But Coolink's Silentator CPU cooler survived a thorough round of *Maximum PC* heat testing. Better still, it outperformed our low expectations to establish itself as a solid cooling option. The Zalman CNPS9700 still retains its title as our cooling champion, but we wouldn't mind strapping the Silentator into one of our rigs as a second option.

Installing the Silentator isn't the most challenging process, though it is rather involved. We had to remove the cooler's fan just to mount the cooler onto our FX-60, which isn't a huge problem, but it definitely adds time to the process. You can, however, adjust the cooler's direction so that air flows either horizontally or vertically, a nice touch.

We were more willing to stomach the installation after seeing the Silentator's performance. In fact, we even reran the benchmarks to ensure that there wasn't anything funny going on with the test rig. But the Silentator's score held true; the Zalman is still The Hulk of cooling power, but we'd let the Silentator into our secret superhero club any day. It cools nicely, with the added bonus of being far, far quieter than the "Rock You Like a Hurricane" Zalman cooler.

The Silentator will never be as awesome as its noisy neighbors, but it balances cacophony and cooling quite nicely.

—DAVID MURPHY



The Silentator is big, but less bulky than the bigger-than-your-head models we're used to seeing.

BENCHMARKS

	STOCK COOLER	COOLINK SILENTATOR	ZALMAN CNPS9700
IDLE (C)	46.5	36.5	**31.0**
100% LOAD (C)	63.0	49.5	**42.0**

Best scores are bolded. Idle temperatures were measured after 30 minutes of inactivity, and full-load temps were measured after running CPU Burn-in for one hour.

COOLINK SILENTATOR **8**

$50, www.coolink-europe.com

I Choo, Choo, Choose You, Chassis!

These two enclosures are anything but normal

Consider this month's batch of case reviews to be a second chance of sorts, as both companies highlighted below have previously built total clunkers. Cooler Master threw down the iTower 930 in February, which was the functional equivalent of bringing a wiffle bat to a gunfight. And NZXT troubled us with the Adamas—which sported a relatively mediocre design when stacked up against its competitors.

—DAVID MURPHY

COOLER MASTER COSMOS

We tipped our reviewing hand when we chose this case to house last month's Dream Machine. But that's just how sweet the Cosmos is. This case looks as good as it functions, and there's nary a blemish in either area. More important, the case retains enough of a unique look and feel to distance itself from the bevy of generic models we frequently see.

You don't need to grab a screwdriver to make major changes to any parts in the Cosmos case (aside from the motherboard).

The Cosmos's smooth, foam-backed side panel is awesome, but we wish Cooler Master had included a side window as well.

The five front 5.25-inch bays use an awesome push-button locking mechanism that, to date, is the best we've come across. Tiny thumbscrews hold the six hard-drive trays in place—an elegant improvement over standard drive bays.

The Cosmos caters to the water-cooling crowd with its ready-for-a-radiator ceiling grills, but lovers of the air won't be left out. A detachable 12cm fan bunker pulls in air from the bottom of the case, and a plastic bar running horizontally across the case draws cool air right into the videocard area. Strangely, there's no airflow across the hard drives in this case, one of the very few oversights we were able to find with the Cosmos.

A lack of functioning drive-activity lights on the case's front panel is another stinger, but it's not enough to destroy the taste of this sweet, sweet chassis.

COOLER MASTER COSMOS

+ GALACTUS
Perfect for both air cooling and water cooling; almost all parts are easy to access.

– ABRAXAS
Where's the connection for a front-panel hard-drive activity light?

9

MAXIMUM PC KICKASS

$200, www.coolermaster.com

The Lexa Blackline tries to be innovative—too bad all you're really getting for your money are a few ho-hum LED fans.

NZXT LEXA BLACKLINE

Oh, NZXT, you had some truly great ideas on the ol' chassis drawing board. Alas, we can't give a 10 Kick Ass award for dreams. The Blackline case is a personal ad in case form—it certainly looks wonderful on NZXT's website, but seeing it in person is an entirely different experience.

The Lexa Blackline looks like a standard black case with some oversized hunks of plastic shoved onto it. They make for a good first impression, but you'll quickly discover just how awkward these accoutrements are when you start filling the case with parts. Rather than using the locking mechanism to pop off the side panel, you have to first unscrew the entire plastic panel attached to the back end of the case.

NZXT succeeds in giving the Lexa Blackline some color with red LED fans, but this motif is utterly destroyed on the case's front panel. The slit in the front of the case is supposed to glow red; it hardly does. And the LCD panel above that area glows with such a faint red backlight, we could hardly make out the temperature numbers on the display.

These details are the sole ways NZXT has attempted to differentiate this case from your standard box, and even they suffer from functionality-breaking flaws. If using this case were like going on a bad blind date, we'd already be crawling out the window in the restroom.

NZXT LEXA BLACKLINE

+ BEAUTY
Relatively screwless design.

– BOO-TY
Cramped interior makes installing water cooling difficult; front-panel lighting is a disaster.

4

$100, www.nzxt.com

Creative Xmod Wireless

A big-bang-for-the-buck multiroom audio solution

Creative is a little late to the wireless music-streaming party, but the company comes with a gift its competitors can't match: the X-Fi Crystalizer technology lifted from its X-Fi soundcard line.

The Xmod Wireless base station captures your PC's audio stream and transmits it to a remote receiver. The system relies on your PC's media-player software (we tested it with iTunes, MediaMonkey, Rhapsody, Yahoo Music, and Windows Media Player), which means it can stream any track your media player is capable of playing, including WMA Lossless, FLAC, and DRM-protected songs.

The transmitter receives power and audio from your PC over a USB cable, but it's also equipped with line-level RCA jacks. A 1/8-inch stereo jack enables you to plug in a set of local speakers. The receiver is powered by an AC adapter and has line-level RCA and 1/8-inch outputs. Both modules have buttons for play/pause, track forward, and track back as well as a large volume-control knob, so you don't need to hunt for the simple included remote to control the devices.

The Xmod Wireless costs $120 more than Logitech's Wireless DJ, but it can't match that player's awesome remote (which displays your track list and current tune on its LCD). On the other hand, the Xmod sounds considerably better than Logitech's product and it can stream to multiple receivers (a feature Logitech promised but never delivered). The Xmod wireless costs $70 more than a Squeezebox, doesn't rely on your wireless router, and is much cheaper to expand to a multizone system. But it lacks that device's excellent display and it can't stream Internet radio.

And then there's the Sonos Digital Music System. For its price, you could buy three additional Xmod receivers and have $160 left over to buy music. But all the Xmod receivers will play the same music, the system can't be expanded beyond four zones, and each receiver must be within 100 feet of the transmitter. The Sonos comes with that brilliant remote control, supports up to 32 zones (and can stream independently to each), and operates on a wireless mesh network that delivers substantially greater range.

Creative's Xmod Wireless is a compelling multiroom audio system for the price, but we'd happily give up one of its two remote controls for a display on either the remote or the receiver.

—MICHAEL BROWN

XMOD WIRELESS **9**

$370, www.creative.com

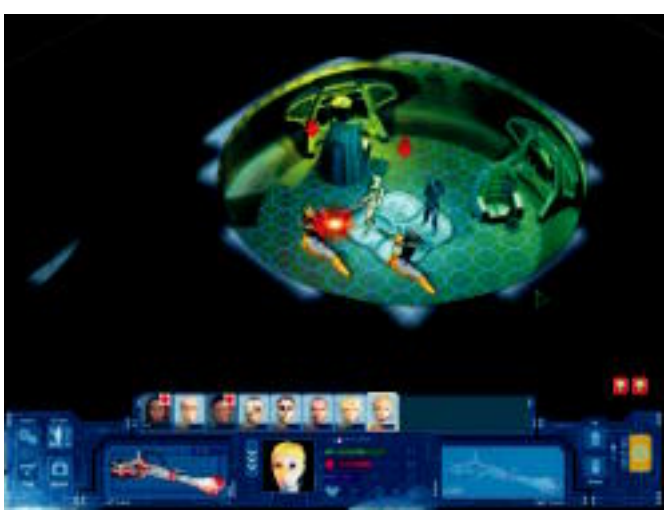
UFO: Extraterrestrials

An X-COM clone that's *almost* close enough to the original

Thirteen years ago, a little game called X-COM: UFO Defense debuted, pitting players against alien invaders and charging them with creating a network of bases around the globe, shooting down UFOs, capturing and researching alien technology, and then using it against the aliens in turn-based tactical squad combat. That's the formula UFO: Extraterrestrials follows almost to the letter, falling just short of being a direct remake of X-COM.

But don't get too excited—the second coming of X-COM is not yet among us. UFO is rife with shortcomings and bugs (especially if you don't mod it) that make it inferior to its inspiration at almost every turn. Graphics are a major weak point. While all of the environments and aliens are rendered in crude 3D, your squad members are, inexplicably, 2D sprites. UFO also suffers from a shortage of tactical maps; X-COM uses randomly generated maps to keep encounters unpredictable, but you'll know UFO's maps like the back of your hand after a couple of hours. At least the environment is destructible—you can demolish nearly everything, given enough firepower.

In a bizarre design decision, your soldiers are all but immortal; even the most lethal alien weapons can't inflict more than a month's hospital stay on them. On one hand, this means you don't lose your experienced soldiers easily (which is nice because green troops are nearly useless against late-game aliens), but if the aliens manage to incapacitate your entire squad on a mission or shoot down the troop transport en route, you lose the entire squad. Replacement troops trickle in only once or twice a month, leaving you almost completely defenseless. Game over.



You must avoid the alien probe at all costs!

That said, X-COM fans are sure to enjoy UFO. With some mods applied (we recommend the FrankenMod: http://tinyurl.com/2pzqjo, which so easily improves UFO that the game's developers should be embarrassed), this is the best X-COM clone to come along in a decade. And as sad as that is, it's nice that someone's still trying to recapture the magic.

—DAN STAPLETON

UFO: EXTRATERRESTRIALS **6**

$40, www.ufo-extraterrestrials.com

ESRB: E10+

Lost Planet

Explosive action in a winter wonderland

If you're without a mech and battling a monstrous insect, be sure to duck, cover, and roll before you're impaled.

If you've ever had that dream where all the awesome things you love are in one place, but everything is a little hazy and it all ends too soon when you wake up, you'll have a good idea what playing Lost Planet is like. This ported Xbox 360 game is packed to the brim with enough giant insects, killer worms, armored mechs, and glorious explosions to enthrall any science-fiction geek. Its only major shortcoming is that all of this awesomeness is crammed into a package that's all too brief—we completed the fantastic single-player campaign in just over six hours.

The setting for this third-person bug-smashing romp is E.D.N. III, an ice-covered planet that foolish humans tried to colonize once upon a time. After their first attempt to conquer both the icy elements and native inhabitants (the bugs) failed miserably, the original colonists eventually resorted to piracy to survive. Yes, they're snow-faring pirates—this game is that cool. As Wayne, you not only pump rifle rounds into hundreds of roaring bugs and pesky pirates but also fend off attacks from the evil NEVEC corporation, which is hell-bent on terraforming the planet in another attempt to make it inhabitable.

While unraveling the conspiracy behind NEVEC's operation, we blew our way through 10 missions that traversed snow-covered mountains, snow-covered caves, and abandoned snow-covered ghost towns. Though the frosty theme blanketed most of the environments, the variety of opponents, weapons, and mechs mixed up the fights sufficiently to keep us entertained. The levels are actually timed to a certain extent, as a thermal-energy meter slowly drains as you move and take damage. Vanquished bugs and pirates drop gooey puddles of thermal energy, but I always found that I had more than enough to complete most levels at a comfortable pace.

Enemy mechs are a pain to kill but drop an enormous amount of thermal energy.

And here's where Lost Planet's gameplay flaw reveals itself. Players rushing to reach the end of a level can simply sprint through most of the action, bypassing firefights and confrontations while conserving thermal energy. In fact, once we realized this trick, most shoot-outs felt more like irritating obstacles than intense challenges of firearm prowess.

Luckily, reaching the end of a level is its own reward, as epic boss battles are the best part of the game. Whether we were launching barrages of rockets into a giant moth or pumping lead into squadrons of NEVEC mechs, each boss encounter was a different and memorable experience that kept us on the edge of our seat. We could even excuse the somewhat predictable and repetitive attack patterns of the bosses, since this only reminded us of classic side-scrolling platformers.

The explosions and smoke effects are some of the best we've seen in a PC game.

Though we lament the lack of Games for Windows Live support (no achievements or matchmaking), the mouse and keyboard controls are surprisingly responsive and functional, making bug-squashing even more fluid and easy. Lost Planet also boasts long-awaited DirectX 10 enhancements—if you're running Windows Vista. Existing pretty shadows and snow-particle effects look even prettier, as long as you can take the framerate performance hit. We're also digging the improved multiplayer support Capcom is providing with the game. While there's no crossplatform play here, PC-exclusive maps and models are available for download. Little extras like this add welcome value to an already enjoyable game; Lost Planet sets a great example of how console games can be successfully ported to the PC.

—NORMAN CHAN

LOST PLANET

+ LAND OF THE LOST
Fast-paced and visually gratifying action both offline and online.

– LOST WORLD
All too brief campaign that's hastened by a minor faulty gameplay mechanic.

8

$40, www.lostplanet-thegame.com
ESRB: T

Win Rig of the Month AND WIN BIG!

IF YOUR MODDED PC IS CHOSEN AS A RIG OF THE MONTH, IT WILL:

1. Be featured before all the world in *Maximum PC*
2. Win you a $500 gift certificate for Buy.com

SO WHAT'S STOPPING YOU?

TO ENTER: Your submission packet must contain your name, street address, and daytime phone number; no fewer than three high-res JPEGs (minimum size 1024x768) of your modified PC; and a 300-word description of what your PC represents and how it was modified. Emailed submissions should be sent to **rig@maximumpc.com**. Snail mail submissions should be sent to Rig of the Month, c/o Maximum PC, 4000 Shoreline Court, Suite 400, South San Francisco, CA 94080.

The judges will be *Maximum PC* editors, and they will base their decision on the following criteria: creativity and craftsmanship.

ONE ENTRY PER HOUSEHOLD. Your contest entry will be valid until (1) six months after its submission or (2) October 15, 2007, whichever date is earlier. Each month a winner will be chosen from the existing pool of valid entries, and featured in the Rig of the Month department of the magazine. The final winner in this contest will be announced in the December 2007 issue. Each of the judging criteria (creativity and craftsmanship) will be weighed equally at 50 percent. By entering this contest you agree that Future US, Inc. may use your name and your mod's likeness for promotional purposes without further payment. All prizes will be awarded and no minimum number of entries is required. Prizes won by minors will be awarded to their parents or legal guardians. Future US, Inc. is not responsible for damages or expenses that the winners might incur as a result of the Contest or the receipt of a prize, and winners are responsible for income taxes based on the value of the prize received. A list of winners may also be obtained by sending a stamped, self-addressed envelope to Future US, Inc. c/o Maximum PC Rig of the Month, 4000 Shoreline Ct, Suite 400, South San Francisco, CA 94080. This contest is limited to residents of the United States. No purchase necessary; void in Arizona, Maryland, Vermont, Puerto Rico, and where prohibited by law.

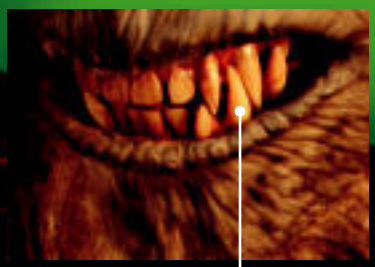
While most of us lack a solid resource for goat, yak, and horse hair, Gary scored a load of it (along with some mohair) to create this follicly full face!

GARY WILLETT'S

Animatronic Mod

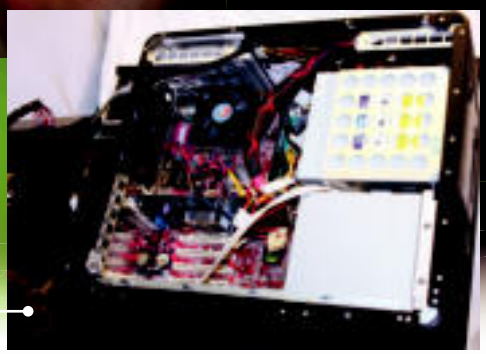
With this being the October issue, our thoughts turn to such seasonal delights as bobbing for apples, trick or treating... and having the bejesus scared out of us by Gary Willett's Animatronic Mod.

Gary's first mod featured a monster tearing through a case; not satisfied with a static device, he set his sights on creating a rig that moves—and talks. While these photos detail much of the work that went into creating this rig, to truly appreciate the Animatronic Mod in all its expatiating glory, go to **www.youtube.com/willettfx**.



Them chompers—dental acrylic teeth—look just like the real thing. We suspect Gary's full-time job making dentures had something to do with that.

Here, Gary stands face to face with the beast. He filmed 90 hours of digital video over the course of this two-year project and plans to create an instructional video with the footage.



This rig is packing MSI KT6 and AMD 2500XP Barton motherboards and an XFX 5600 videocard—enough to run the 16 servos controlling the creature's face.

For his winning entry, Gary wins a $500 gift certificate for Buy.com to fund his modding madness! See all the hardware deals at www.buy.com, and turn to page 100 for contest rules.

If you have a contender for Rig of the Month, e-mail **rig@maximumpc.com** with high-res digital pics and a 300-word write-up.

MAXIMUM PC (ISSN 1522-4279) is published monthly by Future US, Inc, 4000 Shoreline Court, Suite 400, South San Francisco, CA 94080, USA. Periodicals postage paid in South San Francisco, CA, and at additional mailing offices. Newsstand distribution is handled by Curtis Circulation Company. Basic subscription rates: one year (13 issues) US: $20; Canada: $26; Foreign: $42. Basic subscription rates "Deluxe" version (w/CD): one year (13 issues/13 CD-ROMs) U.S.: $30; Canada: $40; Foreign $56. US funds only. Canadian price includes postage and GST (GST#R128220688). Postmaster: Send changes of address to Maximum PC, P.O. Box 5159, Harlan, IA 51593-0659. Standard Mail enclosed in the following editions: C1, C2, C3, C4. Ride-Along enclosed in the following editions: B1, D1, D2, D3, D4. Int'l Pub Mail# 0781029. Canada Post Publications Mail Agreement #40043631. Returns: 4960-2 Walker Road, Windsor ON N9A 6J3. For customer service, write Maximum PC, P.O. Box 5159, Harlan, IA 51593-0659; Maximum PC, 4000 Shoreline Court, Suite 400, South San Francisco, CA 94080. Future Network USA also publishes PC Gamer, PSM, MacLife, and Official Xbox. PRODUCED AND PRINTED IN THE UNITED STATES OF AMERICA.