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October 2006

# digit

YOUR TECHNOLOGY NAVIGATOR

## Notable Portables

From luxury to necessity—  
why you should be buying  
one of these 43 laptops



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Cards Vie For Your Attention!

Directx 10 Will Change The Way  
You Game In The Future



Feed The Gamer In You  
—Create Your Own FPS!

The Most Useful Yahoo!  
Widgets For You



Turn Your Old, Cranky  
PC Into A Jukebox



 **Jasubhai**  
DIGITAL MEDIA

## In Search Of Search

**H**OW OFTEN, while searching the Net, have you found exactly what you are looking for? Chances are, not often enough. And if you only look at the very first result, perhaps less than one per cent of the time. Searching for relevant information on the WWW is akin to spotting weeds in your garden. The information is buried under so many layers of unwanted or sometimes even sponsored content, it becomes a highly frustrating exercise to get to your desired page or site.

When I tried searching for a friend's Web presence lately, all I got was a deluge of sites carrying reference to the politician "Varun Gandhi" and not my school buddy. Granted, my friend shares his name with a famous personality, but I would like the option to omit the politician from my results, without having to add "-politician -bjp -politics" to my search term. Why can't engines distinguish between the politician and my friend? Personally, I would like something like Wikipedia's "disambiguation" option for my searches.

What we need are filters that can separate the wheat from the chaff—using intelligent search mechanisms to do the job!

It is this very inadequacy of existing search engines that has spawned the increasing usage of social or community search engines. Similar services are also now being offered by Yahoo! and Google.

The new generation of search services doesn't just offer personalisation of your search, but also lends the option of customising the search topics as well as how results are served up on your first attempt.

With more than 25 billion pages of Web content out there, search engines have lately realised the fact that users also want to personalise the information they are getting—Google, for example, offers personalised searching, and several other search engines allow a certain level of user intervention with search results.

A number of new services also provide the ability to create your very own search engine. Services like Rollyo, the Yahoo! Search Builder, PSS! and Eurekster's Swicki claim to create a search function for users, but they all do it somewhat differently.



**Deepak Ajwani** Executive Editor

**“What we need are filters that can separate the wheat from the chaff—using intelligent search mechanisms to do the job!”**

Admittedly, these personalised search services have their own advantages and disadvantages, and are far from being perfect. Some are limited by their scope of search, while others are unfriendly when it comes to user interface or customisation. “None of them stand head and shoulders above the others” says Phil Bradley of searchenginewatch.com, who reviewed these for efficacy. While there are numerous such options today, we are still far, far away from the near-perfect crawler that can tell the difference between the “bush” in “bush fire” and news results about US President Bush!

A stylized, handwritten signature in black ink, appearing to read 'D. Ajwani'.

editor@thinkdigit.com



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 ATI AIW X1800XL  
 Forsa 7600GS  
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 Gainward 6600GT 256MB  
 Gainward Golden Sample  
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 LEADTEK PX7800GTX 512  
 LEADTEK PX7950GX2  
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 MSI NX7600GT Diamond  
 MSI NX7900GT-TD256E  
 MSI RX1800GTO  
 MSI RX1900GT - VT2D256E

MSI NX7900GTX T2D512E  
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 Palit 7300GS PCI-E 256MB  
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 Palit X1600 Pro  
 Powercolor X700 256 GDDR2  
 Powercolor X1300 128 DDR  
 Powercolor X1300 256 DDR2  
 Powercolor X1300 512 DDR2  
 Powercolor X1600Pro 512MB  
 Powercolor X1900GT 256  
 Powercolor X800GTO  
 Powercolor X800XL  
 Powercolor X850XT PE  
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 Sapphire X1800GTO  
 Sapphire X1900XT 512  
 Sparkle 7600GT  
 Sparkle SF-PX73GDH 256MB  
 XFX 6800XTreme 256MB  
 XFX 7600GT  
 XFX 7600GT XXX  
 XFX 7800GTX  
 XFX 7900GT  
 XFX 7900GTX  
 XFX 7950GX2  
 XFX PV-72G-WANG  
 XFX PV-T43G-UDF7  
 XFX PV-T44F-WANG  
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 ACI Ethos Duo 1530  
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 ACI Matrix 1400  
 ACI Matrix 1500  
 ASUS F3JM  
 ASUS U5F  
 ASUS V6000J  
 ASUS Z35H  
 Compaq Presario 6000  
 Compaq Presario B 1900  
 Dell Inspiron 6400  
 Dell Inspiron 640M  
 Dell Latitude 820  
 Fujitsu Q2010  
 Gigabyte N211U  
 Gigabyte N521U  
 Gigabyte RW3G  
 Gigabyte W431U  
 Gigabyte W511U  
 Gigabyte W551N  
 HP Pavilion DV2025TU

HP Pavilion DV8216TX  
 LG LW60 Express  
 LG P1  
 LG X Note T1  
 MSI Megabook 1022  
 MSI Megabook 1034  
 MSI Megabook S-271  
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Build your own game from scratch with FPS Creator. Then hack it to shake off that “factory” feel



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How does your processor stop itself from generating too much heat? Instead of “throwing away” bits, the reversible computer will keep them handy for later use!

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Sixty-five graphics cards vie for your attention—casual or hardcore, no gamer should miss this test!



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It’s true! You *can* get plenty of use out of those cute little mini-applications on your Desktop



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If you’re heading the market for a new LCD Monitor, don’t leave without your monthly consultation with our trusty Agent



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Is your PC old? Does it cry every time you start a programme? Oil those rusty chips now, and turn the Ancient One into your very own jukebox!

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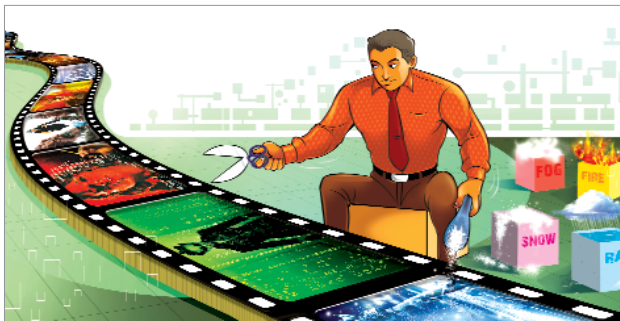


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# October 2006

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### Lead Feature

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## DIGITAL PASSION

## GAME

**Call of Juarez Multiplayer**

Call of Juarez is an epic western adventure about vengeance, survival and the search for a legendary lost treasure

**Joint Task Force**

Joint Task Force is a state-of-the-art military RTS with a contemporary setting

**Warhammer 40,000: Dawn of War - Dark Crusade Demo**

Dark Crusade is the expansion pack to the award winning Warhammer 40,000: Dawn of War

## Linux

- MySQL 5.1 Beta
- Oracle Database XE
- E-XD++MFC Library Enterprise V9.80
- Microsoft Virtual Server 2005 R2 Enterprise Edition 32-bit X86
- Revolution Studio
- SQL Tool
- Websmartz Website Builder, Flash Intros 2.1



- XMLObjective Evaluation with JRE 1.4
- FPS Creator

## DEV TOOLS

- Audacious Music Player 1.1.2
- Banshee
- Clean Karamba CPU 1.0
- Gobby 0.3.1
- Google Earth for Linux
- Gparted
- Grip 3.3.1
- Ktorrent
- Xine 1.1.2

## DIGITAL TOOLS

**Grass Valley EDIUS Pro v4 NLE Software Demo**

EDIUS Pro can edit DV content in HD resolutions, providing automatic, real-time upscale conversion from standard definition to high definition video, and all project titles, graphics and effect are applied in HD resolution

**TMPGEnc XPress 4.2.1.188**

TMPGEnc 4.2 XPress gives you the freedom to take almost any video file and encode it to your desired file format including DivX 6 AVI, QuickTime, MPEG 4-ISO, H.264, DVD-Video, DVD-VR, HDV camcorder, and much more

## MULTIMEDIA

- Acala 3GP Movies Free 2.3.3
- AudioLab 2.2.1
- Aurora Media Workshop 3.3.17
- AutoRun Design Specialty 5.0.8.9
- Beyond TV 4
- Focus Photoeditor 5.1.1
- Movie Library 1.3 build 259
- SWiSH Studio2



## INTERNET

- ICQ 5.1
- Robust FTP and Download Manager
- SurveillizCam Lite 1.16
- There 2.6
- Forte Agent 4.0/32.1071
- Internet TV and Radio Player 3.4.0.0
- Spam Filter ISP 2.7.1.532
- TracePlus Ethernet 5.15.000
- WebcamMax 2.1.0.8
- WinProxy 6.1 R1b

## SYSTEM



- ATI Catalyst 6.8
- FlyakiteOSX v3.5
- Norton Antivirus Definitions Update NVIDIA Forware 91.47
- Unlocker 1.8.5
- Vista Transformation Pack 5.5
- Genie Backup Manager Pro 7.0.138.309
- Nero Burning ROM 7.2.7.0
- Panda Internet Security 2007



## DIGITAL BUSINESS

**FileMaker Pro**

FileMaker Pro is easy-to-use database software, that's used by millions of business professionals worldwide to manage people, projects, assets, and more

## PRODUCTIVITY TOOLS

- PrimoPDF 3
- WordWeb 4.5a
- Almyta Inventory Control System 2.90.29
- authorPOINT Version 3.6
- Check&Drive 2.45.433
- Internet Caffe 5.3.1



- SurveyGold Standard Edition 7.0.9
- WinPure Clean & Match 2006



- Wondershare PPT2Flash Professional 3.1.6

## MOBILE APPS

- ActiveSync 4.2
- Graffiti Anywhere v1.5.8
- VH PocketPC Capture v0.9 Beta for Smartphone
- Agile Messenger 3 ALPHA for Windows Mobile 5.0 Smartphone and Smartphone 2003



- eOffice Professional Edition
- iXchange Mobile Partner - MT-A02-1 2
- MobTime Cell Phone Manager 2006 6.1
- MyJAL MediaPal 3
- Party-Pro
- Idokorro Mobile Admin 3.2.41



## DIGITAL LEISURE

## SMALL GAMES

- Air Strike II: Gulf Thunder



- Diner Dash 2



- Luxor: Amun Rising



- Star Defender 2

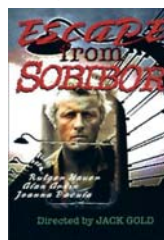


- Talismania
- Virtual Villagers



## MOVIES

- 3 Stooges New Apants 2
- 3 Stooges New Disorder 2
- 3 Stooges New Groom
- 3 Stooges New Malice
- Escape from Sobibor



## VIDEOS

- Scenes Season 2 Episode 1 to 7

## E-BOOKS

- Lost World by Sir Arthur Conan Doyle
- Parma Endorion: Essays on Middle-earth by Michael Martinez
- Rapunzel by The Brothers Grimm
- The Little Match Girl by Hans Christian Andersen
- The Tale of Peter Rabbit by Beatrix Potter



## DIGITAL PASSION



### IntelliJ IDEA

With its industry-leading features, IntelliJ IDEA relieves Java programmers of time consuming routine tasks, remarkably boosting their productivity



### Drupal

Drupal is software that allows an individual or a community of users to easily publish, manage and organize a great variety of content on a website

### Wing IDE Professional v. 2.1.2



Wing IDE is a IDE for Python. This IDE speeds up development time and improves code quality

## DEVELOPER TOOLS

- CASL 4.3
- J2ME Mobile Information Device Profile (MIDP) 2.0
- J2SE(TM) Development Kit 5.0 Update 8
- Jana Server 2.4.7.39
- MySQL GUI Tools
- Advanced Query Tool

## LINUX

- Bon Echo Alpha 3 milestone



**Firefox**

- Freetalk 0.69
- Installer 2



- KBackup 0.4
- PHP 5.1.6
- Skype for Linux 1.3 BETA

## DIGITAL TOOLS

### Zbrush



ZBrush enables artists to paint an image with depth, applying both 2D and 3D effects in one integrated, real-time workspace

### Anonymizer Software

This is a three in one software and contains Anonymizer Anonymous Surfing, Anonymizer Anti-Spyware, Anonymizer Digital Shredder Lite to make your track untraceable



## MULTIMEDIA

- Catalencoder
- JetPhoto Studio 3.2.2
- Mixvibes Free 6
- Anim FX
- AutoImager
- Orion Pro 7
- Photolighting 4.5



## INTERNET

- Ella for Spam Control



- IPN Video Client 1.6
- Omea Reader
- Pop up Blocker 6.0.5c
- Proxy+
- SeaMonkey 1.1 Alpha
- DU Meter 3.07 build 200
- Sunbelt Kerio Personal Firewall

## SYSTEM

- CDCheck 3
- File Recovery 4
- Nero CD-DVD Speed
- Smart Recovery 4.5
- Actual Transparent Window 4.1
- Advanced System Optimizer 2.10
- Recover My Files
- Trend Micro Pattern File 3.697.00

## ESSENTIALS

- Avast Home Edition 4.7
- Digit Software Archive 2006 Beta
- Foxit PDF Reader 1.3 build 1621
- Irfan View 3.98
- K-Lite Mega Codec Pack 1.58
- Opera 9.01
- Spybot Search and Destroy 1.4
- VLC Media Player 0.8.5
- Winamp 5.24
- WinRAR 3.60
- ZoneAlarm 6.5.737

## DIGITAL BUSINESS



### ArGoSoft Mail Server

ArGoSoft Mail Server is full SMTP/POP3/Finger/IMAP server for all Windows platforms, which will let you turn your computer into the email system

### SyncBackSE



SyncBackSE has become the favoured backup and synchronization solution of individuals, businesses, non-profits, universities, and hospitals the world over

### Merak Mail Server



Merak Mail Server is a comprehensive email solution for office LAN or high-speed Internet communications

## PRODUCTIVITY TOOLS

- PDF Creator v3.0
- PowerPoint to Video 1.3.1



- Alchemy Eye 8.2
- Business Productivity Kit
- CMailServer
- Merak Mail Server

## MOBILE APPS

- Minutes of Meeting 4.0 Beta
- myCodes lite 1.3
- Pocket Antivirus 7.0.0
- Skype for Pocket PC 2.0
- Webby Mobile 2.5
- WiFi Graph 0.3 RC3



- PwdMaster 1.1
- SimWorks Anti-Virus S60 1.3

## DIGITAL LEISURE

### SMALL GAMES



### 3 Foot Ninja

Help little ninja defeat enemies and collect all the scrolls to move to the next level

### Cannon Blast

Blast all of the enemy boats into Dave Jones' Locker



### Verti Golf 2

Play this futuristic golf game on floating holes in the sky!



### Danger From The Deep v0.1.1

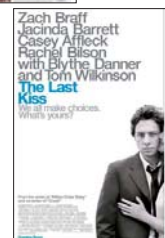
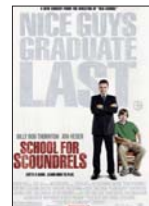
A free, open source World War II german tactical submarine simulation



- Snake
- PaintBall

## VIDEOS

- School For Scoundrels
- The Last Kiss
- Confetti



## Online



### By Demand

You get to choose what goes on Digit Interactive. This month, you chose:

#### Oracle XE

Size: 206 MB

#### Escape From Sobibor

Size: 804 MB



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### Digit Reader Poll

#### This Month's Question

**Are you going to invest in a graphics card now?**

- ☐ Nah! I'll wait for DirectX 10
- ☐ Of course! I need a graphics card *yesterday!*
- ☐ I just bought a graphics card – I'll wait for a long, long time
- ☐ I don't care. I play Minesweeper



To vote Log on to [www.thinkdigit.com](http://www.thinkdigit.com)

#### Last Month's Question

Total: **24668**

### Will you go the Vista way?

- ☐ Absolutely! I've even got my PC ready
- ☐ Old is gold, I always say—it's XP for me
- ☐ No way! It'd kill my PC!
- ☐ I'd rather see what Linux has in store for me

taste technology at [www.thinkdigit.com](http://www.thinkdigit.com)

## FEATURED TUTORIAL FROM DIGIT FORUM ([www.thinkdigit.com/forum](http://www.thinkdigit.com/forum))

Every month, we will feature a member tutorial from the forum here.

Click here to go back to

**thinkdigit.com**

#### ASCII Art

19-09-2006,  
06:11 PM

freakitude  
Fresh Stock



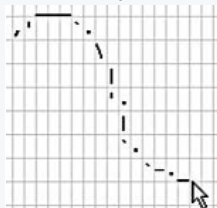
Join Date:  
Apr 2006  
Location:  
127.0.0.1  
Posts: 23

You can easily create ASCII art that you find in .NFO files that sometimes come with softwares that you download from internet usually cracks, illegal stuff, etc. Or ASCII art that some people use as their email signature.

JavE (Java ASCII Versatile Editor) is a free ASCII Editor intended for drawing simple diagrams by using Ascii characters.

It is like a graphics editor for editing texts instead of images. You can create awesome ASCII art using JAVE. You need Java 2 Runtime Environment to run Jave. Java runtime can be downloaded from here.

With JavE you can:-



O /  
/ /  
/ /

Use your mouse to draw texts!

- create ASCII art
- create signature for emails
- draw sketches for e-mails
- comment source code of programs

You can download JAVE from here:

<http://www.freakitude.com/www.jave.de/download/download.html>

Other good way to create ASCII art is by using Boosty's ASCII artist. ASCIIArtist is a class to convert Bitmap-Images into nice ASCII Texts in HTML format . You can download the script from here to use on your own website: <http://www.sebastian-r.de/asciiart/download.html>

Or visit this webpage to convert Image to Ascii online: <http://www.sebastian-r.de/asciiart/index.html>

**For the full tutorial (and many more) visit:**  
<http://www.thinkdigit.com/forum/showthread.php?t=36808>



## Who Will Govern The Net?

The blueprint for the world's first Internet Governance Forum (IGF), to be held at the end of October, has been laid out. This is a UN experiment devised when countries were unable to agree on who should run the Internet. Hopefully, we'll see something substantial emerging from the Forum.



## Cell-Based Computers Shipping

IBM has finally started shipping computers based on the Cell architecture it co-developed with Sony and Toshiba. IBM claims that a number of high-profile clients such as the Fraunhofer Institute are already running the devices.



# Enter

**Tarun Tahiliani**  
Fashion Designer

Tahiliani is a leading fashion designer who held his first solo show at London in 1994, and has since been amongst the best in the Indian fashion industry. His collections merge Indian ethnic chic with contemporary international appeal.

### Technology to you is...

...Mostly a nightmare—great for production in mass, often soulless, but it really makes life comfortable.

### What gadgets do you use?

The gadgets I use extensively are PCs, iPods, great music systems, digital printers, and, actually, a host of other appliances. My mobiles are critical in my daily life.

### What would be your dream gadget/technology?

My dream technology would have to be a time machine—using which I'd be able to go into any time of history, reverse aging, and condense travel time.

### What do you mostly do online?

E-mailing... I still find it too slow and impersonal to surf the Net.

### Any instance where technology has really helped you?

In my business, where printing technology on paper and fabric has enabled us to be much more efficient. Also, to stay cool, stay in touch, and enjoy mobility.

"The world is my oyster"!

PRETTY WITH A PUNCH

# MS Unleashes Live Search

It's charming, pretty, XP-esque, and feature-packed—MSN's new Live search (accessible from live.com) launched September 12. The index is questionable, though—your mileage may vary, but a search for a random actress, both in Web pages as well as in images, brought up only a tenth of the number of results that Google did, and the ratio with a popular technology term was 50! One might ask why anyone would want to use Live search in such a situation, but when you realise that people hardly ever go beyond the third page of results, and want more relevance instead, the question becomes an idle one.

We can't do a review in this space, and neither is one warranted, but one look at the image search will reveal that Windows Live Search is all about functionality, looks, and user-friendliness. As just one example, when we did a search on the random actress, we got a list of "similar people." It's a refreshing break from the boring Google we've all gotten used to, although it's slower.

As part of Microsoft's plan to call everything

"Live", the old search.msn.com now redirects to live.com. It's only a matter of time before all user experience comes under the Live brand umbrella.

In addition, Microsoft has also unveiled the final versions of Live.com in general and Windows Live

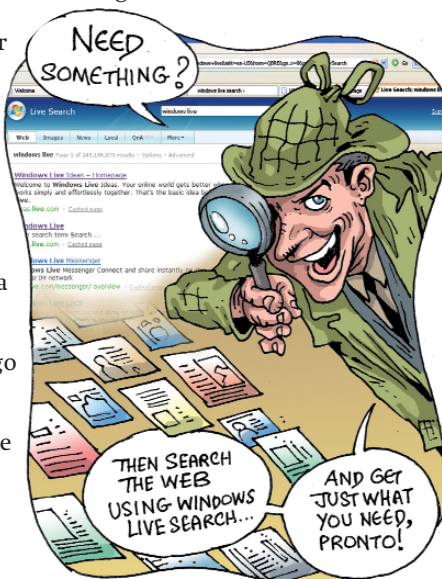
to your homepage by clicking on a link. There are also additional sites where information is filtered using specific search criteria. These include academic.live.com, which lets you search academic journals and content for article titles and abstracts, author names, and so on.

The Windows Live Toolbar has also been released, replete with a pop-up blocker and protection against phishing attempts. Windows Live Local is based on Microsoft's Virtual Earth platform.

Industry experts, as well as the rest of us, naturally see Windows Live Search as Microsoft's latest offensive against rivals Google, Yahoo!, and AOL.

Coming to the numbers, Microsoft's market share in Web search is going down. It currently ranks third, behind Google and Yahoo!. The company had 9.6 per cent of the market in July, down from 11 per cent in January, according to Nielsen/NetRatings. Google and Yahoo! had picked up in that period. However, Derrick Connell, general manager of Microsoft's search business unit has said, "I feel confident that we can gain share."

Gain share they will, if the user experience is anything to go by. Again, a comparative review of Google vs. Yahoo! vs. Live



Illustrations Harsho Mohan Chatteraj

Local (for local search in some countries).

At Live.com, you can create tabs to pages featuring self-selected information. Links can be chosen from a menu of news sites and blogs compiled by Microsoft, or favourites compiled by other users while conducting searches. For example, if you stumble upon a supported blog or site you like, you can add it

## Security Watch

### Browser Vulnerabilities

Vulnerabilities have been discovered in both Internet Explorer 6.x (as well as other versions) and Firefox.

#### Internet Explorer

A description of the vulnerability is very technical, but it has something to do with ActiveX controls. It can be exploited by malicious people to compromise a user's system, and run arbitrary code. In other words, your computer could be taken over. Microsoft hadn't released a patch at the time of writing. In the meanwhile, only allow trusted Web sites to run ActiveX controls. To restrict the running of ActiveX controls, open Internet Properties in the Control Panel. Under the Security tab, click on Internet (the globe icon), then select "Custom Level", and set it to High. This simply disables ActiveX. For more functionality, you could set it to Medium-High, so you'll be prompted before some ActiveX controls are run.

Better still, you could switch to Firefox!

#### Firefox

Mid-September, Mozilla brought out a new version of Firefox—1.5.0.7—to mend at least seven security holes, including at least four flaws that could be used to install software on vulnerable computers. If you've been regularly updating Firefox, you're using version 1.5.x. You don't need to do anything, really—Firefox will update itself if you have the option for this checked. Otherwise, simply go to **Help > Check For Updates**, and follow the instructions.

doesn't find a place here, but what we can say is that you *should* try Live search. Naturally, it's goofy at times and bang on at times, and there are hundreds of bloggers out there convinced one way or the other. We'd advise you to pay no heed to what anyone else says, and try it out for yourself. We don't think this will be a Google buster, though.

#### TAPPING INTO MOBILE SEARCH

### The New Search Wars?

There are several reasons cited for mobile search being different from desktop search, and why search on mobiles needs to be designed differently. The mobile user is typically impatient. The screen and keypad are small. Such a user hates waiting for answers—and will not be willing to wade through screen after screen to find the search result he wants.

Consider the facts: keying in data is harder. Pointing and clicking is harder. Limited screen space means it's harder to offer different options and interpretations of the query string. On top of this, there are several device types, and optimising the user interface is therefore difficult. And then consider

the fact that the very content that mobile users want is, on the average, different from what desktop searchers are looking for, and you have a problem.

There's a lot of content out there for mobile users—news, video, weather reports, and such—and not good enough ways to access it. What's happening now is that the usual big players—Google and Yahoo!—as well as a whole bunch of start-ups such as InfoSpace, JumpTap and Medio, are getting into the mobile search fray. Search-based advertising is being experimented with.

Major Internet companies are revving up new services designed to encourage marketers to buy text ads on mobiles. For instance, Yahoo! recently struck a deal with mobile services provider Bango, designed to make it easier for businesses to buy paid search listings on cell phones.

The story actually begins here: mobile operators' revenue from voice services is on the decline, and they are counting on such things as mobile video and music downloads to make up for the lost revenue. And here comes the big catch: most wireless subscribers have hardly downloaded content or even surfed the Net from their phones looking for content. The Yankee Group estimates that only 18 per cent of

#### HOT Cheaper GPUs



Pixel pipelines are soaring; processing power is skyrocketing; games are getting prettier; manufacturers are outdoing each other to reduce prices like crazy—seems like there was never a better time to go out and get one...

#### No Futureproofing

#### NOT



If you go out and buy a graphics card today, you will get amazing processing power, but none of them will work with DirectX 10, and so you cannot play any of the games that will be developed for Vista—and that's just under a year from now!

wireless users in the *United States* have even tried surfing the mobile Internet!

The problem, then, is: get them to surf, get them to search, and provide quick, relevant results that point to interesting content—preferably tailor-made for mobile.

"Surfing the mobile Internet is still hard," said Eric McCabe, vice president of marketing for JumpTap. "The wired Internet didn't really start to explode until search tools like Google made it much easier to find things online."

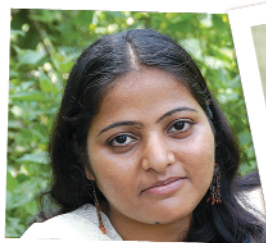
The biggest challenge for mobile search lies in building an appropriate business model. With the "regular" Web, the content

## One Silly Question

### "What might you trade a high-end PC for?"



"A guitar!"  
Pravin Babar



"Well, a soft toy..."  
Ekta Singh-Mumabi



"A floppy drive..."  
Sambhav Shrivastava

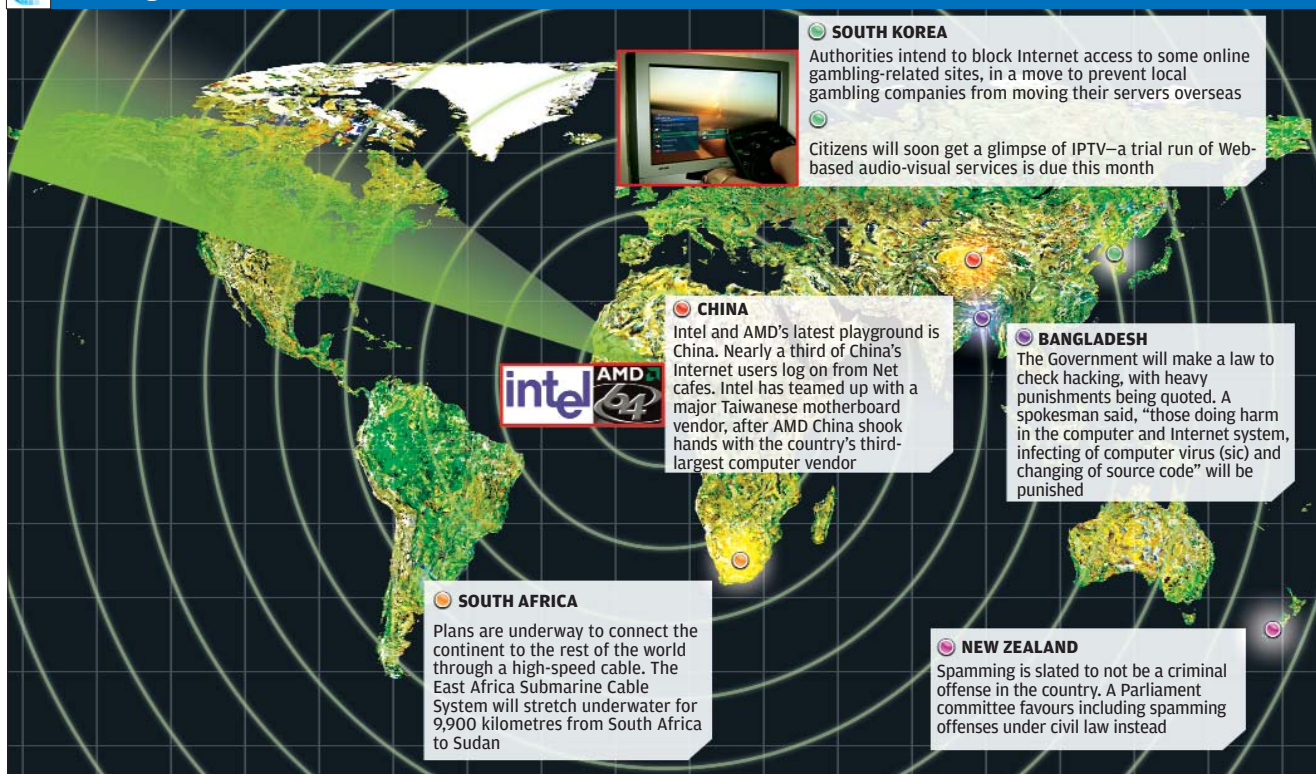


"A Discman"  
Sangeetha Iyer



"How about a mobile?"  
Arohi Chakraborti





is just out there; in the wireless Web, the operators themselves control the content that users can access.

As indicators of search companies venturing into the arena, Google has deals with Vodafone and T-Mobile; Yahoo! has a deal with Orange, and recently announced that its mobile search engine will be embedded in some new Nokia handsets.

There's another issue for carriers: whether to go with branded search, or to build their own search tools. Going with, for example, Google, means risking losing control of the ad revenue that comes from the search application. Also at risk is the dilution of their brand. Some mobile operators in the US have therefore opted to build their own search tools, with the help of less-well-known companies in search.

"The more things people are able to do with their mobile phones, the more indispensable they will become," says Iain

Gillott, an analyst with iGillott Research. "Today people select a service provider based on coverage, price and customer service. But once those things are all equal, search could become a differentiator."

#### THE WORLD-DOMINATION DEPT.

## New Google Offerings

Google has opened up its "news archive" search, at <http://news.google.com/archive>, with items reaching back to the beginning of the 19th century. It is limited as of now—there are just a few publications, such as *Time* magazine and *Guardian* newspaper, that give their news content from earlier generations for free. But then there are publications such as *The New York Times* and the *Wall Street Journal* that also appear in the search results, for which you have

## Three Incredibly Useful Sites

Facts from a monster, how-tos and literature

#### www.factmonster.com



#### Factmonster.com

Featured here are things like an almanac, an atlas, and a dictionary and encyclopaedia specially for kids. The Homework Centre features birthdays of famous personalities, events in history, quizzes, interesting topics currently in the spotlight, and other such kid-friendly stuff. There are broad sections such as Sports, Math & Money, Back to school, Fun Science Projects, and more.

#### www.ehow.com



#### Ehow.com

If you want to learn how to tie a tie, build a deck, train your dog, lose weight, negotiate a raise, throw a curveball or even *kiss on a date*—eHow can help you! This is an online how-to reference manual, for everything you can think of. With thousands of pages of advice, eHow offers staff-written, step-by-step solutions—for things as weird as how to raise a pet frog!

#### www.bartleby.com



#### Bartleby.com

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Photograph S Balaji

Each month, *Digit* will carry a caption for a photo. Come up with something funnier, and beat the *Digit* team at their own game! Entries accepted by the 20<sup>th</sup> of this month.

# Beat That!

## Digit Caption

"Future Now"

### Last Month's Winner!

Pratik Dey  
Arya Palli  
Bhubaneswar

"HDD: Hot Dishes Daily!"



E-mail your caption with the subject 'Beat That', and your postal address, to [beatthat@thinkdigit.com](mailto:beatthat@thinkdigit.com) and win

### Beginning ActionScript 2.0

by Nathan Derksen & Jeff Berg  
Published by

**WILEY-INDIA**



to pay if you want to read the news items.

A Google spokesman said it was early days for Archive Search: more papers will be added. Depending on how many papers "will be added," the development takes Google to new heights: instead of "organising the world's information and making it universally accessible and useful" just applying to the latest goings-on, an entire dimension—our past, our heritage—has been created.

Is this exciting stuff yet? A search for "Jalianwala Bagh" brought up about 50 results, of which three dated back to 1930 (the tragedy occurred in 1919). All three of these pages cost \$1.95 to read.

You can filter results by year, and when we searched for "india cricket world cup 1983", none of the results on the first page were about the win. Filtering it down to "1983", we could only find mention of the win in items after the event.

Still, it does give you a taste of things bygone: we

encountered such phrases as "the world's non-white cricket teams" and, in the case of the previous search, "British India, Jalianwala Bagh, Punjab, 1919: British-Indian troops opened fire..."

We'll just have to wait for Google to add more meat to the service until we see such headlines as "India gains freedom" in The First Page Of The Results.

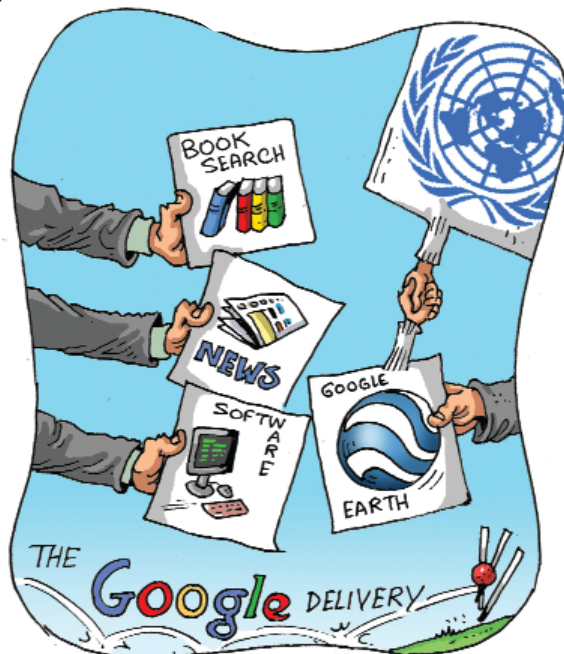
Then, Google has augmented its book search (<http://books.google.com>) to include full-text versions of public domain titles, including such items as *Hamlet* and *Inferno*. (Earlier, only sections or select chapters were available.) You can now search by "all books" and "full-view books".

Much of the Internet

community today gets most of its information online, and Google Books could just encourage reading amongst those who don't know their Wodehouse from their Spinoza.

And there's more. Google has re-released an open source OCR software originally produced by HP: the Tesseract program. It was developed by HP between 1985 and 1995; HP then stopped working on it and released the code. By Google's own admission, the software currently "supports only English, does not include a page layout analysis module, struggles with greyscale and colour documents, and will not match the accuracy of the best commercial OCR packages currently available."

In another development, Google Earth tied up with the United Nations Environmental Program ([www.unep.org](http://www.unep.org)) to allow users to see images that depict areas of the most extreme environmental degradation. It will offer before-and-after imagery





## GENDER

Vedwati Padwal Vs. Pankaj Juvekar



## BENDERS



## Acronym Soup

00:02:30

This month's task was to say what three acronyms stood for—LCD, TCP and OLED. We figured these were in increasing order of “difficulty”, so to speak. A quiz of sorts. When we fired “LCD” at Vedwati, she was caught off-guard. She did recover a little, though—her first letter was bang on: “Liquid”. Then she fumbled, and a little cogitation got her saying that “D” stood for “display”. The “C” had her flummoxed, and we had to tell her. “TCP” was too much for her to handle, and from the look on her face, we felt we would hit a wall if we went on with “OLED”. Vedwati was only too happy to know she could leave!

00:02:11

A confident Pankaj, faced with “LCD”, stuttered, “LCD: Liquefied Crystal... err... Display.” Sounded too chemical for us, so we corrected him. Our next acronym—TCP—saw him give up without a fight! Kind as we are, we supplied him with a couple of clues, but he just didn't seem to get it. Still, based on whatever he'd said, we thought we'd fire our last salvo—OLED. Pankaj knew it had something to do with “display”, but didn't really have a clue beyond that. Then we told him.

Pankaj wins by a small margin—but after he'd left, we did have ourselves a good but guilty laugh at his “liquefied”! Sorry, Pankaj, if you're reading this...



spanning the last 30 years of environmental disasters. On a happier note, a partnership with Discovery Networks will allow people to take a virtual world holiday tour. Other partners in the new programme—which Google is calling “featured content”—include the Jane Goodall Institute ([www.janegoodall.org](http://www.janegoodall.org)). Using this overlay, people can visit the Gombe preserve chimpanzees and follow their daily activities, in Google Earth, with the Institute's “geo-blog”.

You can access the featured-content layer by clicking “Featured Content” in the Google Earth sidebar. More at <http://earth.google.com/earth4-beta4.html>.

## YOU FEEL LIKE BUYING

## Introducing: Spam For Your Subconscious

Security software and anti-virus company Panda Software in September found what they believe is subliminal advertising in spam.

Subliminal advertising is a technique that was used on TV and in movies a long time ago, and was subsequently banned in such countries as Australia, the US, and the UK. “Subliminal” means that a message appears on

screen for a very short duration—measured in milliseconds—and, according to psychologists, the message reaches down to the subconscious mind of the viewer, meaning the viewer is not “really” aware of it.

The message may appear once or several times, and typically suggest an action the company wants the viewer to take. Since they appeal to the subconscious, such messages have a more powerful effect, according to some.

The spam message Panda Software claims to have found offers the user an opportunity to buy certain stocks online. The subliminal message included was a sequence of images that show the word “Buy” at different screen positions, for a maximum of 40 milliseconds, and in some cases, for only 10, according to some reports.

Luis Corrons, director of PandaLabs, said: “This is the first time we have detected an Internet threat that uses subliminal techniques... It is worrying to witness how cyber-criminals are trying to introduce new strategies to increase the effectiveness of their attacks... We can expect new and more sophisticated threats of this kind to appear.”

There are several aspects to look at here. First is the very question of whether subliminal techniques in advertising actually work or not: even the experts are not in agreement on this point.

Then, if we do assume that they work, how

effective will they be in conjunction with spam? Attention needs to be focused on what is displayed, and this is hardly the case with spam: when someone opens a junk e-mail message, it is usually by mistake, and therefore, as soon as he or she discovers it is spam, the message is likely to be deleted, without enough attention having been paid to it.

Another factor is the products that spam mails promote: if it's for Viagra, for example, a user is hardly likely to be influenced by a subliminal “Buy”; we could possibly believe that such techniques work for products such as an Xbox, with the words “PS3 sucks!” as the subliminal message.

However, if what PandaLabs says is to be believed, this could mean a new dimension for spam.

Assuming everyone doesn't have a spam filter installed, that is; in which case, we must doff our hats to the spammers for having come up with the idea.

There is also controversy on whether the ad that Panda detected really does have a subliminal message, because there are different opinions on what constitutes one.

Some say, for example, that the word “Buy” appeared for too long to be considered subliminal.

We must ask, then, if this “discovery” is just a move on Panda Software's part to get into the news a bit.

## iTV

This is being called by some a “stab in the heart for Microsoft.” It is a new offering from Apple that will be launched in the first quarter of 2007. It looks like a portable DVD player, and it's essentially a video-streaming set-top box—more like a wireless router—that takes content from a Mac, PC or iPod, and displays it on a TV set.

The system will also allow one to stream movies or TV programmes from Apple's online iTunes store. iTV incorporates Dolby surround, but due to the limitations of high-speed data transfer even with true broadband connections, when it comes to streaming movies, home theatre users will have to do with a “near-DVD-quality” picture.

Buzzword  
of the MONTH

**LCoS****What is it?**

Liquid Crystal on Silicon is a display technology that rivals our more traditional LCD and TFT in TVs and monitors, and DLP in projectors.

**When did this happen?**

The technology has been around for nearly a decade, but has only now started to come out of its niche and into consumer markets.

**What's the big deal?**

While other technologies have started out awful and have gotten better over the years, LCoS comes into the game at the top of its competitors—its quality surpasses LCD and DLP by a large margin.

**How does it work?**

LCoS works much like DLP, only using Liquid Crystal instead of the little mirrors that DLP uses to build the image. This makes it capable of much larger resolutions than LCD and Plasma.

**Who's been promoting it?**

JVC has been manufacturing high-resolution projectors since 1998, and big players such as Sony, Hitachi, and Toshiba have started to join the club with their own HD TVs and projectors. We're actually waiting for Hitachi to announce their much-awaited but indefinitely postponed 70-inch LCoS HDTVs.

**Why am I only just hearing about this?**

While LCoS actually works out to be more economical when manufacturing TVs, there's a catch. It's an expensive technology to get right, and a lot of money has already been sunk for it. Still, we should see some more commercial products soon.

**CO-EXISTENCE—LITERALLY**

## One Disc For All: End Of The Format Wars?

Recall the HD-DVD and Blu-ray format war, about which we spoke in our December 2005 issue (*The Battle Of The Blue*). We mentioned that one possibility was that the formats could co-exist. However, we didn't mean "co-exist" in a sense this literal: a patent application has been filed for a disc that can record and play both formats!

The "multilayer dual optical disk" would have one layer of data in the standard CD or DVD format, a second layer to play HD-DVD, and a third layer for Blu-ray.

If the format is successful, it could mean a major twist in the tale for the format war.

The application was filed by three employees of Warner Bros., two of whom are engineers with the company.

To recapitulate, the confusion will force consumers to pick one format or the other—a situation that analysts predict will stifle growth for the next generation of optical discs.

Hollywood studios have been taking sides, with each major one supporting one or the other.

"From the standpoint of a manufacturer, it is disadvantageous to have to manufacture and distribute three different types of disc formats to satisfy consumer demand for one product—such as a motion picture," the inventors of the new disc—Wayne Smith, Alan Bell and Lewis Ostrover—said in their patent application.

**ME TOO—AGAIN**

## Microsoft's Expected Answer To YouTube

As direct competition to YouTube, and also the 200 start-ups that intend to enter the online video fray, Microsoft has launched a beta version of Soapbox (<http://soapbox.msn.com>), their new video-sharing service. It has the key advantage of being tightly integrated into Microsoft's other online services.

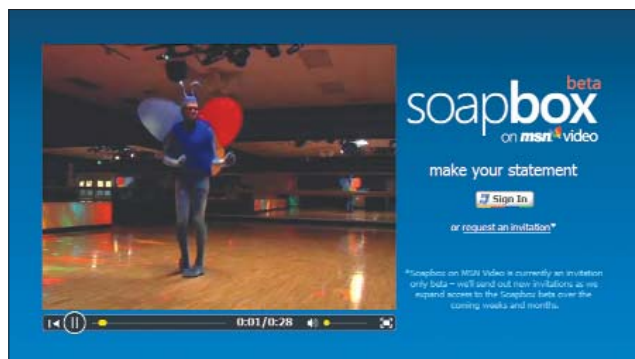
Functionality-wise, Soapbox will enable users to upload videos in several formats, assign categories to them, and share them with other people. There are 15 categories to browse through; one can find related videos and subscribe to RSS feeds as well. Technicians who worked on Soapbox claim it will be more bandwidth-efficient than the competition.

integrated throughout Microsoft's portfolio of online services, including Windows Live Spaces and Windows Live Messenger." Soapbox probably does have a huge advantage as a direct result of this—the standalone YouTube could have hard work ahead of it. Microsoft could also link Soapbox with Zune, Microsoft's new media player, using which users can share content wirelessly.

In an effort to catch up on the social networking front, there is also the "Soapbox community", a set of tools that allow users to discuss videos. This service will be closely linked with Microsoft's Live Spaces blogging site.

The beta of Soapbox on MSN Video is being made available in the US, but on an invitation-only basis. No date had been given for a commercial launch at the time of writing.

It was only a matter of time before Microsoft entered the arena. There's nothing earth-shattering about Soapbox, of course. People who currently use YouTube (and the rest of the slew of similar



MSN Video, Microsoft's current online video service, is already viewed by more than 11 million unique users per month. YouTube, in comparison, has 20 million unique users per month, according to Nielsen NetRatings. The point here is, however, more than 465 million people per month log on to MSN worldwide!

Microsoft promises that Soapbox "will be deeply

services) really have no compelling reason to switch to Soapbox. Could this be another case of Microsoft's ego getting in the way of their focus?

In any case, it won't take long for us to see whether the integration with such services as Live Spaces and Live Messenger does bestow an advantage on the software giant in a space they aren't half experts in. ■





**32** A New  
DirectXion



**36** Recycool!



**42** Blazing Angels

Digital

# Passion

Fuelling the pursuit of technology knowledge

Lead Feature

## God Mode

**Create a generic first-person shooter using FPS Creator, then rip it apart and make it your own**

**Nimish Chandiramani**

**T**here are few things that excite the lazy geek, and quite close to the top of that list is the ability to create programs without having to go through the tedium of actually learning a programming language. For those who have ever wanted to make their own game without having to deal with the (many) intricacies of game programming, FPS Creator is a godsend. It makes creating your own first-person shooter (FPS) a simple matter of drag-and-drop—draw environments, place enemies and weapons, and start playing!

You'll find the demo of FPS Creator on this month's DVD—it lets you test games, but not make standalone EXEs out of them. The full version is a remarkably reasonable \$49.99 (Rs 2,300), and lets you create standalone EXE files for your games, and even sell them royalty-

free. The system requirements aren't too heavy—most half-decent PCs should be able to handle FPS Creator and its games.

Starting out with FPS Creator is quite easy, and the manual it comes with is quite comprehensive and more than enough to help get your first game off the ground.

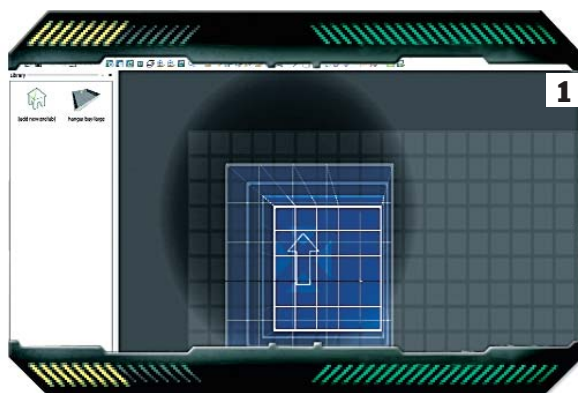
One drawback, of course, is that all the games you create will end up looking factory-made—the same sounds, similar textures, same old AI—and if you've used the program even once, you can easily tell whether a game was made using FPS Creator (FPSC). If you want your game to be unique, you'll need to brave the dark underworld of AI scripts and 3D models. Read on for what you need, but remember—you're not going to create the next *F.E.A.R.* anytime soon with FPSC, and certainly not without serious programming skills.

Finally, we advise that you keep FPS Creator open while you read this.

Illustration Pravin Warhokar  
Photograph Amrut Pataki



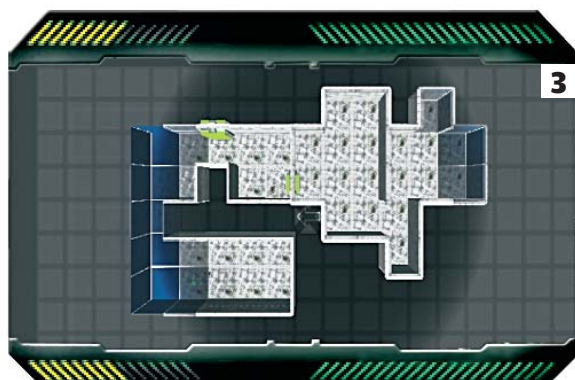




The program starts with the Prefab (a pre-made environment) tab open. Just click Add New Prefab, select the one you want, and use the mouse to place it



You can now add to this Prefab by using segments from the Segments Tab. Click to add, and right-click to subtract. To edit the other floors (levels) of your environment, use the "+" and "-" keys



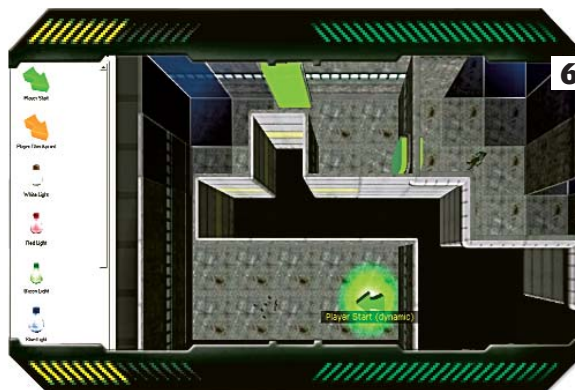
We actually prefer using segments to Prefabs—there's more freedom there. Here's the result of our tinkering



From the Entity tab, select your enemy. Place them in the room, and right-click to get the view you see here



Use the entity tab again to place the weapons you're going to let the player use



Finally, from the Markers Tab, place the Player Start marker where you want your player to, well, start



Lock and load!



Die, foul vixen!



# Now Hack It

To change your game, you'll need to edit the files that FPS Creator packs into it—you'll find these under Program Files\The Game Creators\FPS Creator Demo\Files. The first (and easiest) thing you'll want to do with your game is to change the way it looks and sounds. Little of the rest is easy, and some parts profoundly bizarre. Depending on how deep you want to go, you'll need basic knowledge of image editing and 3D concepts, and some programming knowledge wouldn't hurt, either.

## Hear Me

Once you've navigated to the Files folder, you will find the game sounds in the audiobank folder. The organisation is quite simple and self-explanatory, and all you have to do is replace the existing sounds with the ones you really want, or just edit them in an audio-editing program. Our recommendation: first attack the player's extremely annoying jump grunt—audiobank\voices\player\leap.wav. FPSC also lets you customise the way your footsteps and gunshots sound when walking on / shooting at different materials. You'll find them in the audiobank\materials folder. You will find sounds suffixed with either S, I, D, or nothing. The ones without the suffix are files that will be played when you walk on that material.

The "S" sounds are played when something scrapes against the material, "I" for impact sounds like falls, and "D" when the object is destroyed. You'll find these details in materialdefault.txt right there, along with another parameter called matdecals—this is the decal (an animated visual) that shows up every time the sound is played. For example, if you shoot into the ground, you'll hear the impact sound, and the dust decal plays, showing you dust rising from the gunshot.

## See Me

We've just talked about decals, so let's start with those. Strictly speaking, a decal is a picture or design applied to a surface. Here, the surface in question is a 3D model—mostly a particle system. FPSC uses the DDS (DirectDrawSurface) file format for all its textures and decals—it occupies very little space in your GPU's memory, because it remains compressed there as well, unlike other formats that uncompress into memory. To view DDS files, all you need to do is download a plugin for IrfanView. To edit them, you will need to download NVIDIA's DDS plugin for Photoshop from [http://developer.nvidia.com/object/photoshopdds\\_plugins.html](http://developer.nvidia.com/object/photoshopdds_plugins.html). If you don't use Photoshop, you can get DDS Converter from [http://eliteforce2.filefront.com/file/DDS\\_Converter;29412](http://eliteforce2.filefront.com/file/DDS_Converter;29412), which converts from most popular formats to DDS. You will find FPS Creator's decals under \gamecore\decals. Each decal is in a folder of its own, with a file called decal-spec.txt, which contains this:

```
;decal spec
;DECAL
across      = 4
down        = 4
offsety     = 50
```

The first two lines are just comments; the remaining is what matters. If you open up the decal, you'll see it divided into sixteen squares—one for each frame of the animation. "across" and "down" are the number of squares that you've drawn in those directions, and "offsety" is how much the decal should be raised above the ground. If you set it to zero for the fire decal, for example, you would end up seeing the top of the fire just brushing the floor surface. Getting it right is a matter of trial and error. The black part of the decal is actually the Alpha channel, which determines what parts of the decal are transparent. Naturally, you'll need an image editor that supports alpha channels—this applies for all the DDS files in your game.

If you've made a new decal and want to incorporate it into the game, you also need to enter it into the entity bank. Go into the \entitybank\generic\decals folder, make a copy of one of the .fpe files there, and give it the name you want to give your decal. Open it up and you'll see this:

```
;header
desc      = {put a one-word
description for your decal here}

;ai
aiinit     = repeatsound.fpi
{if you don't want a sound to play
around the decal, use appear.fpi}
aimain     = decal.fpi
aidestroy  = disappear1.fpi

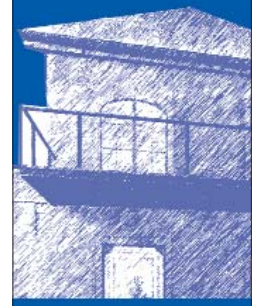
;orientation
model      = particles.x
textured   = particles.d.tga
transparency = 0
defaultheight = 0.5
```



What happens if you forget the Alpha channel



Ah, the decal is much better this way



```

soundset          = {point to the
sound you want played around the
decal.            For example,
audiobank\mysounds\mydecal.wav}

```

```

;identity details
strength          = 0
isimmobile        = 1
ismarker          = 4

;decals
decamax           = 1
decal0            = {give your decal
a name}

```

In the gamecore\decals folder, create a folder with the *exact* same name that you gave for decal0 above. A quick solution now is to copy the files from one of the other decals and paste them here, and then edit them. Don't forget the Alpha channel!

This was just decals—kid stuff when you compare it to what else you can do to the look of the game. You can also modify textures (they're in the texturebank folder) the same way, and with some knowledge of 3D, even add new guns!

## Get Smart

FPS Creator uses its own FPI scripting language for all the AI in your games, and learning it is quite intuitive. It hides the more low-level AI away from you, but gives you control over the actions that entities take when faced with a condition. You'll find these scripts in the scriptbank folder, and they'll open in either Notepad or WordPad. Your typical FPI line looks like this:

```

:condition1,
(condition2)...: action1,
(action2)....

```

The literal translation would be thus: If condition1, condition2, etc. are all satisfied, perform action1, action2, and the rest. You will find the whole list of conditions and actions in the FPS Creator manual—there are an obscene number of them to choose from. Let's start with a basic tutorial—a light that turns on when you're near it, and off when you go far. In the scriptbank\user folder, create a new script called myscript.fpi, open it in Notepad, and add this:

```

;Artificial Intelligence Script

;Header

desc      = proximity light

;Triggers

:state=0,plrdistfurther=100:lig
htoff=1,state=1
:state=1,plrdistwithin=100:ligh
ton=1,state=0

;End of Script

```

The lines that begin with a semicolon are comments, and standard to every script. The "state" variable is what FPS Creator uses to distinguish between different states of the entity; otherwise all the actions would be taking place at once. When you're writing more complex scripts, always make sure you have distinct states for each set of actions—ignoring them could cause your game to crash. Now to use this script in your game.

Start a new project in FPS creator, put in a prefab, and from the Markers, choose one of the lights. Place it anywhere in the scene. Now right-click on it, and you'll be taken to an editing screen which shows you a 3D view of the light, and a configuration panel on the left. In the configuration, change Static Mode to No, and under AI Scripts, point the Main script to the one you just created. Click Apply Changes.

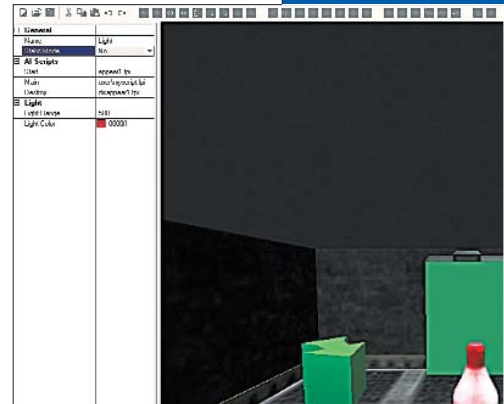
When you run the game and walk towards the light now, it should turn on in response to your proximity. Remember, you won't see a 3D model for the light—it will appear as if from nowhere.

This is very basic behaviour, but as you can see, FPI scripting is quite simple and the best way to understand more is to simply read the scripts in the script bank and keep the manual handy.

## Boss Battle

If we were to demystify FPS Creator for you, we'd probably end up filling up most of this issue. However, the developers have made it easy for us—the files in FPS Creator are organised so as to be easy to fathom for the inquisitive mind: getting used to the scripts and other files took less than a week for us. In essence, if you've got the itch, the scratch isn't far. ■

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The configuration panel on the left lets you customise your entity before you hack the AI scripts

The before (above) and after (left) picture; we've used the chest of drawers as a reference for distance



# A New DirectXion

**A look at how Microsoft's DirectX 10 will change the nature of the graphics card**

Ahmed Shaikh

The tech industry is in a constant state of déjà vu. Things come and go in cycles and yet constantly manage to surprise. Not too long ago, the central processor that powers much of the industry went through a pivotal change—it began life as a piece of silicon designed to work on a limited set of data, and expanded its role to a more encompassing one. At first it could only handle one application at a time, it could only address a limited set of memory at once, and you had to talk to it in its own “assembly” silicon-language. With time, the CPU’s silicon budget increased, and with it, the number of tasks it could handle. Then you had time-sharing systems, wherein you were able to run multiple applications at the same time; moreover, each application was fooled into thinking that the entire system’s memory was its own playground, thanks to virtualisation. Today, we take these changes for granted and their benefits seem mundane.

Interestingly, the graphics card of yore—that dedicated pixel-pushing slave of our entertainment age—is undergoing a very similar evolution. What was once a slab of silicon meant for very specific tasks is fast evolving into a vastly parallel silicon factory, populated by a transistor task force half-a-billion strong, and powering a multi-billion dollar gaming industry. Interestingly, the

graphics chip is increasingly being referred to as the graphics processing unit (GPU) because much like the CPU, from which it derives the name, its work is becoming less specialised and more general.

Before we take a look at how this is happening, it is important to identify the three major forces that make up the industry. These are the independent hardware vendors (IHV) who design and produce the graphics chipsets and the graphics cards, the independent software vendors (ISVs or game developers) who design and produce the games, and last, the people whose job it is to talk to both the ISVs and the IHVs to create the software rules and directions which enable the graphics cards to talk to the games. This final piece of the puzzle forms the application programming interface (API). The three players are constantly involved in discussions on how to take the industry forward; these discussions are translated into the API, which then serves as the template upon which a graphics chipset is designed. Based on which the game can offer its eye-candy.

Here, we take a look at one such API—Microsoft’s upcoming DirectX 10 (DX10), more specifically the Direct3D element of DX10. Why was this step taken, and where it will lead us?

## Why DirectX 10?

With the introduction of NVIDIA’s very first GeForce chipset, the graphics industry took its first tentative step towards the GPU. The path that was taken then, today leads to a place where the graphics chip does more than push pixels. This semblance to a CPU is because of the identified need for the graphics processor to gain independence from the CPU. With DX10, engineers hope to break the shackles that tie graphics processing to the CPU, not only speeding up rendering but also granting the GPU more power to push floating point and integer data—power that will enable it to accelerate sundry tasks from 3D graphics, to physics, to audio, to DVD playback.

DirectX 10 is thus a very important step in taking the GPU forward into unknown regions. The API is primarily designed to interface with a more generic graphics processor. With the power of DX10 and the hardware supporting it, games of tomorrow will be richer, faster, more interactive, and more detailed. DX10 will take the gaming industry another step closer to the holy grail of truly realistic visuals.



## Déjà Vu

One of the most unsatisfying aspects of a video game today is that every other foe you conquer bears a boring resemblance to the one you just dispatched, that every path you walk down seems somehow familiar, and that the ecosystem of the world you are eager to save is anaemically limited to the same flora and fauna. It almost makes you want to stop the butchery. Almost!

This sameness is an unfortunate side-effect of the current API structure. Today's game needs to run to the API, which in turn runs to the driver, which then talks to the hardware, which finally complies and renders a tree. At each step, the API adds overhead—as much as 40 per cent of the entire cycle is taken up by it. Add more than one unique tree to a scene and the overhead adds up as well. Pretty soon, you would be staring at a slideshow of trees, instead of a smoothly-flowing game world. This is why game developers adopt the copy + paste method of rendering one or two different types of tree, and then use the same models throughout the land, more or less.

**DX10 will reduce the API overhead by half. This would give the game more time to talk with the GPU and the rest of the system. This means that a game can now pack more content**



Reduced API overhead will allow a game developer to add more detail to a title. Seen here, a screenshot from the game *Crysis2*

This method is also adopted for enemies, blades of grass, and so on.

DX10 will reduce the API overhead by half. This would give the game more time to talk with the GPU and the rest of the system. This means that a game can now pack more content, because the system has more time for the game. So the first thing you should expect from a DX10 game is a more detailed world. Will we see an army comprising unique soldiers in a future chapter of the *Total War* series? Perhaps not, but a jungle will certainly sport more than one species of tree.

## Doing A 360

Microsoft and ATI jointly worked on designing the Xbox 360, and are also two prominent members of the design team for DirectX 10. It is thus no surprise that DX10 borrows some design

philosophies from the Xbox 360. The most important aspect of the next-generation API is the concept of the unified shader architecture.

A quick primer: a vertex shader is a bunch of algorithms that manipulate the vertices of a triangle, which in turn make up any 3D object. Similarly, pixel shaders are software routines that manipulate individual pixels in a 3D scene. So while vertex shaders might work together to render a car, pixel shaders would colour the car, add smoke effects, rainfall, and so forth.

Traditionally, a graphics chipset carries banks of both pixel and vertex shaders. Based on a scene, the API puts each of these banks to work. Herein lies the problem. Imagine a scene that has a character standing against the sky—the pixel and vertex shaders would be equally needed to render it. Now the character steps inside a car, increasing the workload on the vertex shaders while the pixel shaders enjoy some time off. Let's say the car blows up in the next scene: lots of explosive effects—smoke, fire, debris, and so on. The pixel shaders are now needed more than the vertex shaders, which can now sit idle.

What if a card has only four pixel shaders and 12 vertex shaders? What if a scene then requires processing beyond the 12 vertex shaders' capacity? What if a scene is instead unusually high on the number of pixels pushed? All these scenarios would of course lead to game slowdown: almost all of us have noted an otherwise smoothly running game chug to below 10 frames per second at the trigger of an explosion. Here's why: game cards have dedicated resources to pixel and vertex tasks; if the game exceeds the allocated capacity, everything comes down to a terrible frame rate. More damning is the wasted silicon—why are the pixel shaders twiddling their thumbs when the vertex shaders could use some help?

A unified approach to shaders hopes to solve these problems. A graphics card with a unified shader bank can act as a pixel shader and as a vertex shader, allocating shader resources to the game according to its requirements. In theory, this should make games much faster.

In practice: programmers of today will have to unlearn their habits of programming for contemporary architectures before they can truly make use of a unified architecture—a process that will certainly take time. Note that just because DX10 has a unified shader architecture, all DX10 cards need not have unified shaders. In fact, at least for the foreseeable future, NVIDIA will stick to a contemporary architecture, whereas ATI will go the unified route. It will be interesting to see which of these two philosophies have greater merit.

Apart from a unified architecture, DX10



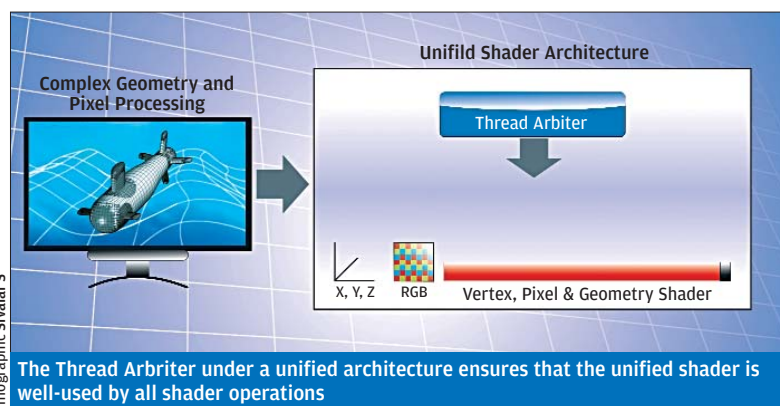
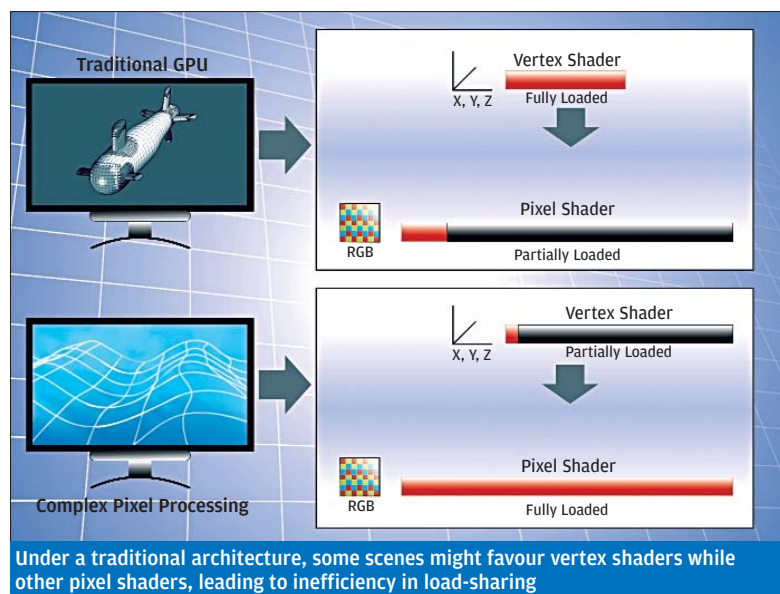
shares another similarity with the Xbox 360: like the 360, a GPU under DX10 can stream out data to the card's memory and then call it back in for further use within the GPU, without having to write to an external memory or disk resource. This greatly speeds things up and will allow for some interesting effects, such as realistic shadows.

## Free The Processor

DX10 adds the geometry shader to the API lexicon. Simply put, a geometry shader deals with, well, geometry: every 3D object is made up of triangles, and a geometry shader can act on a bunch of vertices simultaneously. Thus it deals with shapes. To better understand its function, let's consider a practical example: a smooth curve is represented as a series of jointed straight lines within a GPU—the more the number of constituent lines, the smoother the curve. This is known as tessellation, and is a very CPU-intensive task (how many times have you seen a car in a game with a polygonal wheel instead of a smooth circular one?). The geometry shader can perform tessellation within the GPU itself, and since the GPU is much more powerful than a CPU when it comes to floating-point calculations, it can do so faster. Plus, the GPU need not send data outside. The geometry shader can similarly create new triangles around a point, or



By offloading tasks from the CPU, the GPU will allow the processor to perform complex physics calculations as seen here in *Cellfactor Revolution*



extrude the sides of a triangle to turn it into a volume, and so on.

The important thing to take from this is that a geometry shader further allows a GPU to offload work from the CPU. By reducing the amount of data that a GPU needs to outsource, two things happen—work is done quicker, and the CPU is free to do more. The graphics card can have a bigger hand in some of the tasks that were done by the CPU—things like rigid-body collision detection, calculating obscured geometry, audio acceleration, detailed shadows, and so on. The CPU, meanwhile, can work on other elements that add up to make a game more believable—such as advanced AI calculations and advanced physics simulations.

## Sundry Bits

All this discussion was technically limited to the Direct3D element of DirectX 10. What about the other bits that constitutes DirectX? Can we expect major changes there? In a word, no!

One interesting feature does deserve mention though. With the next DirectInput, Microsoft has decided to blur the lines between its console offerings and the PC: you can take any Xbox 360 input device—be it a gamepad or a racing wheel—and use it under Windows. This is currently possible under Windows XP as well, and is thus not a feature exclusive to DX10. It is however, an evolution of the DirectInput constituent. DirectSound does not see any major changes.

## Take It Outside

Traditionally, a graphics API has played in the kernel space of the OS. The result is the all-too-familiar system crashes following an errant driver install. With Windows Vista, Microsoft is taking security to heart. Major parts of the API will now be part of the user space of the OS. This means that the bits and bytes that make up graphics will not play in the same space that is meant for the essential parts of the OS. Not only

does it increase security, it also makes sharing of 3D resources easier.

As you might know, under Vista, each window is a 3D surface. Thus a graphics card under Vista is always called for, whether or not you're playing a game. Moreover, with the advent of high-definition video content, more and more 2D acceleration tasks will be offloaded to the GPU. The per-pixel shading capabilities of a GPU will be utilised to present everything from fancy transparent windows to smooth 720p video playback. Similarly, animations such as windows flipping to the foreground or cascading behind each other will be accelerated by the GPU. DX10 will thus expose the hardware to more and more applications, much like how the CPU evolved.

Having said that, the user-interface of Vista does not require DX10—the Aero Glass interface, as it's called, runs under a variant of DirectX 9. This was done to ascertain that development of Vista is not slowed down by the development of DX10 (both were concurrent developments). Elements of DX9 used in Vista are also seen under DX10, and in the future, the entire interface might move to a DX10 environment—once DX10 reaches maturity and is deemed stable enough.

Windows Vista will thus ship with both DirectX 9.0 and 10. DirectX 10 is currently slated to be a feature exclusive to Windows Vista.

### The Ever-Distant Horizon

It's time for déjà vu yet again. We have been promised graphics nirvana before—virtually every piece of graphics hardware ever sold has been accompanied by shouts of “we have arrived.” Reality, however, walks a generation or two behind the latest and the greatest. With DX10, we should not expect things to change overnight. DX10 promises games that are more visually complex, offering a more compelling interaction and narrative. That promise will not be fulfilled with the release of Vista, but will see fruition a couple of years thence. And by then we would have forgotten all about DX10—and be talking about the next iteration.

By all indications, DX10 video cards will hit the half-a-billion transistor count, and will be so power-hungry that they will require dedicated power supplies. On the positive side, DX10 video cards will be virtually identical in the features that they offer. A DX10 card will have little to differentiate itself from a similar offering: this has been done largely on the behest of game developers who are tired of programming for esoteric feature sets (remember ATI's TruForm?). This is a huge plus for gamers as well. For example, with DX9 class cards, one had to worry whether the card supported Shader Model 2.0 or 3.0; concerns of that nature need no longer send us scurrying to the nearest search engine, or to our friendly-neighbourhood 3D guru.

DirectX 10 might not bring about a real-time *Toy Story* to our monitors; it will certainly not bring about graphics comparable to the real world, but it is a vital step towards those horizons. ■

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# Recyc<sup>oo</sup>l!

**Wasted bits and bytes mean more heat, and an impediment to future progress in computing. Here's about "green computing"—where computers actually *recycle* bits!**

**Ram Mohan Rao**

**Y**ou can't teach your grandmother to suck eggs, a penny saved is a penny earned, and computers are getting faster every day. These are stock phrases, but they're facts of life. Computers are getting faster because of ever-increasing miniaturisation—packing in more transistors into a given amount of silicon real-estate, and other such approaches. This miniaturisation comes at a cost: heat. Chips are generating more heat, guzzling more electricity, and computers now account for almost 10 per cent of the power consumed in the United States—and 1.5 per cent globally, by some estimates.

At the current rate, we will not be able to keep up with the energy requirements of our computers; in addition, circuits simply *cannot* go small beyond a point, due to heat limitations. And as you know very well, the world now depends on ever-increasing computational power to sustain development.

## The Point Of No Return

So just how far away is the point at which our computers won't be able to get any faster? It's way into the future. If you consider alternative computing paradigms, that is. Such as DNA computing (see *Digit*, November 2005), quantum computing, and others. But we're not talking about those things here. And we cannot talk about nanotech giving Moore's Law a new lease of life—because there is a fundamental physical limitation we must now talk about. Physics *guarantees* that a computer will not be able to discard

more than  $3.5 \times 10^{22}$  bits of physical information per second.

Umm...“discard”? Well, we're edging closer to our point. What's happening when your computer is doing its computations is, it's *throwing away* bits. For example, when you add 5 and 3 to get 8, the 5 and 3 are gone—forever. They're dissipated as heat. This is pretty simple to understand—after all, your processor gets hot because it's doing computations! Now think about it—can you possibly get back a 5 and a 3 from an 8? Given an 8, it could have been  $1 + 7$ , or  $2 + 6$ , or... in fact, it could have been any of an infinite number of combinations. So let's tie this up with what we said: our wasteful computers, working harder and harder, are throwing away more and more bits, but there's a limit. We won't name the limit because there are horrible equations involved—we'll just call it “the limit.”

To put the above figure into perspective, today's fastest processors are only about 1,00,000 times slower at discarding bits than the limit permits.

Isn't 1,00,000 large enough for, say, another 200 years? The simple answer is no. The researchers have it all worked out—they say that in 20 to 30 years, The Limit will have been reached. And that's in theory: in practice, The Limit will be reached even sooner. This is because of things such as thermal noise—the heat dissipated by the elements on an IC, because of the motion of electrons—which will become a concern in 20 years, and problems with leakage could come within ten years or less.

The answer? Obviously, stop throwing away the bits. Recycle them. “Uncompute”



Illustration pradip ingale

the unneeded bits. Go green. In other words, get started on Reversible Computing.

### Going Ballistic...

To understand how we can do this, we need to understand “ballistic” circuits. Reversible Computing is not simple to explain, but the first step is the broad picture. For that, all you need to do is to think of computation as a physical process. Once you’re in “something-physical-is-going-on-in-the-processor” mode, instead of thinking “software-is-running-on-the-processor,” you’ll find the following easy enough to understand.

A ballistic physical process is one where the system moves forward propelled by its own momentum, without much of its own energy being converted into heat. Think of an ICBM—an intercontinental ballistic missile: it doesn’t heat up too much in the atmosphere. It “coasts” along once it’s been propelled into the atmosphere. Now think of a ballistic *circuit*, though it might be hard to imagine.

Since we’re talking physics now, one needs to see that an ICBM isn’t all that different from a circuit—they both follow the laws of physics! How ballistic a process can be is quantified by its “quality factor,” called *Q*. This is simply the ratio between the amount of energy involved in carrying out the process and the amount that gets dissipated as heat. The idea here is to construct computers with tiny, nanoscale oscillators with a high *Q*. (Oscillators are spring-like devices: what makes your CPU run at 3.2 GHz is an oscillator, which generates a recurring signal.) The nano-oscillators would be on the silicon, and would enable the chip to run in a ballistic way: they would capture most of the energy used in one calculation and then use it in another—at least in pure theory. One feeds in the initial data, gives the processor a kick-start, and it coasts (like an ICBM) from one step of the computation to the next. This means only a small fraction of its energy being lost to heat at each step.

The concept is slightly analogous to hybrid cars that take the energy generated during braking and convert it into electricity that can be used to power the car.

The biggest challenge facing reversible computing is probably that of designing oscillators that have a high enough *Q*. There is no fundamental reason that it cannot be done—we can leave that to circuit engineers!

### ...But Keeping Your Cool

Coming back to heat, a physical process that is highly ballistic (such as what we’ve described above) means that it is also adiabatic to a high degree. “Adiabatic” means “without flow of heat.” A field called adiabatic circuits studies logic circuits that operate mostly in adiabatic mode.

Link that to the fact that a physical process can be adiabatic only if it is logically reversible—we mean it should employ “reversible logic.” The logic we commonly use—such as “1 AND 0 = 0”, “1 OR 0 = 1”, and so on, are not reversible.



**The entire long-term future of our civilisation will depend on exploring reversible computing**

**Dr Michael Frank**  
Junior Faculty Member  
FAMU-FSU College of  
Engineering

For example:

- ❑ When you do an AND operation on a 0 and 1, you get a 0
- ❑ You also get a 0 when you do an AND on a 0 and a 0

So if you have a 0, how do you know what the inputs were? That’s irreversible logic.

It turns out that we *can* have reversible logic—logic that doesn’t discard bits. We hope you realised that in the above example, the two bits that went in as inputs were lost; with reversible logic, they won’t.

### Playing Pool

What we have thus far is that we need ballistic circuits; ballistic circuits are highly adiabatic; and adiabatic circuits should employ reversible logic. But before that, here’s another way of looking at what’s going on in Reversible Computing. We need to ask, what is a computation? You feed in initial data, do some operations, and whatever state the computer reaches is the result.

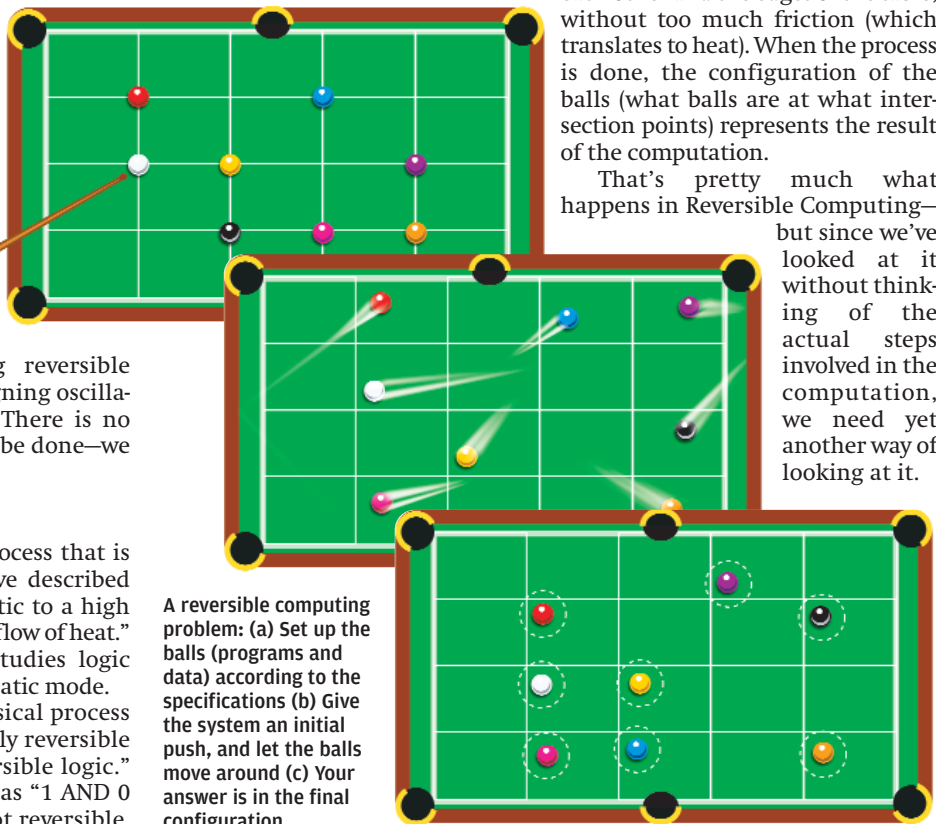
In a regular setup, this happens in a step-by-step, irreversible fashion. The system moves from one state to another, but it’s all in the forward direction. And this is the only way we currently think about computation.

Instead, think of a perfectly smooth pool table. Divide the table into a grid. At the intersections of the grid, the presence of a ball represents a 1; the absence of a ball is a 0.

Now, to describe a problem, you’ll need to figure how to configure the pool balls. Once that’s figured out, place the balls on the table, and then give the cue ball a slight push. Since it’s a pool table, what will ensue will be ballistic—the balls will move in all sorts of directions, bouncing off

each other and the edges of the table, without too much friction (which translates to heat). When the process is done, the configuration of the balls (what balls are at what intersection points) represents the result of the computation.

That’s pretty much what happens in Reversible Computing—but since we’ve looked at it without thinking of the actual steps involved in the computation, we need yet another way of looking at it.



A reversible computing problem: (a) Set up the balls (programs and data) according to the specifications (b) Give the system an initial push, and let the balls move around (c) Your answer is in the final configuration



## Walking On Water

When we get back to the traditional way of looking at it, we can see that we would need lots of memory to store intermediate results—at each point in the computation, the results would be stored somewhere, instead of being thrown away (and therefore dissipated as heat). The next step would generate more results, and so on, and the memory would soon fill up. For a really complex calculation, you would need tons and tons of RAM! So what we do is, we go forward a few steps, and reach a certain stage  $x$ . Then we take all the results we've accumulated, and use those in addition to the information  $x$ —and do some more calculations. We thus proceed a little bit further. Then we backtrack again, and...

To give a simple analogy, think of crossing a river using only a few stepping stones (which represent the limited memory). You place, say, five of them in the river, and walk to a point. Then you stand on the fifth stone, pick up the other four, and put them in front of you. You discard what was the fifth stone, then walk ahead, pick up the stones again, and...

Think of it thus:

$5 + 3 = 8$  (the first step; we don't throw away the knowledge that 5 plus 3 equals 8)

$6 + 1 = 7$  (the second step; we don't throw away the knowledge that 6 plus 1 equals 7)

Say we get to a step that involves adding 5 and 3 and 9, we don't do  $5 + 3 + 9$ ; we use our prior knowledge and just do  $8 + 9$ .

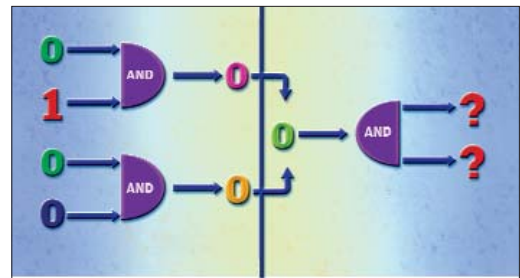
That's a crude (and strictly speaking, incorrect) way of looking at it, but it does reveal what the worth of "uncomputing" values is. The challenge lies in devising logic where uncomputed values can be put to use.

## Logically Speaking

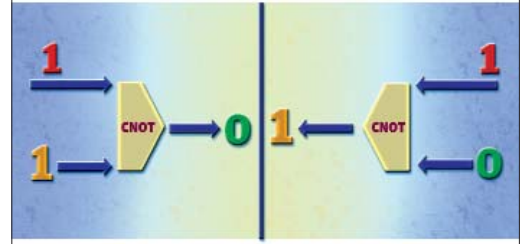
We've given you two fancy, fun ways of looking at how a reversible computation would work. But what would a reversible circuit actually look like?

We need to get back to logic—we need reversible logic gates. As a simple example, the AND gate is irreversible (like we said), but the NOT gate is reversible—you take the output and feed it back, and you get the original input.

Now think of a CNOT (Controlled Not) gate: it has two inputs A and B, and it flips B if and only if A is 1. In other words, it's a NOT gate with a control line. Then think of the Toffoli gate, which is a CCNOT (Controlled controlled NOT) gate: it has inputs A, B, and C, and it inverts C if



An AND gate. Different input sets give the same output. How can you possibly get back what you put in?



A CNOT gate. Reverse the operation, and you get back what you had. Of course, even the NOT gate is an example

and only if A and B are both 1. It turns out that the Toffoli gate is a "universal" reversible gate, in the sense that (in simple terms) any reversible computer can be built using them.

But that's only in theory. The real gates that a reversible computer would be based on are more complex, and space does not permit a discussion of them here.

## Reality Check

We now know how reversible computing has the potential to reduce heat production, and to enable chips to shrink further. But is it just another fad? A toy technology, so to speak?

It simply is not. The general ideas of the technology date back to the 1970s! ITArchitect.com surmised two years ago that in 2013, adiabatic techniques will become more cost-effective than traditional methods for desktops. With performance per watt becoming more and more of a benchmark, the trend is clearly towards "green computing."

The trend is also towards quantum computing, which has been much in the press the last few years (refer our nameless article on quantum cryptography, *Digit* February 2006). And there is a close relationship between quantum and reversible computers: every quantum computer is a reversible computer. But before quantum computing arrives, problems in reversible computing need to be sorted out.

We'll give the last word to Dr Michael Frank, now a junior faculty member in the ECE department in the FAMU-FSU College of Engineering, and a Reversible Computing pioneer. Dr Frank said in an interview with *Digit* in 2004: "It is not an exaggeration to say that the entire long-term future of computing technology, and indeed of our entire civilisation, will depend on exploring the problems that reversible computing poses."

Essentially, the merger of physics and computer science is the new convergence we're headed towards. ■

ram\_mohan@thinkdigit.com

## Adiabatic Circuits

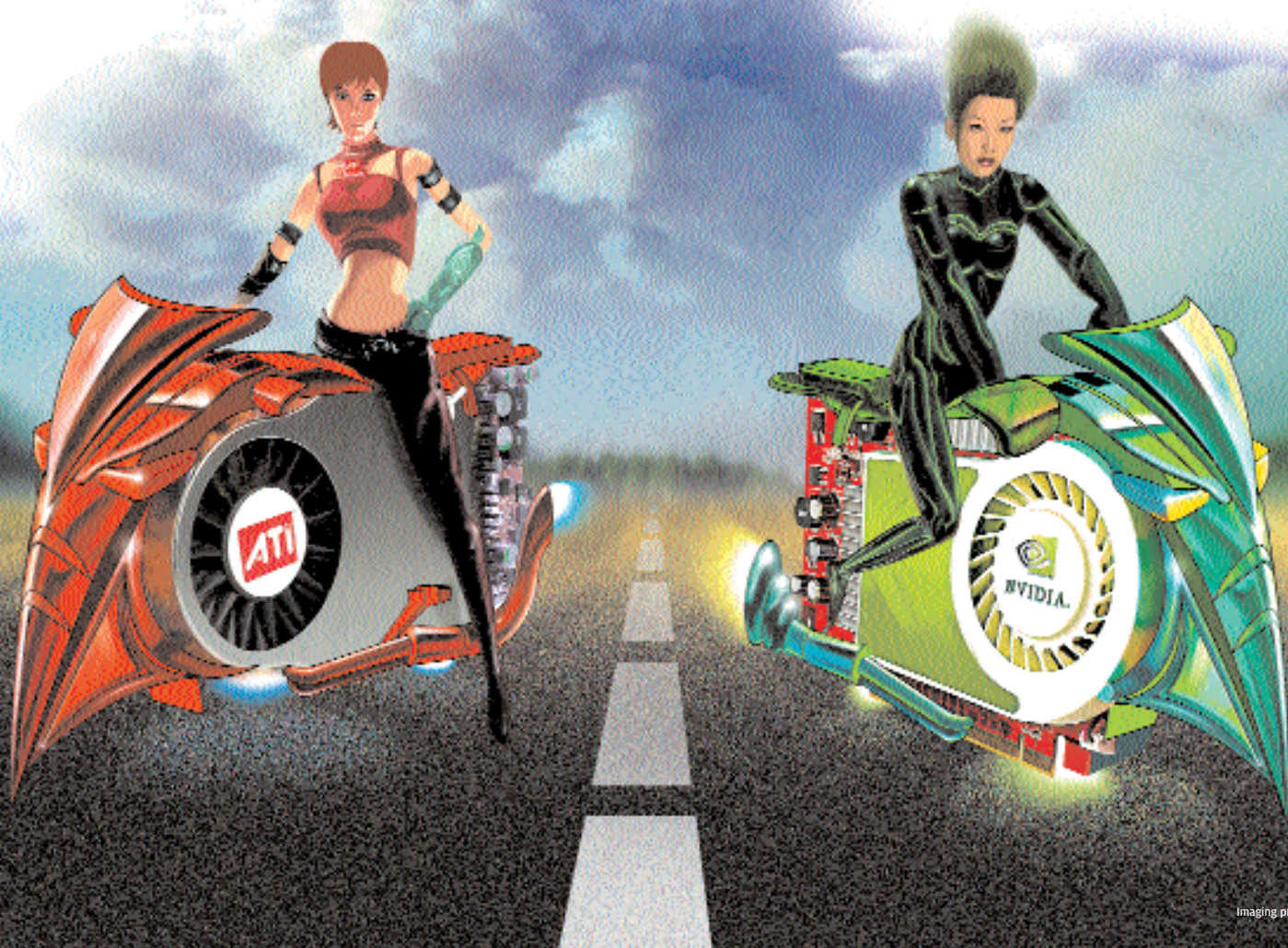
As you might have gathered, the actual circuits that a reversible computer will use will be highly adiabatic. Now digital logic, of course, encodes bits using two voltage levels, and uses transistors to connect and disconnect nodes, and for the power supply, so that the voltage levels can be manipulated. Adiabatic logic uses the same general approach, but new rules must be followed.

❑ Never turn On a transistor when there is a voltage difference between its terminals

❑ Never turn Off a transistor when there is a current passing through it.

These are irreversible events, and therefore strict no-nos in the world of Reversible Computing.





imaging pradipt ingale

# Blazing Angels

**Graphics cards bring the flesh and the flash into gaming, and are an essential part of a good multimedia PC. There's one to suit each requirement, every budget. So here are 65 graphics cards—fresh and hot from our test labs!**

**Michael Browne**

**T**he graphics card industry is one of the fastest evolving amongst all PC hardware segments. Spitting out new products and allied technologies every six months or so, no other component has so short a life cycle as a graphics card.

Just think about it—Pentium 4 CPUs have been around since 2001, and have only now been replaced by the Core 2 Duo series. In contrast, NVIDIA's GeForce FX series of graphics cards were introduced in 2003, and were already outdated in late 2004, being replaced by the 6xxx series—just one example of how quickly things change in the world of the Graphics Processing Unit.

The reason for this fast turnover is, in part, the game developers, who are constantly pushing the envelopes of realism in the drive for immersive 3D gaming. Games, as we all know, are amongst the most demanding applications, and developers seem to swear by the “Let me bring this card to its knees” slogan. Every six months we see some game title that beats the stuffing out of the fastest cards available, and forces manufacturers back to the drawing board!

This year was a record of sorts for us. We received 65 graphics cards for the test, and in stark contrast with previous years, there was an abundance of cards based on high-end chipsets. This reconfirms the fact that the gaming hardware industry in India is booming, and gamers are willing to splurge. We've also heard the ringing of the death-knell for the AGP standard, and



the fact that all 65 cards were PCI Express-based is testament to that!

Let's not waste any more time and get to the testing.

## HIGH-END GPUS

The cards based around these graphics processors represent the cream of the bunch—the high flyers, the elite of the pixel-crunching monsters! And let's not forget the fact that they're also the most expensive!

**The Elite**  
**NVIDIA GeForce 7950GX2, 7900GTX**  
**ATI X1950XTX, X1900XTX, X1900XT**

## Features

The five chipsets in this category represent the crème de la crème of graphics cards, and, currently, are the fastest GPUs on the planet. We received eight cards in this sub-category. Let's take a look at the architecture of these cards.

One look at the specifications alongside will tell you that the big boys aren't fooling around—mighty impressive! The 7950 GX2 is basically a dual-GPU solution, and actually has two interconnected PCBs (each with a GPU onboard). These PCBs are mated together by four hexahedral bolts, and interconnected via an x48 PCI Express link. The 7950

GX2 chipset is the highest of the high-end cards, and each core gets a dedicated 512 MB of GDDR3 memory!

Our first impression was that the cooling solution (NVIDIA's own reference design) on the GX2 cards was a little too small, compared to the massive heat-pipe-based solution that the 7900GTX sports. Even the ATI chipsets come with more robust-looking coolers. This was confirmed during the tests: the GX2s ran hotter than the other NVIDIA cards. A peculiar occurrence was the extreme heat around the rear part of the second PCB (the one whose GPU is concealed). Even the fan is tiny, and it's not very fast; we feel a better cooling solution should have been incorporated on such a card.

A notch below is the GeForce 7900GTX. Based around a single G71 core, the 7900GTX packs in some 278 million transistors on-die. All the

Elite Chipset features and Specs						
	NVIDIA			ATI		
Part Name	7950 GX2	7900 GTX	7800GTX 512	X1950XTX	X1900XTX	X1900XT
Chipset Designation	2x G71	G71	G70	R580+	R580	R580
Manufacturing Process (nm)	90	90	110	90	90	90
Core Clock Speed (MHz)	2x 500	650	550	650	650	625
(Manufacturer reference speeds)						
Onboard Memory (MB) / Type	2x 512 / GDDR3	512 / GDDR3	512 / GDDR3	512 / GDDR4	512 / GDDR3	512 / GDDR3
(Manufacturer reference)						
Memory Speed (MHz)	1200	1600	1700	2000	1550	1450
(Manufacturer reference speeds)						
Memory bus width (bits)	256	256	256	256	256	256
Pixel Shader units	2x 24	24	24	48	48	48
Vertex Shader units	2x 8	8	8	8	8	8

## How We Tested

### Test Rig

CPU: 2.93 GHz Core 2 Duo X6800; Motherboard: Gigabyte DQ6 P965; RAM: 1 GB (512 x 2 MB) Kingston DDR2 800 MHz (4-4-4-12); Hard Drive: Hitachi 7TK 250 SATA-II

### Test Software

We divided the applications into two categories: real-world applications (games) and synthetic applications and benchmarks.

The games were divided into two further categories on the basis of the API (Application Programming Interface) used—DirectX and OpenGL games.

### DirectX Games

**F.E.A.R. (First Encounter Assault Recon):** A stunner of a game from Monolith that brings even the latest (and greatest) cards to their knees, with frame rates you can count on your fingers! Atmospheric and dark is how we describe this game. The eye-candy is amazing, the graphics mind boggling, and any graphics card test isn't quite complete without the cards being hammered by this game.

**Far Cry:** Another game that utilises some spectacular effects; the water and landscape effects of *Far Cry* have to be experienced to be believed. Although not as gritty and realistic as *F.E.A.R.*, *Far Cry* is still one of the best-looking first person shooters around.

**Chaos Theory:** The third in the *Splinter Cell* series, this game is characterised by some great lighting (or lack of it), and very real and interactive environments. One of the very best tactical shooters available, in terms of gameplay and visual effects.

### OpenGL Games

**DOOM 3:** No longer a new title, but still one of the most shadow intensive games out there, this one will thrill even as it chills.

Moreover, *DOOM 3* is very scalable—perfect to test the wide range of cards we received.

**Prey:** Based around a modified and enhanced version of the *DOOM 3* engine, *Prey* manages to look as good as (if not better) than *DOOM 3* and even *Quake 4* (another *DOOM 3* engine-based shooter).

We used the latest patches, if any, that were available at the time for the games.

### Synthetic Software

We used the latest versions of 3D Mark 05 and 06, which are pretty standard gear for any graphics card benchmarking. They stress the pixel processing power of all cards, in particular 3D Mark 06, which, as you'll see, is very demanding even on the best of cards.

### The Categories

This time around, we decided to divide the cards based on chipsets instead of by manufacturers. The cards were split into the regular three categories: High-End, Mid-Range, and Entry-Level. However, this distinction was made on the basis of what chipset was used, instead of by prices. We further divided the High-End cards into sub-categories on the basis of chipsets—the top-of-the-line (Elite Gamer) cards and other high-end (Enthusiast Gamer) cards.

The prices of the graphics cards also conveniently fell into place, since cards based on a particular chipset, from different manufacturers, have very marginal price differences.

We decided that the high-end chipsets would comprise NVIDIA's 7950GX2, 7900GTX/GT and 7800GTX/GT series, and ATI's X1900 XTX/XT/GT and X1800 XT/XL/GTO series.

The mid-range chipsets were ATI's X850/X800 and X1600 series, and NVIDIA's 6800 and 7600 series.

Entry-level cards ran on NVIDIA's 7300, 6600 and 6200 series of chipsets, and ATI's X1300 and X700/X600/X300 series.

vendors across the board used the stock, double-slot cooler with these cards (NVIDIA reference design). The cooler is designed to throw heat out the rear of the cabinet.

As far as stability goes, we had no problems with the MSI NX7900GTX and the Gigabyte 7950 GX2. The MSI card was actually quite a bit cooler than the other 7900GTX-based cards.

Leadtek's 7900GTX card was plagued with instability issues, and was not able to complete the tests. Another card that was excluded due to stability reasons was the XFX 7950 GX 2 XXX version. It seems the top-end chips are already tweaked to their maximum possible clock speeds, and any attempt by vendors to bump up speeds just causes stability issues—at least with stock coolers. Remember, this is not a chipset fault at all, and both these offerings (GX2 and GTX) are excellent options.

The PX7800GTX 512 from Leadtek was the only 7800GTX 512 chipset in the tests. This card is not to be mistaken with a regular 7800GTX, which ships with 256 MB of memory. The core and memory speeds have been bumped up insanely, and cooling is provided by the 7900GTX type double-slot cooler.

In the red corner, the heavyweights came from Sapphire and ASUS, both based around the powerful ATI Radeon X1900XT architecture. The ASUS card we received was a CrossFire edition. A peculiarity was that both these cards came with their cores running at a 500 MHz default speed (check the table on the previous page for the manufacturer-rated default clocks). The memory was running at 1200 MHz, also well below the defaults (these figures were taken from ATI's own Catalyst utility). We therefore ran our tests at these speeds. One thing is certain: these cards are hot, literally—and this is not a good thing! The cooling solution is a larger version of the older X850XT cards, and throws heat out the

rear of the cabinet. These cards easily cross the 80 degree mark while gaming, though ATI does claim that the cores are rated at 110 degrees (so we're well within the danger zone). There is an "XTX" version, which has a 25 MHz bump up in GPU core speeds, and a 50 MHz bump in memory, but we didn't receive this part from any of the ATI vendors.

### Performance

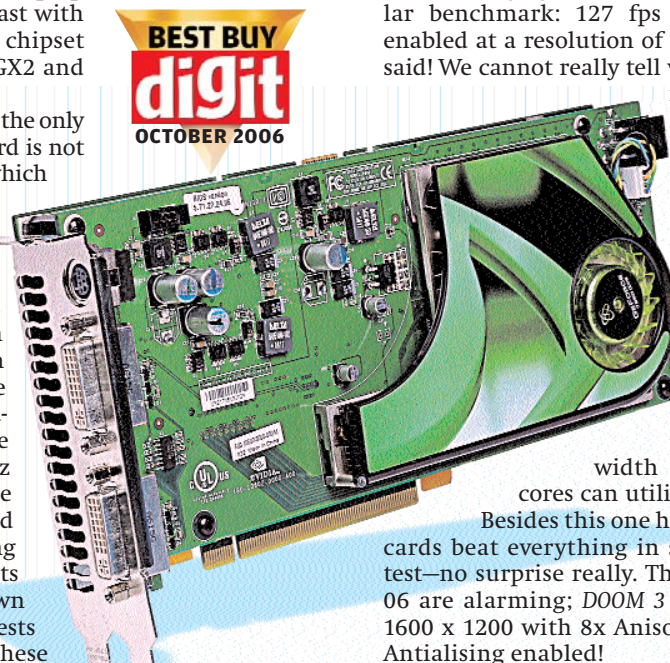
The MSI NX7900GTX gave some of the best scores in *F.E.A.R.*, which taxed most cards. The MSI was way ahead of the competition, and bested not only its chipset sibling from XFX, but also the mighty twin core GX2s in this particular benchmark: 127 fps with soft shadows enabled at a resolution of 1280 x 960... enough said! We cannot really tell why the GX2 lost out

in the benchmark; it's possible that *F.E.A.R.* scales well according to GPU core and memory speeds. This is compounded by the fact that any CPU and system in general will seriously bottleneck a 7950 GX2-based graphics card, due to the enormous bandwidth that the twin G71

cores can utilise.

Besides this one hiccup, the GX2-based cards beat everything in sight at every other test—no surprise really. The scores in 3D Mark 06 are alarming; *Doom 3* saw 100+ frames at 1600 x 1200 with 8x Anisotropic Filtering and Antialiasing enabled!

We were really surprised to see the X1900XT-based cards lagging behind. This may have been due to the core and memory clocks being



**XFX PV-T71U-ZDD9**  
Furiously Fast

## JARGON BUSTER

**Shaders (Pixel & Vertex):** Pixel Shaders (also known as Fragment Shaders) and Vertex Shaders are, very simply, instructions that run on a graphics card. These instructions are executed once for every Pixel or Vertex in a 3D scene. The Pixel Shader is a visual refinement over the Vertex Shader, and owes its existence to the latter. Pixel Shaders operate on a per-pixel basis, unlike Vertex Shaders, which operate with much larger areas (dimension-wise). The Pixel Shader is responsible for that ambient and realistic feel to the surfaces and materials in a 3D scene. The leather texture of a car seat, the metallic look of a gun barrel, the wrinkles on a character's face, all are possible because of Pixel Shaders. Manipulation of light sources as well as the properties of objects in a scene (wood should have that grainy look, metal would possess a certain sheen) is how designers manipulate complex 3D scenes, all using Pixel Shaders.

**Bump Mapping:** Quite simply, Bump Mapping is a technique used to add detail to a 3D image without increasing the polygon count. In other words, Bump Mapping doesn't interfere with the geometry or positioning of a body in a 3D scene, but rather influences the lighting in such a way so as to apply a texture pattern on an object. Lighting effects (or the lack of light) can be manipulated to create very realistic surface effects. Earlier, EMBM (Environment Mapped Bump Mapping) was used a lot; these days, Displacement Mapping and Parallax Mapping are more

used. Games like *F.E.A.R.* and *Oblivion* make heavy use of such techniques.

**Filtering:** There are three techniques used for filtering. The first technique is called "Bilinear Filtering," which gives the least hit in performance. Very simply, Bilinear Filtering aims to smooth out the overlapping edges in textures that occurs when the image as a whole (or the original pixels individually) are resized.

Trilinear Filtering is a visual improvement over Bilinear Filtering, but the trade-off is reduced frames. However, Trilinear Filtering can be activated on all modern cards without any noticeable loss in frames, and the difference in visual experience is well worth the frame drop.

Anisotropic Filtering (AF) is a relatively newer method of filtering; it is tasked with enhancing the quality of textures on distant objects in a scene. For example, a long road will probably look hazy with AF off. Enabling AF will add depth and realism the distant fringes of the road, replacing the normal textures with much higher-quality samples. AF is very resource-heavy, and most low-end cards will falter with AF set to insane levels. On a high-end system enabling AF will result in some sweet eye-candy.

**Anti Aliasing:** Removal of unwanted jagged edges that typically plague textures especially when a high resolution signal is displayed at a lower



reduced. Remember that the X1900XT is a mighty 48-pixel unit core, and that alone gives it awesome Shader performance, especially at higher resolutions as compared to the other Radeons.

We decided to bump up the speeds ourselves to the ATI-recommended values, just to see what would happen. We found that these cards are neck-and-neck with the 7900GTXs, but increased core temperatures by another 12 degrees! Since most users would not overclock cards themselves, we decided to log all scores using only what the manufacturers sent us.

ATI has also recently launched a new flagship model—the X1950XTX—which also marks the debut of GDDR4 memory in the mainstream graphics market. This memory is rated at 2000 MHz (1000 MHz DDR), and we're told that GDDR4 could scale all the way to 2.6 GHz, which would do wonders for today's (and tomorrow's) bandwidth-starved GPUs. Unfortunately, the X1950XTX was launched around the same time as this test, and we couldn't get our hands on a test sample in time. Look forward to it in *Bazaar* in the coming months though.

### A Shade(r) Lighter NVIDIA 7900GT, 7800GTX ATI X1900GT, X1800XL, X1800GTO

These cards represent the next best thing from the cards in the previous category, though they're still high-end. What detracts from performance adds value for money. Thirteen cards fell in this category.

### Features

NVIDIA's 7900GT and 7800GTX share the same 24-pixel pipe architecture, though the former is a newer product, and foregoes some of the latter's transistor count in favour of ramped-up clock speeds. The cooling solution on the 7900 is puny indeed, but it does the job reasonably well—all 7900GT based cards ran stably during

resolution is called Anti-Aliasing. In 3D textures, Aliasing is most visible when two textures with differing qualities overlap. For example, a wall and a door, or even a rock wall, with a lot of Bump Mapping. It gets worse as the viewing perspective changes, and the wall may even seem to be moving!

**HDR (High Dynamic Range):** Dynamic Range refers to the variation or contrast to the light and dark areas in a given scene. The purpose of High Dynamic Range lighting is to accurately represent the varying intensity of light accurately, from bright sunshine glinting off, say, a gun barrel or a window pane, to variations in intensity of shadows. The core objective behind HDR rendering techniques is, of course, visual realism. Enabling HDR requires a card that supports Shader Model 2 or 3, and the performance hit can be quite significant depending, of course, on the variation in lighting in the given 3D scene.

**Soft Shadows:** Soft Shadows are, as the name suggests, shadows that are created from multiple light sources of varying intensities. In games, shadows are typically just that—dark and gloomy. Soft Shadows introduces the concept of creating shadows that may be dark, or slightly greyish, or even lighter. This adds realism to a scene, making the environment seem much more gritty and believable. Soft Shadows, as of now, has yet to see proper implementation in games. *F.E.A.R.* is a title that has heavily utilised soft shadows—unfortunately, the visual effects are minimal in comparison to the colossal drop in frames rendered per second.

### Lighter Chipset features and specs

	NVIDIA	ATI			
Part Name	7900GT	7800GTX	X1900GT	X1800XL	X1800GTO
Chipset Designation	G71	G70	R580	R520	R520
Manufacturing Process (nm)	90	110	90	90	90
Core Clock Speed (MHz)	450	430	500	400	400
(Manufacturer Reference Speeds)					
Onboard Memory (MB) / Type	256 / GDDR3	256 / GDDR3	256 / GDDR3	256 / GDDR3	256 / GDDR3
(Manufacturer reference)					
Memory Speed (MHz)	1320	1200	1200	1000	1000
(Manufacturer reference speeds)					
Memory bus width (Bits)	256	256	256	256	256
Pixel Shader units	24	24	36	16	12
Vertex Shader Units	8	8	8	8	8

our tests. The 7800GTX cards feature a single-slot cooler, but it's much more robust—which is needed because they heat up more as well. The Gigabyte 7900GT featured a Zalman cooler that looked... umm... cool! Part of the core was visible on this card, and the cooler was really light.

Another card that shipped with a custom cooler was the ASUS Extreme N7800GTX Top. Based around an overclocked 7800GTX core, with 256 MB of memory onboard, this card looked good with its airplane propeller-like cooling fan and massive heatsink. The heatsink-fan combo look a lot like a high performance Arctic NV Silencer—for those not in the know, Arctic makes some of the best VGA cooling solutions.

ATI also recommends a single-slot cooler for their cores under this category, as these cards don't run as hot. It's hard to ignore the ATI All-In-Wonder X1800XL when it comes to looks, performance, and features. ATI's TV-Tuners are some of the best around, and this card will game ferociously and record all your favourite shows with equal aplomb! Naturally, the card was accompanied with all the expected paraphernalia—including a feature-packed remote and an FM radio antenna.

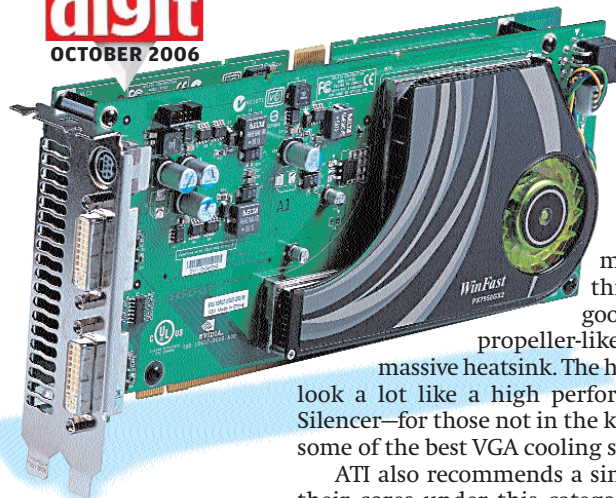
The Powercolor X1900GT, too, looked attractive, mainly because a large ATI Ruby adorns the metal fan-cum-heatsink cover. Incidentally, the GT version of the Radeon X1900 cards sport a single-slot cooler. That doesn't mean that the X1900GT heats up any less though—quite the contrary; we noted temperatures in the high seventies on the Powercolor card, which suggests that with prolonged gaming, temperatures could easily approach "XT" territory!

The bundle accompanying the ASUS Extreme N7800GTX TOP just deserves a quick word here—simply awesome: 11 discs with four full-version games. The Sapphire cards had very skimpy bundles as far as CD/DVDs go, but came with all the connectors you'll ever need!

### Performance

The factory-overclocked Gigabyte 7900GT performed well through all the tests in this category. It was closely dogged by another overclocked

**BEST BUY**  
**digit**  
OCTOBER 2006



Leadtek PX7950GX2  
The Hot one



## Scoreboard

## High-end Graphic Cards

BRAND	Gigabyte	LEADTEK	XFX	MSI	XFX	LEADTEK
MODEL	GV-3D1-7950-RH	PX7950GX2	PV-T71U-ZDD9	NX7900GTX T2D512E	PV-T71F-YDER	PX7800GTX 512
Chipset	Geforce 7950GX2	Geforce 7950GX2	Geforce 7950GX2	Geforce 7900GTX	Geforce 7900GTX	Geforce 7800GTX 512
Features						
DVI supported (Y/N)	✓	✓	✓	✓	✓	✓
Dual Monitor Support (Y/N)	✓	✓	✓	✓	✓	✓
Accessory/Connector Bundle	RGB & S-Video cables, DVI converter	VIVO *, Power connector, DVI converter Driver, Serious Sam	VIVO *, RGB & S-Video Cables, power connector, manuals	S-Video & RGB cables, Power connector, Manuals	VIVO *, RGB & S-Video Cables, power connector, manuals	VIVO *, power connector, 2 DVI converters
Software/Game Bundle	Driver CD, Power DVD 6, Serious Sam 2	2, Track Mania Nations, Power DVD 6	Driver, Tomb Raider: Legends (DVD)	MSI Driver, King Kong (DVD)	Driver, Tomb Raider: Legends (DVD)	Driver CD, 2 games - Chaos Theory, POP Warrior Within
Memory (in MB)/Type	2x512/GDDR3	2x512/GDDR3	2x512/GDDR3	512/GDDR3	512/GDDR3	512/GDDR3
Performance						
Real World (Direct 3D Tests)						
F.E.A.R (Avg. frames)						
1024x768 (4x AA, 4x AF, SS off)	139	140	138	150	100	87
1280x960 (No AA, 4x AF, SS off)	146	102	149	134	111	93
1280x960 (No AA, 4x AF, SS on)	84	46	84	127	71	50
1600x1200 (4x AA, 8x AF, SS on)	70	70	69	78	49	42
Splinter Cell Chaos Theory						
1024x768 (4x AA, 4x AF)	146.60	146.40	173.70	105.60	111.30	99.35
1280x1024 (No AA, 4x AF)	111	111.30	113.10	79.60	83.13	73.1
1600x1200 (4x AA, 8x AF)	76.31	76.53	83.57	54.62	57.44	50.93
Farcry						
1024x768 (4x AA, 4x AF, Ultra detail)	129.69	128.97	130.49	132.07	132.32	130.64
1280x1024 (No AA, 4x AF, Ultra Detail)	128.38	127.54	128.99	132.75	131.92	131.2
1280x1024 (4x AA, 4x AF, Ultra Detail)	127.06	125.45	125.96	111.85	116.66	105.34
1600x1200 (4x AA, 8x AF, Ultra Detail)	112.76	111.39	122.21	83.65	88.39	79.64
Real World (Open GL)						
DOOM 3						
1024x768 (4x AA, 4x AF, Max detail)	159.10	159.80	158.20	136.00	141.40	133.7
1280x1024 (No AA, 4x AF, Max Detail)	165.10	163.30	163.30	154.50	157.80	149.1
1280x1024 (4x AA, 4x AF, Max Detail)	135.60	134.20	134.00	99.10	104.80	96.8
1600x1200 (4x AA, 8x AF, Max Detail)	108.20	107.30	107.10	73.90	78.30	72
PREY						
1024x768 (4x AA, 4x AF, Max detail)	88.60	86.00	107.40	114.60	115.50	104.9
1280x1024 (No AA, 4x AF, Max Detail)	86.80	87.10	103.80	112.90	118.50	107.4
1280x1024 (4x AA, 4x AF, Max Detail)	61.70	62.00	75.20	80.00	84.50	76.7
1600x1200 (4x AA, 8x AF, Max Detail)	45.90	46.10	55.00	58.50	63.10	57
Synthetic Tests						
3D Mark 2006 (Default settings)	8380	8390	8371	6366	6571	5685
3D Mark 2005 (Default settings)	14834	14826	14815	11424	11811	10159
Visual Quality Tests						
F.E.A.R (So 5)	4	4.25	4	4	4	4
Farcry (So 5)	4.50	4.50	4.50	4.50	4.50	4.50
Chaos Theory (So 5)	4.50	4.50	4.50	4.50	4.50	4.50
Grnad Total						
Features (Total out of 20)	12.60	13.30	11.20	12.60	11.20	14
Performance (Total out of 70)	53.24	52.06	55.26	48.74	46.54	41.77
Price Index (Total out of 10)	2.86	4.24	3.64	4.12	4.67	4.59
TOTAL (Out of 100)	68.70	69.61	70.10	65.46	62.40	60.36
Price (in Rs.)	49,000	33,000	38,500	34,000	30,000	30,500

\*VIVO - Video In Video Out



+ Sizzling Performance  
- Stock cooler is weak



+ Blazing Performance  
- heats up quite a bit



+ Blazing Performance  
- Heat is a problem



+ A great & Stable Performer  
- Pricey











+ Great Performance, aggressive pricing  
- The MSI 7900GTX performs better



+ Good Performance  
- 7900GTX is better, with less heat dissipation



## High-end Graphic Cards

ASUS	ASUS	Gigabyte	MSI	XFX	ASUS	Gainward	XFX
EN7900GT TOP	EN7900GT	GV-NX79T256DP-RH	NX7900GT-T2D256E	PV-T71G-UDFR	EN7800GTX TOP	Golden Sample	PV-T70F-UDF7
Geforce 7900GT	Geforce 7900GT	Geforce 7900GT	Geforce 7900GT	Geforce 7900GT	Geforce 7800GTX	7800GTX 256	Geforce 7800GTX
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓
RGB cable, Power connector, 2 DVI converters, Manuals	RGB cable, Power connector, 2 DVI converters, Manuals	RGB & S-Video cables, DVI converter	S-Video cables, Power connector, Manuals	VIVO *, RGB & S-Video Cables, power connector, manuals	Multi component cable, Power cable, DVI converters, Manuals	VIVO *, Aux Power connector, 2 DVI connectors	VIVO *, S-Video cable, 2 DVI connectors, Power connector, Manuals
MediaShow, Power Director, Xpand Rally, Virtual Drive, Manual, Driver	MediaShow, Power Director, Xpand Rally, Virtual Drive, Manual, Driver	Driver CD, Power DVD 6, Serious Sam 2	MSI Driver, King Kong DVD	Driver, Tomb Raider: Legends (DVD)	11 CD's - Driver, 3 CD games pack, Power Director, Media Ad Show, Project Snowblind (DVD)	Driver CD, Power DVD 5, Muvee autoProducer 3	Driver CD
256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3
79	109	79	112	73	78	72	67
87	96	86	98	77	86	79	74
46	92	46	91	42	44	42	39
39	56	38	55	35	37	35	33
89.18	78.62	87.91	78.60	81.32	85.59	81.25	75.75
65.67	57.74	64.90	57.73	59.82	63.07	59.79	55.83
45.37	39.80	44.72	39.93	41.29	43.55	41.26	38.33
126.49	118.22	125.89	117.92	120.74	124.45	119.73	113.37
129.38	120.96	129.55	120.40	122.94	127.10	124.32	117.78
96.01	85.39	93.78	85.42	88.19	92.16	87.84	81.57
70.30	62.15	68.19	62.16	64.4	67.19	64.15	59.67
122.90	108.60	116.40	94.50	111.9	119.10	111.1	104.3
141.20	127.60	137.20	127.50	130.5	137.80	130.1	122.4
82.10	71.70	77.30	71.60	67.2	82.80	77.1	68.6
60.40	52.10	57.10	52.20	56.9	58.50	56.5	50
93.50	87.20	95.10	83.90	90.1	94.50	86.8	81.1
96.50	85.90	95.30	85.90	88.7	93.00	85.6	82.8
67.80	60.50	66.10	60.40	62.6	65.60	62.4	58.2
50.40	44.80	48.40	44.80	45.7	47.70	46.3	43.1
5318	4724	5298	4726	4623	4901	4908	4608
9350	8306	9206	8311	8201	8848	8750	8149
4	4	4	4	4	4	4	4
4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
4.50	4.50	4.50	4.50	4.50	4.50	4.50	4.50
12.60	11.90	12.60	11.90	10.5	14.00	10.5	10.5
38.47	37.77	37.89	37.65	35.23	37.09	35.85	33.82
5.05	5.43	5.62	5.83	7.57	5	6.67	5.83
56.12	55.10	56.11	55.38	53.30	56.09	53.01	50.15
27,700	25,800	24,900	24,000	18,500	28,000	19,500	24,000
							
+ Great looker, performs well - Price is a sore point	+ Performs well, runs cool - Costly	+ Good performance, Excellent cooler, great bundle - None in Particular	+ Good performance, runs cool - Scores lag behind other 7900's	+ Aggressive Pricing - None in particular	+ Good custom cooler - Expensive	+ Good bundle - Not good VFM	+ Stable and decent performance - Too costly



## Scoreboard

## High-end Graphic Cards

BRAND	ASUS	Sapphire	MSI RX1900GT -	Powercolor	ATI	MSI
MODEL	EAX1900XT CF512E	X1900XT 512	VT2D256E	X1900GT 256	AIW X1800XL	RX1800GTO
Chipset	Radeon X1900XT	Radeon X1900XT	Radeon X1900GT	Radeon X1900GT	Radeon X1800XL	Radeon X1800GTO
<b>Features</b>						
DVI supported (Y/N)	✓	✓	✓	✓	✓	✓
Dual Monitor Support (Y/N)	✓	✓	✓	✓	✓	✓
Accessory/Connector Bundle	X-lite gamepad, VIVO *, Crossfire cable, DVI converter, Manuals	RGB & S-Video connectors, VIVO *, Aux power cable, 2 DVI converters	RGB & S-Video connector, VIVO *, 2 DVI connectors, Power connector	Multiple VIVO *, 2 DVI connectors, Power cable, Manuals Driver CD, Cyberlink	VIVO *, Remote w/ USB reciever, FM aerial, Power cable, Manuals	VIVO * Cables, Power cable, 2 DVI connectors
Software/Game Bundle	Driver, Manual, Game pad driver	Driver CD	Star DVD Family, Beyond 3D, King Kong (DVD)	DVD solutions bundle	Adobe Photoshop Elements, Adobe Premiere Elements, Drivers	MSI driver CD + Beyond 3D (1 disc)
Memory (in MB)/Type	512/GDDR3	512/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3
<b>Performance</b>						
<b>Real World (Direct 3D Tests)</b>						
<b>F.E.A.R (Avg. frames)</b>						
1024x768 (4x AA, 4x AF, SS off)	98	96	67	68	66	54
1280x960 (No AA, 4x AF, SS off)	93	92	70	70	62	52
1280x960 (No AA, 4x AF, SS on)	54	54	38	39	30	24
1600x1200 (4x AA, 8x AF, SS on)	49	49	33	32	31	25
<b>Splinter Cell Chaos Theory</b>						
1024x768 (4x AA, 4x AF)	95.21	94.59	68.44	68.41	64.37	53.22
1280x1024 (No AA, 4x AF)	73.08	72.69	52.51	59.75	47.27	38.08
1600x1200 (4x AA, 8x AF)	53.76	53.46	37.71	37.7	34.49	27.2
<b>Farcry</b>						
1024x768 (4x AA, 4x AF, Ultra detail)	122.47	120.97	96.25	96.29	97.41	83.63
1280x1024 (No AA, 4x AF, Ultra Detail)	116	115.01	90.63	90.61	89.52	76.14
1280x1024 (4x AA, 4x AF, Ultra Detail)	95.26	94.42	69.42	69.33	69.87	59.43
1600x1200 (4x AA, 8x AF, Ultra Detail)	67.2	66.29	48.2	48.29	48.89	40.7
<b>Real World (Open GL)</b>						
<b>DOOM 3</b>						
1024x768 (4x AA, 4x AF, Max detail)	86.2	85.3	53.4	60.3	62.7	48
1280x1024 (No AA, 4x AF, Max Detail)	84.1	80.2	60.7	59.1	61.6	46.1
1280x1024 (4x AA, 4x AF, Max Detail)	61.1	59.3	42.9	42	45.1	33.4
1600x1200 (4x AA, 8x AF, Max Detail)	49.1	40.2	25.5	30.4	33.3	21.9
<b>PREY</b>						
1024x768 (4x AA, 4x AF, Max detail)	78.6	78.3	57.6	57.5	56.7	50.3
1280x1024 (No AA, 4x AF, Max Detail)	73.6	72.9	54.8	54.7	50.4	43.5
1280x1024 (4x AA, 4x AF, Max Detail)	57.5	57.5	41.9	41.9	39.2	34.8
1600x1200 (4x AA, 8x AF, Max Detail)	81.2	42.5	30.9	30.9	28.2	25
<b>Synthetic Tests</b>						
3D Mark 2006 (Default settings)	6094	6013	4858	4860	3922	3390
3D Mark 2005 (Default settings)	12081	11750	10026	10017	8015	7343
<b>Visual Quality Tests</b>						
F.E.A.R (So 5)	4.25	4	4.00	4.00	4.00	4.00
Farcry (So 5)	4.50	4.5	4.50	4.50	4.50	4.50
Chaos Theory (So 5)	4.50	4.5	4.50	4.50	4.50	4.50
<b>Grnad Total</b>						
Features (Total out of 20)	12.6	10.5	12.6	10.5	14.7	10.5
Performance (Total out of 70)	41.17	39.09	30.86	31.09	28.45	24.90
Price Index (Total out of 10)	2.86	4.75	7.18	9.66	6.36	6.62
TOTAL (Out of 100)	56.63	54.34	50.64	51.24	49.52	42.02
Price (in Rs.)	49,000	29,500	22,000	21,150	14,500	21,000
<div> </div> <div> <p>+ Great performer - Extremely costly for the performance</p> <p>+ Great Performer, Good bundle - Gets hot</p> <p>+ Good performance - Pricey</p> <p>+ Great Bundle - Pricey</p> <p>+ Good performer, Supreme bundle and VFM - None</p> <p>+ Good Bundle - Lacks performance, not VFM</p> </div>						



**Sapphire****X1800GTO**

Radeon X1800GTO

✓

✓

VIVO \*, RGB & S-Video  
cables, Composite, aux  
power connector

Driver CD

256/GDDR3

53

54

24

22

53.39

38.2

22

85.01

78.23

60.61

41.78

41.4

38.3

25.3

16.9

51.2

46.8

34.2

25.4

3384

7331

4

4.25

4.5

9.8

24.22

9.33

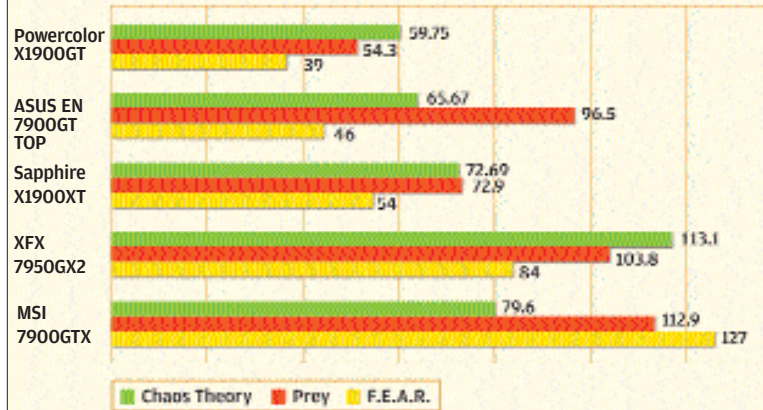
43.35

15,000



+ Decent VFM

- Lacks performance

**High End Cards**

How they did in the top looking games... NVIDIA VS ATI comparisons

NVIDIA-based card—the 7800GTX “golden sample” from Gainward. “Golden Sample” here means that these cards are supposedly created from hand-picked components, and tweaked carefully to give best performance. While we cannot verify the statement in any way, this card was factory-overclocked, and did perform extremely well and stably throughout all our tests.

We expected a lot from the X1900GT chipset, which is a slightly chipped-down version of the formidable “XT” version, with 36 pixel shader units, but this wasn’t to be. OpenGL has always been NVIDIA turf (NVIDIA cards perform better on nearly all OpenGL API-based games as compared to ATI), but this time the lead extends to DirectX territory, and the lesser of the high-end NVIDIA cores follow in the footsteps of the GX 2 and GTX based cards, with leading scores.

A surprise performer was the ATI 1800XL All-In-Wonder, simply because cards such as these usually concentrate on functionality rather than performance—the core wasn’t underclocked, as we’d initially expected. We had a pleasant surprise seeing this card just a touch behind both the X1900GT cards from MSI and Powercolor, and it manages to sneak ahead in a few of the tests as well—not bad at all!

**Our Conclusion**

Our Gold and Silver Best Buy awards go to the 7950 GX2-based heavyweights from XFX and Leadtek respectively. These cards really floored the rest when it came to raw performance, and

are the fastest things out there at the moment. If you are looking for an SLI setup or want to give the GX2s a wide berth, but still have the cash to burn, the MSI NX7900GTX will be a perfect companion for all your gaming needs. In fact, NVIDIA’s 7900GTX remains the fastest single-core gaming solution we’ve tested. This card can be paired with a twin for screaming SLI performance that will easily surpass a 7950 GX2. The 7950 GX 2 can also be used for a Quad SLI

setup, but we do not recommend sinking so much cash into such a gaming rig for two reasons: first, DirectX 10 is just round the corner, and second, Quad SLI is still in its infancy, and a lot of issues need to be ironed out.

If it’s the perfect balance between price and performance that you want, look for cards based on the 7900GT chipset. At Rs 18,500, the XFX 7900GT makes a sweet deal. With higher prices and lower performance scores, we think it’s time to bid the 7800GTX core-based cards goodbye.

For a gamer who wants something high-end, along with a lot of features, one of the best deals out there is the ATI X1800XL All-In-Wonder. For just Rs 14,500, you get a fast graphics card, along with a full-fledged, Windows Media Center-ready TV-Tuner with FM capabilities as well—an awesome deal!

**MID-RANGE GPUS**

A densely-populated segment, this category consisted of 20 cards.

**The Middlemen**  
**NVIDIA 7600GT, 7600GS**  
**ATI X1600XT, X1600Pro, X850XT, X800XL**

**Features**

NVIDIA’s mid-range flagship is now the 7600GT a.k.a. the G73, which is a smaller brother (by half approximately) of the G71 (7900 series). With 12 pixel pipelines, the 7600GT demolishes the part it was built to replace—the bestselling 6600GT—as far as performance goes; in fact it

**Mid Range GPUs**

	NVIDIA				ATI				
Part Name	7600GT	7600GS	6800GS	6800XT	X1600XT	X1600pro	X850XT PE	X800XL	X800GTO
Manufacturing Process (nm)	90	90	110	110	90	90	110	110	110
Core Clock Speed (MHz)	560	400	425	350	600	500	540	400	400
(Manufacturer Reference Speeds)									
Onboard Memory (MB) / Type	128 / GDDR3	128 / GDDR2	256 / GDDR3	256 / GDDR3	256 / GDDR3	256 / GDDR2	256 / GDDR3	256 / GDDR3	128 or 256 / GDDR3
(Manufacturer reference)									
Memory Speed (MHz)	1400	800	1050	900	1380	800	1180	1000	980
(Manufacturer reference speeds)									
Memory bus width (bits)	128	128	256	256	128	128	256	256	256
Pixel Shader units	12	12	12	8	12	12	16	16	12
Vertex Shader units	5	5	5	4	8	8	6	6	6

## Scoreboard Mid Range Graphic Cards

BRAND	Asus	Forsa	MSI	Sparkle	XFX	XFX
MODEL	EN7600GT Silent	7600GT	NX7600GT Diamond	7600GT	PV-T73G-UDL7	PV-T73G-UDD7
Chipset	Geforce 7600GT	Geforce 7600GT	Geforce 7600GT	Geforce 7600GT	Geforce 7600GT	Geforce 7600GT
<b>Features</b>						
DVI output supported (Y/N)	✓	✓	✓	✓	✓	✓
Dual Monitor Support (Y/N)	✓	✓	✓	✓	✓	✓
Accessory/Connector Bundle	CD pouch, RGB connector, 2 DVI converters	S-Video cable, Power connector	S Video & composite Cables, 2 DVI converters, Manuals	S-Video to composite converter, DVI converter	RGB TV-out cable, 2 DVI converters, S-Video out	RGB TV-out cable, 2 DVI converters, S-Video out
Software/Game Bundle	Driver CD, King Kong DVD, Xpand Rally	Driver CD	Star DVD Family+Drivers, Toca Racer 3	Driver CD	Driver CD, Call of Duty 2 DVD	Driver CD, Call of Duty 2 DVD
Memory (in MB)/Type	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3
<b>Performance</b>						
<b>Real World (Direct 3D Tests)</b>						
<b>F.E.A.R</b>						
800x600 (No AA, 4x AF, Med. detail)	123	122	123	124	122	83
1024x768 (No AA, AF, Med. detail)	90	88	62	84	85	56
1024x768 (4x AA, 4x AF, Max. detail)	45	50	45	44	44	51
*1280x960 (No AA, 4x AF, Max. Detail)	27	30	27	26	26	15
<b>Splinter Cell Chaos Theory</b>						
800x600 (No AA, AF, High detail)	77.15	76.26	76.38	76.36	75.76	83.59
1024x768 (No AA, AF, High detail)	55.86	55.08	55.12	55.13	56.10	60.24
1024x768 (No AA, 4x AF, Max detail)	54.04	53.32	53.36	53.36	53.77	58.21
1024x768 (4x AA, 4x AF, Max detail)	50.61	49.21	49.56	49.95	49.34	54.49
1280x1024 (4x AA, 4x AF, Max Detail)	34.73	34.28	34.29	34.28	33.98	37.61
<b>Farcry</b>						
800x600 (No AA, AF, High detail)	137	136.05	136.90	133.97	133.67	137.75
1024x768 (No AA, AF, High detail)	132.17	131.51	131.38	128.92	124.78	134.97
1024x768 (4x AA, 4x AF, High detail)	82.35	80.69	81.05	80.48	81.10	88.60
1280x1024 (No AA, 4x AF, High Detail)	88.10	86.86	87.10	86.77	86.76	93.33
<b>Real World (Open GL)</b>						
<b>DOOM 3</b>						
800x600 (No AA, AF, Med. detail)	165.40	163.70	164	165.60	164.50	165.70
1024x768 (No AA, AF, Med. detail)	142.40	141.30	141.40	141.30	141.20	148.40
1024x768 (4x AA, 4x AF, Max. detail)	75.40	73.10	73.40	73.40	73.23	82
1280x1024 (No AA, 4x AF, Max. Detail)	101.40	99.80	100	99.90	99.95	109
<b>PREY</b>						
800x600 (No AA, No AF, Med. detail)	110.30	113.80	110	114.10	110.29	125
1024x768 (No AA, No AF, High detail)	81.90	80.40	80.80	80.70	80.60	88.50
1024x768 (4x AA, 4x AF, Max. Detail)	56	54.60	54.90	54.90	53.90	60.70
1280x1024 (4x AA, 4x AF, Max. Detail)	38.20	36.70	37.70	36.90	37.70	40.80
<b>Synthetic Tests</b>						
3D Mark 2006 (Default settings)	3422	3395	3393	3393	3392	3636
3D Mark 2005 (Default settings)	6284	6205	6211	6227	6220	6743
<b>Visual Quality Tests</b>						
F.E.A.R (So 5)	4	4	4	4	4	4
Farcry (So 5)	4.25	4.25	4.25	4.25	4.25	4.25
Chaos Theory (So 5)	4.25	4.25	4.25	4.25	4.25	4.25
<b>GRAND TOTAL</b>						
Features (Total out of 10)	7.10	5.30	7.40	5.90	7.40	7.40
Performance (Total out of 75)	59.61	59.43	57.65	58.67	59.02	59.17
Price Index (Total out of 15)	3.90	6.65	4.50	5.68	5.57	4.68
Total (out of 100)	70.61	71.38	69.55	70.25	71.99	71.25
Price (in Rs.)	15,000	8,800	13,000	10,300	10,500	12,500

\* Soft shadows on



+ Fanless design  
- Costly



+ Excellent Value for money, great cooler  
- None



+ Great build quality  
- Double slot cooler



+ Good performer  
- Skimpy bundle for the price



+ great bundle and performance  
- None



+ Great bundle  
- extra heat dissipation, inconsistent performance



## Mid Range Graphic Cards

Zebtronics	Gainward	Forsa	Leadtek	XFX	Sapphire	ASUS	Palit
7600GT	Ultra 2300 PCX	7600GS	7600GS	6800XTreme 256MB	X1600XT (GDDR3)	EAX1600 Pro HDMI	X1600 Pro
Geforce 7600GT	Geforce 6800GS	Geforce 7600GS	Geforce 7600GS	Geforce 6800XT	Radeon X1600XT	Radeon X1600Pro	Radeon X1600Pro
✓	✓	✓	✓	✓	✓	✗	✓
✓	✓	✓	✓	✓	✓	✗	✓
RGB connector, Manual	VIVO, Power connector, DVI converter	S-Video cable, Power connector	RGB connector, DVI converters, Manuals	S-Video cable, DVI converters	VIVO cables, S-Video cables, RGB connectors, DVI converters	HDMI cable, TV Out, aux audio cable, aux I/O Cable	RGB connector, S-Video connector, DVI converters, Manual
Driver CD, Toca Race Driver 3	Driver CD, Power DVD 5, Muvee autoProducer 3	Driver CD	Driver CD, Serious Sam 2 DVD, Track Mania Nations	Driver CD	Driver CD, Power DVD	Driver CD, Manual CD	Driver CD, Toca Race Driver 3
256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR3	256/GDDR2	256/GDDR2
123	100	82	84	73	78	60	82
87	71	60	60	53	60	42	56
44	40	31	28	32	36	25	31
27	20	20	18	14	16	12	15
76.37	68.45	49.22	48.95	53.54	49.49	33.97	47.57
55.12	49.29	35.97	35.75	38	39.1	25.66	35.68
53.36	46.85	34.96	34.75	53.20	27.71	21.90	28.88
49.65	44.58	32.26	32.07	34.48	25.32	21.34	28.13
34.30	30.04	21.79	21.63	23.09	20.83	15.30	20.17
137.10	135.68	121.90	121.91	120.76	75.65	65.21	95.47
119.60	119.13	95.29	93.94	66.76	58.91	49.69	73.68
80.59	77.40	55.95	51.42	60.61	43.65	37.40	53.93
86.76	73.63	66.96	57.85	54.85	38.43	35.55	52.64
163.50	155	136.90	127.60	143.30	90.7	73.90	101.30
141.40	116.40	101.60	100.70	109.50	63	52.70	71
73.40	69.70	46.30	45.80	61.70	30	33.60	44.10
100	85	64.80	64.30	70.50	31.3	32.80	43.80
108.80	100.70	72.40	71.80	82.80	66.3	52.10	70.60
80.80	75.80	53.40	53	58.20	48.8	37.40	52.20
54.90	51.60	35.50	35.20	43.20	31.8	27.70	36.60
37.40	35.00	23.90	23.70	28.90	19.2	18.80	25.60
3391	2654	2331	2303	2027	2554	1800	2354
6208	5362	4270	4186	4055	5866	4360	5507
4	3.50	3.75	3.75	3.50	3.5	3.50	3.50
4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
4.25	4	4.25	4.25	4	4	4	4
6.20	7.10	5	6.80	5.60	6.5	7.35	7.40
58.66	51.61	42.34	41.52	42.38	39.86	31.98	40.63
5.85	5.88	10.00	8.54	7.13	4.88	4.98	14.63
70.71	64.59	57.34	56.86	55.12	51.23	44.31	62.66
10,000	9,950	5,850	6,850	8,200	11,000	11,750	4,000
							
+ Decent performer - Very Skimpy bundle	+ Great bundle - mediocre scores	+ Excellent value for money - Light bundle	+ Decent bundle - low quality cooler	+ Flashy cooler - Poor performer	+ Good bundle, DDR3 memory - Scores on the lower side	+ Native HDMI support - lacks performance	+ Good performer, bundle, excellent pricing - None in particular

Scoreboard	Mid Range Graphic Cards			OCTOBER 2006		
BRAND	Powercolor	Sapphire	Sapphire	Powercolor	Powercolor	Powercolor
MODEL	X1600 Pro 512MB	X1600 Pro 512 (DDR2)	X1600 Pro 256	X850XT PE	X800XL	X800GTO
Chipset	Radeon X1600Pro	Radeon X1600Pro	Radeon X1600Pro	Radeon X850XT PE	Radeon X800XL	Radeon X800GTO
Features						
DVI output supported (Y/N)	✓	✓	✓	✓	✓	✓
Dual Monitor Support (Y/N)	✓	✓	✓	✓	✓	✓
Accessory/Connector Bundle	Composite & S-Video cables, DVI converter, Manuals	VIVO cables, S-Video cables, RGB connectors, DVI converter	VIVO cables, S-Video cables, RGB connectors, DVI converter	VIVO, 2 DVI converter, power connector, Composite cable	VIVO, DVI converter, power connector, Composite cable	VIVO connectors, 2 DVI connectors, power connector, Composite cable
Software/Game Bundle	Driver CD	Driver CD, Power DVD	Driver CD, Power DVD	Driver CD, Pacific Fighters, Cyberlink DVD solutions	Driver CD, Cyberlink DVD solutions, Pacific Fighters	Driver CD, Cyberlink DVD solutions, Pacific Fighters
Memory (in MB)/Type	512/GDDR2	512/GDDR2	256/GDDR2	256/GDDR3	256/GDDR3	128/GDDR3
Performance						
Real World (Direct 3D Tests)						
F.E.A.R						
800x600 (No AA, 4x AF, Med. detail)	57	77	78	129	105	83
1024x768 (No AA, AF, Med. detail)	43	55	55	95	73	57
1024x768 (4x AA, 4x AF, Max. detail)	22	26	24	58	46	30
*1280x960 (No AA, 4x AF, Max. Detail)	12	13	11	25	19	14
Splinter Cell Chaos Theory						
800x600 (No AA, AF, High detail)	36.34	39.26	39.45	119.50	98.34	76.30
1024x768 (No AA, AF, High detail)	27.18	31.23	30.23	93.34	75.99	57.81
1024x768 (No AA, 4x AF, Max detail)	22.82	26.1	25.32	85.21	69.06	52.45
1024x768 (4x AA, 4x AF, Max detail)	22.01	23.35	21.98	72.32	58.99	44.14
1280x1024 (4x AA, 4x AF, Max Detail)	15.64	16.69	12.56	53.23	43.12	31.95
FarCry						
800x600 (No AA, AF, High detail)	93.20	98.44	97.23	131.48	127.22	109.59
1024x768 (No AA, AF, High detail)	67.97	45.5	42.13	130.85	105.37	83.02
1024x768 (4x AA, 4x AF, High detail)	32.58	34.35	30.6	97.49	78.64	57.54
1280x1024 (No AA, 4x AF, High Detail)	29.76	31.18	27.3	95.10	74.86	56.81
Real World (Open GL)						
DOOM 3						
800x600 (No AA, AF, Med. detail)	66.10	83.2	78.2	109.90	110.70	87.60
1024x768 (No AA, AF, Med. detail)	44.70	51.4	44.9	106.10	59.10	68.10
1024x768 (4x AA, 4x AF, Max. detail)	12.10	22.9	19.3	59.10	46.40	31.20
1280x1024 (No AA, 4x AF, Max. Detail)	20.10	21.7	17.8	59.00	47.10	37.20
PREY						
800x600 (No AA, No AF, Med. detail)	47.60	61.2	58.4	104.80	87	67.20
1024x768 (No AA, No AF, High detail)	33.80	40.5	37.2	82.10	64.10	47.80
1024x768 (4x AA, 4x AF, Max. Detail)	19.10	25.3	22.8	58	46.20	31.10
1280x1024 (4x AA, 4x AF, Max. Detail)	12.80	16.9	14.7	39.90	31.20	21.10
Synthetic Tests						
3D Mark 2006 (Default settings)	1868	1968	1923	2489	1993	1109
3D Mark 2005 (Default settings)	4459	4733	4699	7161	5912	4696
Visual Quality Tests						
F.E.A.R (So 5)	3.50	3.5	3.5	3.75	3.75	3.50
FarCry (So 5)	4.25	4.25	4.25	4.25	4.25	4.25
Chaos Theory (So 5)	4	4	4	4	4	4
Grand Total						
Features (Total out of 10)	6.50	6.8	6.8	7.40	7.85	7.85
Performance (Total out of 75 )	30.65	33.94	32.56	58.39	49.06	37.48
Price Index (Total out of 15)	7.80	6.16	7.41	5.88	7.36	9.44
Total (out of 100)	44.95	46.90	46.76	71.67	64.27	54.76
Price	7,500	8,400	7,000	9,950	7,950	6,200

\* Soft shadows on



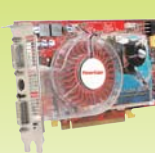
+ Good VFM  
- Performance not upto the mark



+ Great connector bundle  
- Performance to price ratio suffers



+ Good bundle  
- Performance



+ Excellent packaging and bundle  
- Lack of SM 3 support



+ Excellent packaging and bundle  
- SM 3 support



+ Excellent packaging and bundle  
- performance, SM 3 support

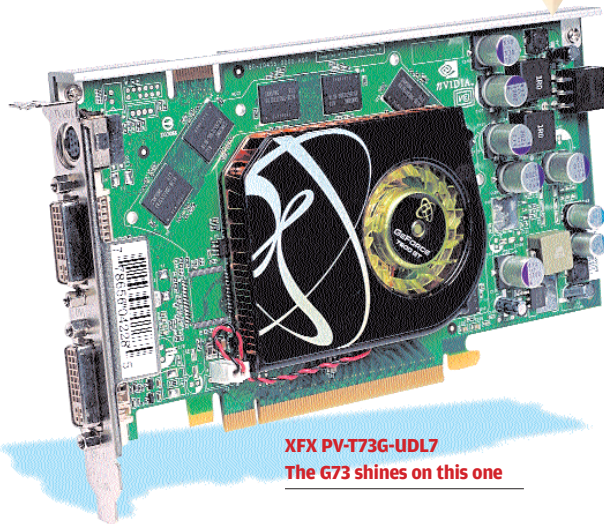


beats the 6800GS chipset, which we feel was a feeble last attempt to prop up NVIDIA's 6xxx family of graphics cards. The 7600GS is identical to its GT counterpart, except for the lower clocks and the use of DDR2 memory (as opposed to DDR3 on the GT). The 6800XT is strictly a mid-range to low-end product, and the scores will prove this fact.

Coming to ATI, the RV 530 (X1600) is another strong-on-paper card. The biggest advantage is the use of 12 pixel pipelines, previously unheard-of on a mid-range GPU, and ATI has added 256-bit memory support for the X1600XT—which was considered high-end not so long ago.

Forsa's 7600GT came with a huge coppery-looking cooler. The other card

**BEST BUY**  
**digit**  
OCTOBER 2006



**XFX PV-T73G-UDL7**  
**The G73 shines on this one**

that had us visually hooked was the MSI 7600GT Diamond. The cooler looks something like the solution on the 7900GTX cards, complete with double-slot design, a full length heatsink and loads of fins—it even has a single heat-pipe! This card was the coolest (thermally as well as visually) in the mid-range group. The most massive heatsink was found bolted onto the ASUS 7600GT Silent. As you've doubtless guessed, no fan on this one—just heat-pipes and lots of fins to dissipate all that heat!

## Performance

After firing up the first few cards, we realised two things: first, all the 7600GT cards performed rather similarly, except for the overclocked XFX 7600GT XXX version, which showed an inexplicable drop of frames in *F.E.A.R.* Second, all these cards were faster than the other players in the game (pardon the pun), and ATI's mid-range offerings were left out in the cold! The one exception was ATI's former top-end R480 core, better known as the X850XT Platinum edition. We received one card based on this core—a Powercolor. It performed well, and came close to dethroning the 7600s.

The 7600GT is a real beast in the mid-range segment. Built around a full 12 pixel pipeline design and combining fast GDDR3 memory, the 7600GT brings that "high-performance" feel, well within the range of the budget-oriented buyer.

Despite the high scores, we'd advise you to give the X850 a wide berth. Why? Take a peek at those 3D Mark 06 scores—this is a Shader



I am  
my own  
network  
manager

Jasubhai

Technology is not your profession. Yet, as a small business owner you have to deal with it everyday. From your workstations, printers and all those pieces of hardware to managing your intranet, the accounting software and keeping those viruses away, your business depends on technology.

What you need is a trusted navigator who helps you understand, choose, buy and most importantly, use technology.

Digit is your trusted navigator for the world of technology.



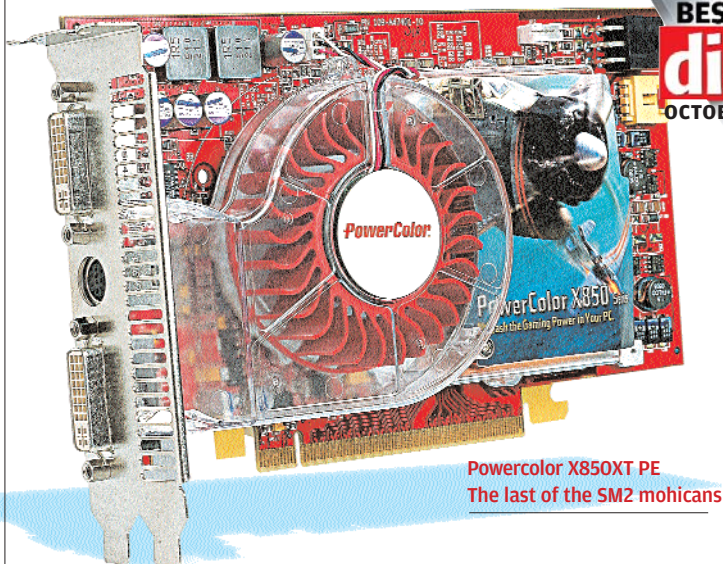




Far Cry will need a powerful, high-end card to look like this



On a low-end card, the same scene at minimum settings. See the difference?



Model 2 only card, and will not allow you to enjoy Shader Model 3 specific effects in the latest games. The 7600GS is also a worthy mid-range consideration for those on a budget—it offers around 60 per cent the performance of the GT based cards, but with a significant price difference—you do the math!

## Our Conclusion

The XFX 7600GT ousted the Powercolor X850XT PE by a hairsbreadth to take our Best Buy Gold award. The Powercolor had to be content with the Best Buy Silver title. In terms of performance, the older X850XT chipset is still very competitive in the mid-range segment, but as mentioned earlier, it isn't a future-proof option because of the lack of SM 3 support.

The Forsa 7600GT is a worthy mention: it performed well, and is priced rather attractively. For those with a windowed cabinet, the two unique cards (looks-wise, and both 7600GT chipset based cards from ASUS and MSI) are ideal buys. The MSI 7600GT Diamond actually looks like a 7900GTX card—good flaunt value!

## ENTRY-LEVEL GPUS

The most-populated segment—24 cards—was dominated by NVIDIA's 7300GT-based cards and ATI's X1300 chipset. The bestselling 6600GT cards, once mid-range offerings, also find themselves relegated to this category.

**Frugal Performers**  
**NVIDIA GeForce 7300GT, 7300GS,**  
**6600GT, 6200**  
**ATI X1300XT, X1300Pro, X700, X300**

## Features

These cards are odd beasts—basically, highly stripped-down versions of their more powerful brethren, they have a particularly difficult audience to please. Such cards need to be powerful enough to warrant purchase in the first place, but also be affordable enough for most, especially since onboard chipsets are getting better and better by the week!

Among the NVIDIA cards, the 6600GTs were the only ones to feature GDDR3. ATI also made a solitary appearance here with the GeCube X1300XT. The additional bandwidth that DDR3 memory provides is pretty impressive, and considering that GDDR3 can scale up to 40 per cent faster clock speeds as compared to DDR2, these cards were bound to have quite an advantage.

Both NVIDIA and ATI cards feature some avatar of the "Shared Memory" technology that is prevalent among the lower-end cards. NVIDIA calls this "TurboCache", while ATI uses the handle "Hypermemory". Very simply, these cards come with less onboard memory (to make them economical), and to make up for this deficiency, they have the ability to utilise additional system memory, which is used as video memory for frame buffering. This process is dynamic, so if more system memory is required by the other components, the controller relinquishes the requisite amount.





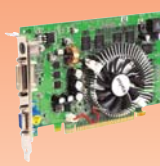
## Scoreboard

## Entry Level Graphic Cards

BRAND	Gigabyte	Leadtek	Palit	Sparkle	XFX	MSI
MODEL	GV-NX73T256P-RH	PX7300GT TDH	7300GT PCI-E 256MB	SF-PX73GDH 256MB	PV-T73E-UDJ3	NX7300GS - TD256E
Chipset	Geforce 7300GT	Geforce 7300GT	Geforce 7300GT	Geforce 7300GT	Geforce 7300GT	Geforce 7300GS
Features						
DVI input supported (Y/N)	✓	✓	✓	✓	✓	✓
Dual Monitor Support (Y/N)	✓	✓	✓	✓	✓	✓
Memory (in MB)/Type	256/DDR2	256/GDDR2	256/DDR2	256/DDR2	256/DDR2	256/DDR2
Accessory/Connector Bundle	RGB & S-Video cables, DVI converter, manuals	RGB & S-Video cables, manuals	RGB and S-Video Cables	Manuals, S-Video cable, DVI to D-Sub converter	Manuals, S-Video Cable, 2 DVI connectors	S-Video and DVI to D-Sub connectors, manual
Software/Game Bundle	Driver, Serious Sam 2	Driver CD	Driver CD	Driver CD	Driver CD	Driver CD
Performance						
Real World (Direct 3D Tests)						
F.E.A.R						
640x480 (No AA, AF, Med. Detail)	97	90	92	79	80	37
800x600 (No AA, AF, Max Detail)	46	58	43	38	40	19
1024x768 (No AA, 4x AF, Max Detail)	43	38	39	32	36	14
Splinter Cell						
640x480 (No AA, 4x AF, Max detail)	55.05	48.95	50.47	44.72	44.62	29.75
800x600 (No AA, 4x AF, Max Detail)	46.27	37.71	42.43	36.42	36.30	17.1
1024x768 (4x AA, 4x AF, Max Detail)	28.34	25.09	24.89	19.98	19.75	12.28
Farcry						
800x600 (4x AA, 4x AF, Max detail)	69.20	61.99	63.42	56.59	56.69	27.56
1024x768 (No AA, 4x AF, Max Detail)	70.33	64.55	68.80	60.40	60.60	36.12
1024x768 (4x AA, 4x AF, Max Detail)	48.68	43.16	44.68	39.36	39.69	17.92
Real World (Open GL)						
DOOM 3						
800x600 (No AA, 4x AF, Med. detail)	126.50	114.80	117.40	105.90	105.60	55.2
1024x768 (No AA, 4x AF, Max Detail)	82.10	78.50	76.30	72.20	72	36.5
1024x768 (4x AA, 4x AF, Max Detail)	45.40	40.30	38.70	35.30	34.90	11.8
PREY						
800x600 (No AA, AF, High detail)	67.80	64.10	61.50	53.90	54.70	32.5
1024x768 (No AA, 4x AF, Max Detail)	46.60	41.50	43.60	39.90	38.80	22.8
Synthetic Tests						
3D Mark 2006 (Default settings)	2105	1799	1828	1622	1627	864
3D Mark 2005 (Default settings)	3271	3356	3354	3015	3013	2422
Visual Quality Tests						
F.E.A.R (So 5)	3.50	3	3	3.50	3.50	3
Farcry (So 5)	4	4	4	4	4	4
Chaos Theory (So 5)	4	4	4	4	4	4
Grand Total						
Features (Total out of 10)	6.40	5.20	5.20	5.50	5.20	5.2
Performance (Total out of 70)	54.06	50.18	50.35	45.87	46.10	28.81
Price Index (Total out of 20)	6.33	8.70	10.53	9.43	9.09	10.64
TOTAL	66.79	64.07	66.08	60.80	60.40	44.65
Price	7,900	5,750	4,750	5,300	5,500	4,700



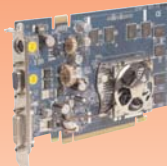
+ Good performer  
- Costly



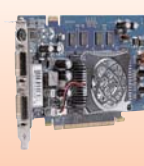
+ Decent performance  
- Skippy bundle



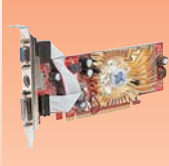
+ Good performance, well priced  
- Poor bundle



+ Decent bundle  
- Mediocre performer



+ Decent bundle  
- Mediocre performer



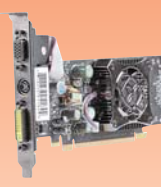
+ Decent bundle, silent cooling  
- Costly

## Entry Level Graphic Cards

Palit	XFx	Gainward	Palit	XFx	Zebronic	Zebronic	XFx
<b>7300GS PCI-E 256MB</b>	<b>PV-72G-WANG</b>	<b>6600GT 256MB</b>	<b>6600GT 128</b>	<b>PV-T43G-UDF7</b>	<b>PX6600GT PCI-E256</b>	<b>PX6600 PCI-E256</b>	<b>PV-T44F-WANG</b>
Geforce 7300GS	Geforce 7300GS	Geforce 6600GT	Geforce 6600GT	Geforce 6600GT	Geforce 6600GT	Geforce 6600	Geforce 6500
✓	✓	✓	✓	✓	✓	✓	✓
✓	✓	✓	✓	✓	✓	✓	✓
256/DDR2	256/DDR2	256/DDR3	128/DDR3	256/GDDR3	256/DDR3	256/GDDR2	256/DDR2
RGB and S-Video Cables	S-Video Cables, Manual	S-Video & composite cables, DVI converter	RGB and S-Video Cables	Manuals, S-Video Cable, 2 DVI converters	Manual, S-Video connector	Manual, S-Video cable	Manuals, S-Video Cable, DVI connector
Driver CD	Driver CD	Driver CD	Driver CD	Driver CD	Driver CD	Driver CD	Driver CD
33	35	107	105	103	106	60	23
17	20	68	67	68	69	30	12
12	15	49	45	45	45	25	8
20.90	21.45	57.09	57.34	56.84	57.96	33.48	20.25
13.98	14.32	44.61	44.15	43.92	44.75	28.31	12.3
10.68	8.2	30.24	28.50	29.47	30	16.91	8.1
23.75	25.49	69.43	67.06	67	68.29	37.28	14.48
37.49	38.21	77.10	74.17	73.81	75.14	41.2	22.91
15.07	15.2	47.11	47.39	46.99	47.99	25.54	8.32
48.30	51.1	124.41	127.30	127.50	129.90	74.6	28.8
31.40	33.7	88.20	90.12	89.50	91.40	50.7	14.3
9.90	11	41.90	43.50	43.30	44.20	23.9	5.5
28.29	33.1	72.90	71.70	71.80	73.20	41	27.7
20.10	16.4	48.80	50.60	45.90	50.90	28.2	16.4
792	733	1888	1759	1875	1904	1079	362
2331	2256	4165	3961	4081	4143	2178	1401
3.50	3	3	3	3	3	3	2.50
4	4	3.50	3.50	3.50	3.50	3.50	3.50
4	4	3.50	3.50	3.50	3.50	3.50	3
4.90	4.9	5.50	5.20	4.90	4.60	4.6	4.9
26.87	26.70	55.88	55.08	55.05	56.22	34.46	19.01
15.75	13.89	7.69	6.94	6.67	6.99	12.20	14.71
47.52	45.49	69.07	67.22	66.62	67.81	51.26	38.61
3,175	3,600	6,500	7,200	7,500	7,150	4,100	3,400



+ Decent bundle, good VFM  
- Poor performer



+ Reasonably priced  
- Performance lacks



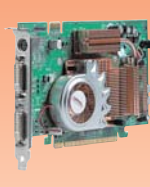
+ Good performance and bundle  
- None in particular



+ Good performer  
- High priced



+ Good performance  
- Slightly overpriced



+ Good performance  
- Skippy bundle



+ Decent performance  
- poor bundle



+ Good pricing  
- Poor performer





## Scoreboard

## Entry Level Graphic Cards

BRAND	Gainward	Gigabyte	Zebronics	GeCube	Powercolor	Powercolor
MODEL	6200TC PCI-E 128	GV-NX62TC	PX6200TC	X1300XT Platinum	X1300 512 DDR2	X1300 256 DDR2
Chipset	Geforce 6200TC	Geforce 6200TC	Geforce 6200TC	Radeon X1300	Radeon X1300	Radeon X1300
Features						
DVI input supported (Y/N)	✓	✓	✓	✓	✓	✓
Dual Monitor Support (Y/N)	✓	✓	✓	✓	✓	✓
Memory (in MB) / Type	128/DDR	128/DDR	256/DDR	256/GDDR3	512/DDR2	256/DDR2
Accessory/Connector Bundle	S-Video Cables, Manual	Multi component cable, DVI to D-Sub converter	RGB cable, Manual	S-Video and Composite Cables, DVI to D-Sub converter	S-Video Cables, DVI to D-Sub converter	S-Video Cables, DVI to D-Sub converter
Software/Game Bundle	Driver CD	Driver CD	Driver CD	Driver CD	Driver CD	Driver CD
Performance						
Real World (Direct 3D Tests)						
F.E.A.R						
640x480 (No AA, AF, Med. Detail)	19	22	20	60	51	51
800x600 (No AA, AF, Max Detail)	10	12	11	39	26	26
1024x768 (No AA, 4x AF, Max Detail)	7	8	6	27	20	20
Splinter Cell						
640x480 (No AA, 4x AF, Max detail)	17.23	22.54	19.76	43.21	26.13	25.85
800x600 (No AA, 4x AF, Max Detail)	9.34	13.24	11.45	31.65	16.98	16.23
1024x768 (4x AA, 4x AF, Max Detail)	5.33	9.1	6.75	22.44	10.41	9.87
Farcry						
800x600 (4x AA, 4x AF, Max detail)	12.56	16.21	13.36	55.91	32.51	33.13
1024x768 (No AA, 4x AF, Max Detail)	16.32	21.65	18.32	68.12	40.41	41.41
1024x768 (4x AA, 4x AF, Max Detail)	6.78	8.34	4.46	41.2	17.26	15.89
Real World (Open GL)						
DOOM 3						
800x600 (No AA, 4x AF, Med. detail)	18	22	20.4	55	35.3	33.2
1024x768 (No AA, 4x AF, Max Detail)	10.5	12.1	11.6	43.6	21.4	19.8
1024x768 (4x AA, 4x AF, Max Detail)	4.3	6.7	3.8	21.6	11.8	9.9
PREY						
800x600 (No AA, AF, High detail)	12	20.9	19	45.3	27.2	27.1
1024x768 (No AA, 4x AF, Max Detail)	7	11.3	10	29.8	15.7	15.5
Synthetic Tests						
3D Mark 2006 (Default settings)	191	245	210	1435	987	975
3D Mark 2005 (Default settings)	1223	1380	1298	3034	2297	2268
Visual Quality Tests						
F.E.A.R (So 5)	2.50	2.50	2.50	3	3	3
Farcry (So 5)	3.50	3.50	3.50	4	3.50	3.50
Chaos Theory (So 5)	3	3	3	4	3.50	3.50
Grand Totals						
Features (Total out of 10 )	4.6	5.2	4.6	5.2	4.9	5.2
Performance (Total out of 70 )	15.35	18.10	16.48	40.29	26.76	26.32
Price Index (Total out of 20 )	19.23	16.67	15.63	6.67	8.20	9.80
TOTAL	39.18	39.97	36.70	52.16	39.86	41.32
Price	2,600	3,000	3,200	6,500	6,100	5,100



+ Good VFM  
- Poor performance



+ Good bundle, decent VFM  
- Poor performance



+ Extra memory (256 MB)  
- Poor bundle and performance



+ Good performance & bundle  
- Slightly expensive




+ Decent VFM and bundle  
- Slower than stock X1300's




+ Cheaper than 512 MB version with equitable performance  
- Slower than stock X1300's

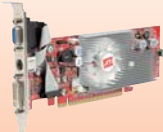
Powercolor	Gigabyte	Power color	Gigabyte
X1300 128 DDR	X1300	X700 256 DDR	GV-RX305128D
Radeon X1300	Radeon X1300	Radeon X700	Radeon X300SE
✓	✓	✓	✓
✓	✓	✓	✓
128/DDR	256/GDDR2	256/GDDR2	128/DDR
S-Video Cables, DVI to D-Sub converter	Multi component connector, DVI to D-Sub converter	S-Video cable, Manual Cyberlink DVD solutions, Driver CD	S-Video cable, Manual
Driver CD	Driver CD		Driver CD
36	57	46	21
20	31	28	12
12	22	21	6
16.26	30.1	33.42	11.54
9.25	13.2	26.31	5.59
5.56	6.5	17.67	3.7
18.89	39.47	51.2	14.26
25.43	49.1	62.37	20.54
11.46	32.67	43.2	11.83
24.2	40.1	57.2	16.3
11.8	29.1	44.2	7.9
4.2	14.8	22.1	2.7
16.9	34	38.7	14.1
7.9	23.3	24.3	5.2
667	1158	850	280
2199	2694	2654	1678
3	3	2.50	2.50
3.50	3.50	3.50	3.50
3.50	3.50	3.50	3.50
5.2	5.5	5.2	4.6
20.25	30.22	34.63	15.97
12.20	6.33	11.24	15.63
37.64	42.05	51.06	36.20
4,100	7,900	4,450	3,200



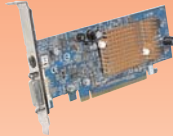
+ Decent VFM  
- Not suitable for more than casual gaming



+ Decent Performer  
- Lack of Shader Model(SM)3 support



+ Decent Performer  
- Lack of SM3 support



+ Rock solid stability  
- Pricey and basic performance



WISDOM OF THE ORIENT SERIES #25

申  
午  
(一)  
酉  
丙  
(二)

Wise men subscribe when the time is ripe.  
The unwise keep waiting for a better offer that may never come

A public interest message issued by **digit**



7300GT, 6600GT, X1300XT.xls						
	NVIDIA				ATI	
Part Name	7300GT / GS	6600GT / 6600	6500	6200TC	X1300XT / X1300	X300SE
Manufacturing Process (nm)	90	110	110	110	90	110
Core Clock Speed (MHz)	450 / 550	500 / 300	350	350	450	325
(Manufacturer Reference Speeds)						
Onboard Memory (MB) / Type	256 or 128 /	256 or 128	128 or 256	16 ~ 64 /	128 ~ 512 /	64 ~ 128 /
(Manufacturer reference)	DDR2		DDR2	DDR	GDDR3/ DDR	DDR
Memory Speed (MHz)	800 / 350	1000 / 500	500	350	900 / 500	400
(Manufacturer reference speeds)						
Memory bus width (bits)	128	128	128	64	128/64	128/64
Pixel Shader units	8 / 4	8	4	4	12/4	4
Vertex Shader units	3	4	3	3	4	2

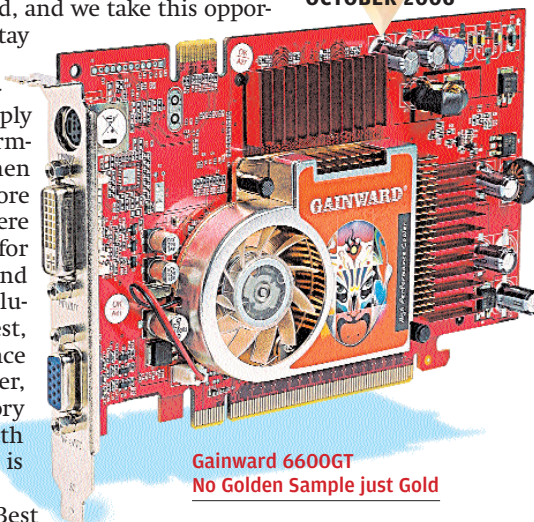
## Performance

The ATI cards pretty much lagged behind the NVIDIA's by a fair margin, except for the large-hearted X1300XT from GeCube, which came close in a few tests. We do not recommend anything less than a 256 MB card, and we take this opportunity to warn you to stay away from the Turbo-cache- or Hypermemory-based cards, simply because of the performance hit you'll get when playing some of the more recent game titles. There is just no substitute for onboard memory, and any sort of sharing solution is stop-gap at best, with severe performance compromises. Moreover, this sort of main memory sharing also comes with CPU overheads, which is never a good thing.

We awarded our Best Buy Gold award to the Gainward Geforce 6600GT 256, making it a clean sweep for NVIDIA. The Best Buy Silver goes to another 6600GT based card—the 256 MB Zebtronics 6600GT, which actually beat the Gainward card in terms of performance scores, owing to a slightly higher core clock (510 MHz as opposed to the 500 MHz default).

Cards based on the NVIDIA GeForce 7300GT chipset also perform decently, but lose out to the faster (both core- and clock-wise) 6600GTs. Note that the vanilla 6600 core is a much slower card, and we do not recommend it, simply because it isn't future-proof at all; it huffs and puffs through even relatively older games. For the most frugal of us, the Palit 7300GT makes a lot

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**digit**  
OCTOBER 2006



Gainward 6600GT  
No Golden Sample just Gold

of sense: it costs just Rs 4,750, has 256 MB of DDR2 memory, and performs acceptably.

## Summing It All Up

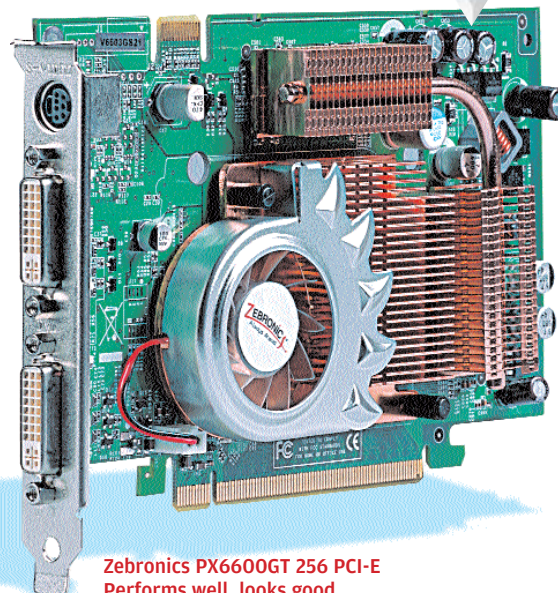
After the dust settled and temperatures dropped to normal around our test rig, we took some time to reflect on some interesting things we learnt from this test. For starters, games have evolved manifold. Whatever the genre—First Person Shooter and Real Time Strategy alike—the amount of detail and visuals that developers are building into the latest game engines is nothing short of spectacular. And virtual environments will only get prettier with upcoming game titles such as *Crysis*, *Neverwinter Nights 2*, and *Enemy Territory: Quake Wars*.

We realised that no amount of graphics processing power is ever going to be enough, and one thing's for certain—you cannot experience even half of what the developers wanted you to feel when playing with low-end cards. If you're even a little more than causally interested in gaming, make sure you set aside at least Rs 7,500 for this component alone—take our word for it: your eyes will appreciate the difference.

DirectX 10 (DX10) adds another dimension to this equation. None of these cards we've tested here are DX10 compatible, so as soon as Vista and DX10 come out, you're going to have to shell out again for a compatible card.

Going in for a super, high-end graphics card solution today is only worth it if you

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Zebtronics PX6600GT 256 PCI-E  
Performs well, looks good

plan to wait till much after DX 10 cards become mainstream and affordable, before you upgrade again. Multi-GPU solutions (SLI and CrossFire) aren't recommended, simply because you'll end up wasting a lot of hard-earned cash on something that might end up being just average in less than a year! ■

michael\_browne@thinkdigit.com

Contact Sheet		Graphics Cards	
Brand	Company	Phone	Web Site
ASUS	ASUSTek Computer Inc	022-40058888	media_india@asus.com
Forsa	Shree Sagarmatha	011-26428541/42	techcom@airtelbroadband.in
Gainward	Mediatech India	022-26361111	sales@mediatechindia.com
Gigabyte	Gigabyte Technology (India) Ltd.	26526696 / 30616666	sales@gigabyte.in
Leadtek	Zebtronics India Pvt. Ltd	044 - 2661 6202	zebronics@zebronics.com
MSI	Micro Star International (MSI)	011-41758808 / 09	sanyam@msi-india.com
XFX	Rashi Peripherals Pvt.Ltd	22- 67090810	navinderc@rptechindia.com
Zebtronics	Zebtronics India Pvt. Ltd	044 - 2661 6202	zebronics@zebronics.com
Powercolor	Mediatech India	022-26361111	sales@mediatechindia.com
Palit	Shree Sagarmatha	011-26428541/42	techcom@airtelbroadband.in
GeCube	Tirupati Enterprises	9339207519	abhishek@tirupati.net
Sapphire	Aditya Infotech	9371298668	yogesh.dutta@adityagroup.com
Sparkle	Abacus Peripherals Pvt. Ltd.	022-669233941	enquiry@abacusperipherals.com



September 2006

# Nokia E61

Sanket Naik

Gadget-craving is hard-wired into a geek's brain, so despite having a Nokia N70, I just had to get the new Nokia E61 Communicator! I had a tough time procuring one though—could've been either because they were selling like hotcakes, or because the lack of a camera meant nobody wanted it! Anyway, since Agent 001 is a bosom buddy of mine, I managed to get a piece.

## Day 1

O joy! The E61 was delivered today, and I was soon holding something really wide—nothing like what I've come across thus far. Believe me, this is **one hell of a display screen**. The **menu structure is quite the same** as that of any other Nokia smartphone.

## Day 2

My four-year-old SIM had problems getting detected, so today I had to get a new one. That done, the phone got going. **A Settings Wizard meant all the network settings were automatically set**, and I was on my way SMSing.

## Day 3

Truckloads of work, but I've decided to spend some time with the gadget—on the pretext of needing to write this! The shimmering screen is sharp and inviting. With 16 million colours, icons, graphics and text are life-like. **The full QWERTY keypad is not the best**; I would rate the Blackberry's and Treo 650's much higher. Key spacing and the way the keys wiggle are the sore point.

## Day 4

Pleasantly surprised by the quality embedded speaker. The player is similar to the one on the N91, and music quality is good. But Nokia has taken the business definition too far, and **has included a single-earpiece headset—ludicrous! Had to buy a Nokia stereo headset.** The **bundled MiniSD card is just 64 MB**, so I got

myself a 1 GB card.

## Day 7

Themes add a dash of freshness, but there are a limited few available due to the screen size.

## Day 11

Going through the manual, I figured that the Nokia catalogues provide additional software to try out. For that I have to get the E61 to work with either GPRS or Wi-Fi and connect to the Net. Used a Wi-Fi router to test the phone's Wi-Fi capability.

## Day 13

**Connecting the phone over Wi-Fi is dead simple—define the access point and you're online. The default Web browser is simply fantastic!** The large screen does help here...

## Day 17

Been using the E61 more than my Desktop PC for browsing! Tried some themes to jazz up the interface. Installing applications is a royal pain in the a\*\*\*; **most Series 60 apps aren't compatible with the E61** due to the larger screen size. There are a very few apps out there to try—for now.

## Day 24

**The most-touted feature of the E61 is its e-mail functionality.** While it does support a myriad push e-mail providers, our mail server doesn't have any, so I tried POPping them. There's a Wizard for setting up mail accounts with most popular services. I tried Gmail, and it was set in no time. Automatic mail retrieval delivers mail right to the device—but GPRS and Wi-Fi drastically affects battery life.

## Day 30

The E61 delivers everything it claims to be. There are issues such as the less-than-perfect keyboard, lack of applications, and no camera, but it makes up by delivering where it counts—an **excellent browsing experience and instant e-mail delivery**. I'm somewhat satisfied, but I guess that'll only last until I get my hands on a Motorola Q!

sanket\_naik@thinkdigit.com



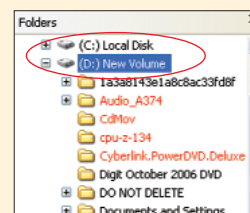


How would you display the drive letter of the drives before their name in Windows Explorer and change the colour of compressed files and folders?

Send in your solution with the subject "Take a Crack", and your postal address, to [takeacrack@thinkdigit.com](mailto:takeacrack@thinkdigit.com)

## THIS MONTH'S CHALLENGE

# Display the drive letter before the drive name in Explorer and change the colour of compressed files and folders



## LAST MONTH'S CHALLENGE

Win!



Take a Crack and win

**Symbian OS Platform Security**

by Craig Heath

Published by

**WILEY-INDIA**

## LAST MONTH'S WINNER

**Rajprit Arora**  
Dewas  
Madhya Pradesh

## Rules and Regulations

Readers are requested to send in their answers by the 15<sup>th</sup> of the month of publication.

Employees of Jasubhai Digital Media and their relatives are not permitted to participate in this contest.

Readers are encouraged to send their replies by e-mail. Jasubhai Digital Media will not entertain any unsolicited communication.

Jasubhai Digital Media is not responsible for any damage to your system that may be caused while you are trying to solve the problem.

## Display File Attributes In Tooltips

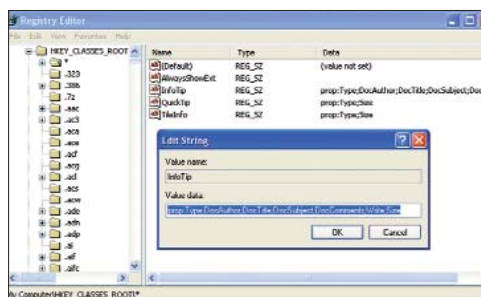
If you point your mouse cursor at a file icon and wait about two seconds, Windows displays a little yellow box (a tooltip) with some information about that file such as Author, Path, Date, etc. This way, you know what a file is about without opening it.

Sometimes, you want to know what attributes (Read-only, System, Hidden, and Archive) a file has. Normally, you need to right-click the file and open the Properties window, which shows you the current attributes.

After the following exercise, you'll be able to view the Attributes of a file within the Tool-tip as well.

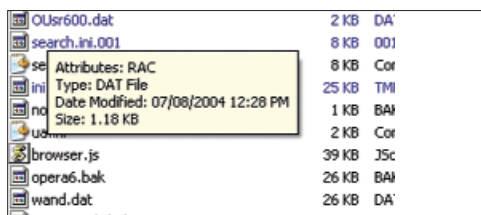
## Take note of these simple steps

1. Open the Registry Editor. Navigate to HKEY\_CLASSES\_ROOT\\* on the left-hand side.



Set the Registry key to disable SFC

2. In the right pane, double-click the "InfoTip" String Value, and in the Value Data text box, add the word ";Attributes" and click OK.



Add 'Attributes' in

3. Again in the right pane, double-click the "TileInfo" String Value, and in the Value Data text box, add the word ";Attributes" and click OK.

4. Exit the Registry Editor, and move your mouse cursor over any file either in Windows Explorer or on the Desktop. You'll be able to see the file attributes in the tool-tip.

*This setting only applies to simple tool-tips. Some file types have their own tool-tip provider, so the attributes will not be visible within the tool-tip.*

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The UltraSMALL SlimPC

2.50"  
9.25"

**Utility and geek value come together in this truly futuristic gizmo**

Wearable computers have long been high on geeks' wish-lists. Now a pan-European firm called Eurotech has inched just that much closer to geektopia with the Zypad WL 1000—the wearable computer you can actually go buy!

The device treads the line between a laptop and PDA in terms of power and weight. It's about twice as big as your watch, and packs a solid punch in terms of performance—running on a powerful AU 1100 processor operating at 400 MHz, 64 MB of Flash and 64 MB of onboard memory. And at 290 grams, it's light enough to be quite comfortable. Among its other features are a 3.5-inch touch-screen that displays 256K colours with automatic contrast adjusting.

Apart from being an über-toy, the device is useful for those who need to access and update

information in real time, such as military personnel, security officers, and medical staff.

The Zypad uses 802.11 b/g and Bluetooth. Unless you've already guessed, the thing has GPS integrated, so the user can be continually tracked. It also sports an accelerometer that can determine whether the user is moving (and even if he has fallen!)—perfect to track your gang during adventure treks.

This is one superb example of European engineering. At \$2,500 (Rs 1.13 lakh), it's not for everyone—but then, it's only just hit the markets!



# Zypad WL 1000







**71** The Ultimate Home Jukebox



**82** IPv6



**98** The Lean Look

# Digital Tools

Technology For Personal And SoHo Productivity

Enhance

## The Best Yahoo! Widgets

There's a lot of junk on Yahoo's Widget Gallery, but we sifted through the lot to find you the 10 most useful widgets for your desktop

Nimish Chandiramani

Apple's Macintosh OS X popularised (apart from the cool gooey interface, of course) the concept of the widget—too small to be an application, but too big to be ignored. The widget sits on your desktop and performs a basic function—reading your news, checking the weather, and so on. Soon enough, these little buggers became the rage—it's tough to find a desktop without one. Still, most of the widgets you see are little but eye-candy—a pretty clock here, a calendar there—but there are a precious few that can really kick up your productivity. ■

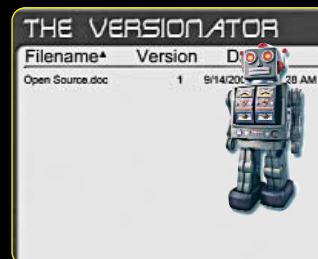
[nimish\\_chandiramani@thinkdigit.com](mailto:nimish_chandiramani@thinkdigit.com)

### The Versionator

<http://widgets.yahoo.com/gallery/view.php?widget=40238>

Ever wanted to go back in time see what a document was *before* things got crazy and you tried to ruin it with fancy words? All you need is the Versionator. You can use it to store different versions of your files with a comment for each version ("first draft," "second draft," and so on), and restore any of those versions any time you'd like to start over.

Just drag the file onto the silly-looking robot, add a comment, and your file goes straight into the repository. It lets you configure where you want to store the files, and if you select a mapped network drive, you've got yourself a handy versioning tool for the whole network. And you know you just want to tell someone, "Your file... has been Versionated."



### Zoomy Space Dock

<http://widgets.yahoo.com/gallery/view.php?widget=39109>

If you're the type that has a million shortcuts on a double-thickness taskbar, the Zoomy Space Dock will help bring that clutter to your desktop in a more fun way. Just drag the programs you want to create shortcuts to into the docking space, and you've got yourself a bunch of bouncing shortcuts on your desktop. You can restrict their boundaries to save desktop real-estate, and turn the transparency all the way down to make them blend into the background. It's simple, fun, and solves all your shortcut needs!



## IconXtractor

<http://widgets.yahoo.com/gallery/view.php?widget=39166>

The IconXtractor takes your favourite icons and extracts them as images in any format you'd want—JPEG, GIF, BMP, or TIFF. You can view the icons in all their resolutions, right from the miniscule 16 x 16 to the massive 256 x 256 (if you're using Windows Vista, that is). If you like them, and want the graphic to use as a button on, say, your Web site, just export!



## GCal

<http://widgets.yahoo.com/gallery/view.php?widget=39383>

If you use Google Calendar often, the GCal widget will free you from the trouble of having to load your browser and sign in to Google every time. It lets you manage up to 10 calendars, integrates Google search, and choose from six pretty colour schemes. If you've got an appointment coming up, it will even remind you.

GCal takes its data from an iCal feed that Google publishes for your calendar (Don't worry—it's not publicly accessible). Just get the iCal feed from Google by going to your Calendar Settings and clicking on the green iCal button under Private Address. We also recommend downloading the manual from <http://gcal.fuzzproductions.com>. Finally, the widget might break every time Google modifies the iCal format, so keep it updated!

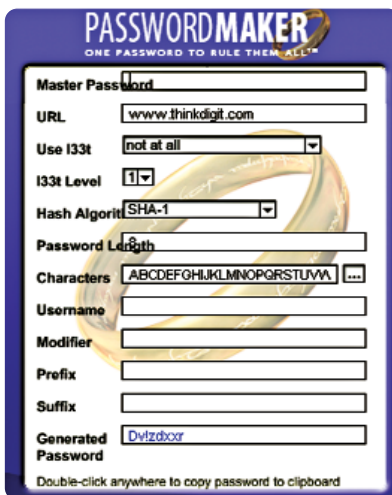


## PasswordMaker

<http://widgets.yahoo.com/gallery/view.php?widget=39532>

Only the paranoid survive, they say. But what if they forget their own ultra-secure passwords? PasswordMaker is one of the better ideas out there. It generates a strong password for you, based on the parameters that you feed it—one master password, an optional URL, "I33t" level, and so on. Passwords are generated on-the-fly, and you can choose to have *nothing* stored on your PC, so unless you forget your master password and the parameters you fed in, nobody can get at your password. For example, if your Master Password is "Digit", your URL is [www.thinkdigit.com](http://www.thinkdigit.com), the hash

algorithm is SHA-1, and you leave the rest of the parameters intact, you'll get G 2 \$ m 8 M 8 6 generated for you. Now, unless someone has the password generator, and guesses all the settings above, your password is quite safe.



## Smarter Stickies

<http://widgets.yahoo.com/gallery/view.php?widget=39166>

We've all seen enough post-it note applications to make us dizzy, but another one couldn't hurt, could it? Smarter Stickies is a little beyond your average post-it. You can set alarms to your notes, search through them, decide which ones are displayed on your desktop and when. You can even set hotkeys to create and edit new stickies. The only drawback is how tacky it looks



## Coder Decoder

<http://widgets.yahoo.com/gallery/view.php?widget=39752>

This handy little widget lets you turn any conversation into a private one by encoding whatever text you put into it and decoding any encoded text you receive. Use it in IM conferences or chatrooms to "whisper" comments to friends and leaving the rest clueless. Of course, just make sure others don't have it too.

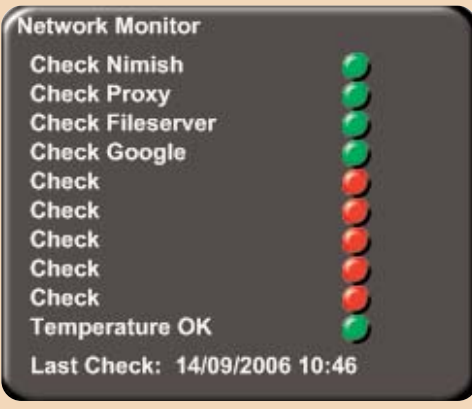




### Network Monitor

<http://widgets.yahoo.com/gallery/view.php?widget=39983>

Network Monitor is a widget that keeps tabs on up to nine of your favourite servers, whether they're on your local network or on the Web. Use it at office to make sure that the PC you're streaming your music from is always on, monitor your favourite Web sites, or check your own site for downtimes. Undoubtedly, this is gold for the paranoid System Administrator as well.



### Pointless Corner... Lightsaber!

<http://widgets.yahoo.com/gallery/view.php?widget=39723>



Fight the Dark Side of your hard drive with an authentic-looking Jedi Lightsaber from Star Wars! Click and drag it around to fight Evil, and choose from a range of custom handles from the movies—Obi Wan Kenobi's, Anakin Skywalker's or even Luke's! Comes with the full slew of movie sounds, including bass-heavy **fshoong!** when you move it about.

### Hash-Slinging Slasher

<http://widgets.yahoo.com/gallery/view.php?widget=37577>

Ever wondered if two files are just the same thing with different names? Just drag one over the left side of this widget and the other over the right, and you'll have your answer. The Hash-Slinging Slasher is fast because it doesn't bother with the content of the files—just the MD5 hash values, so unfortunately, you can't tell *what* exactly is different between the two.

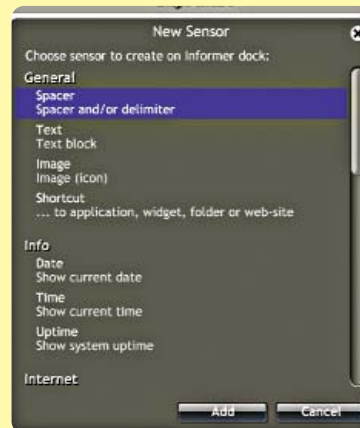


### Informer

<http://widgets.yahoo.com/gallery/view.php?widget=39000>

And finally, the *pièce de résistance*—Informer, true to its name, keeps you informed of literally *everything* you want to be kept informed of. You can choose from an embarrassing number of “sensors” to monitor everything from swap file usage to Wi-Fi signal strength. Informer docks either to the top or bottom of your screen, and is otherwise indistinguishable from a regular toolbar. Right-click on it to add a new sensor, and you can see its power—an RSS reader, Web Radio, Gmail Checker, Yahoo! Mail Checker, POP3/IMAP mail checker, CPU usage monitor, application shortcuts, launchers for *other* widgets... whew! And the list

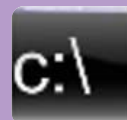
isn't complete yet! The Informer is, without doubt, the star of the Widget Gallery, and should be the first one on your list when you visit it. Our only gripe with it is the memory it consumes—understandable given its number of functions, but still rankling.



### DOSBox

<http://widgets.yahoo.com/gallery/view.php?widget=39532>

This one's for the compulsive command-prompt user. You can either open the command prompt window by clicking on DOSBox, or if you have a particular folder you want to navigate to, just drag it on to the widget and it will open the command prompt in that folder.



# Netvibes.com

**Netvibes is yet another way to personalise, manage and use your “own portal”, and it's one of the better offerings**

Samir Makwana

Many of us surf the Web regularly for mail, news, market updates, weather reports, and all the rest. We've gotten used to opening several windows or tabs. Life would be just that much simpler if we could get all our “daily content” at one place.

We've spotted quite a few startups providing AJAX-based personalised start pages—notably Microsoft's Start.com, Google's Personalised homepage, Pageflakes, Protospace, and others. Personalised homepages are a relatively new concept, where one can aggregate all one's content at a single, customisable page.

Netvibes is one such place, and a good one too, where you can organise a startup page the way you want. AJAX makes for a rich user interface, and lets the page, with all its modules, load pretty fast.

## Personalisation

HTML content, Widgets, and RSS/Atom feeds come together at sites such as Protospace, Pageflakes, and Live.com. From this heap, we decided Netvibes was the best.

When you first go to the site, you'll see News modules—Netvibes and Now Public; Blogs—TechCrunch and BoingBoing; an unconfigured Gmail module; search with Google, Yahoo, IceRocket, and Wikipedia; Web note—a briefing on possible modifications; a price comparison section, and a Flickr photo slideshow module.

JavaScript-based Widgets can be dragged and placed so you can have a personalised portal. Also, these Widgets can be edited as required later—place the mouse pointer on top of any module, you'll see “Edit” in the top right corner. For example, someone into stock trading would place, on his personalised page, Widgets that bring in the latest business content and updates. A sports buff can select sites such as ESPN or CBS Sportsline and get news feeds on sporting events worldwide.

At Netvibes, then, you have easy integration of e-mail, a calendar, your bookmarks, news, blogs, pictures, and more. Adding up small modules,

you get a page from where you don't need to move away!

## Features

Your Netvibes page can be renamed so you can have the feel of a personalised portal. The site currently features IE 6, Firefox 1+, Opera 8+, and Safari 2+ browser support.

A menu at the top-left corner shows you a list of available modules—self-contained units to perform specific tasks.

## Search Engines

You can conduct several searches right on the main page.

## RSS/Atom Feeds

The feed-reading module brings in RSS/Atom feeds from the blogs you've subscribed to. Just choose to add content and select the Feed Directory to

Entertainment, Sports, Health, and what have you. For example, you can configure a separate tab for all sports content. The page thus begins to look like a browser window all by itself!

Other utilities have also been added—such as Flickr for viewing photo slideshows, Web Notes for, of course, writing notes about anything, Bookmarks—logs of your favourite bookmarks at Del.icio.us, and a To-Do list. A unique feature of Netvibes is that it offers Hindi language support.

## “The Ecosystem”

The Netvibes Ecosystem is a community where modules, feeds, podcasts, Events (a calendar of events published by users), and Tabs (personal tabs, again published by users) are submitted and shared by the users of the community—it's a directory of content and services available.

You can publish your own Tab which carries content you've configured, and share it with others. At the same time, you can add other modules to your page from those available in the community list (and remove unwanted ones). The Ecosystem makes Netvibes community-oriented, enabling users to interact with developers and vice versa. References and explanations of particular features are available on their blog.

We personally found this site better than the Google personalised page or any other such site: whatever module you might need is listed in the “Add Content” menu; and the RSS feeds are easily configurable and readable in the same browser. For instance, if you want to go further with a particular news item, you can read more within the feed reader on Netvibes. The Google personalised home takes you to the site, in contrast.

More than five million users have already registered at Netvibes; we did our two bits worth for that number! A good feel, sober looks, speedy functionality, and, of course, the all-at-one-place formula. ■

samir\_makwana@thinkdigit.com



Make your own home page in just a few clicks

view your list: if a site doesn't feature, just add the URL. Feeds can be filtered; there's the option of marking “read all” and “unread all.”

## Podcasts

Podcasts can be imported, downloaded and listened to without synchronising them with a player such as Winamp.

## Communication

The Gmail module is available for checking mails. Yahoo POP3 mail account holders can configure their mail modules. For IM users, the site supports the Meebo service.

## Tabbed information

One can add as many tabs as desired—a different tab for feeds on



# The Ultimate Home Jukebox

desirable. The situation worsens when the available hardware is so ancient that finding backward compatible software, let alone using the latest codec, becomes a painstaking exercise.

## GeeX World

GeeXboX, the stand-alone multimedia operating system, comes to the rescue. The mini jukebox can boot from a live CD or be installed to your hard disk. The space required for the install and the characteristic speed of execution are first to take your breath away. At under 7 MB, the lightweight Linux based distribution is ideal for small hard drives so that more space is available for the music.

Since it uses the popular Linux based ALSA packages and the versatile MPlayer itself, files sporting diverse formats are easily handled. If your CDROM/RW has stood the tests of time, then you can enjoy audio and video CDs too. Again, for newer hardware, there is some great news—the DVD playback part of GeeXboX comes equipped with a DVD menu unlike most other peers.

In most cases, TV tuner cards are auto-detected, though some hacking may be required to get Indian channels. What comes as a surprise is the corresponding remote controlled menu. It eliminates the need of a keyboard. For instance, you can use the remote supplied with your TV tuner card to navigate

## Get that one last dance out of your old PC

Dhruv Mohindra

If you find yourself staring pitifully at a pile of metal, manufactured somewhere around (or even much later) the dawn of the new millennium, then read on. The yellow computer case and the grandfather monitor that have been envying your relatively newer possessions can be used for more than simple museum decoration—you can make it your very own jukebox, and with no additional expenses at that.

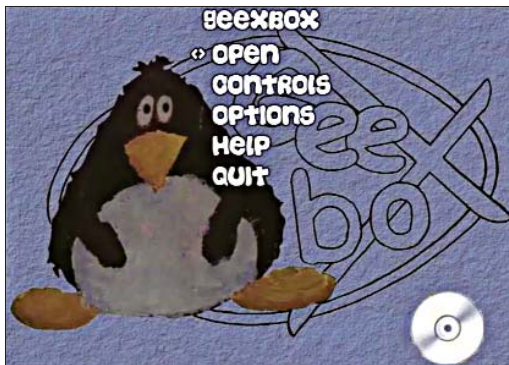
## Isn't Winamp good enough?

Yes and no. Any jukebox software that runs over an external Operating System uses its various services. The responsibility of detecting and identifying the hardware lies solely with the OS and not the jukebox software. Thus compatibility of such software across various PC configurations is never an issue. However, the overhead of running the mammoth <insert your favorite OS's name here> is simply not



Loading the GeeXboX multimedia operating system

Illustration Pravin Warhokar



The GeeXboX controls

through GeeXboX's menus unlike any other software available.

It is also possible to play back network streams from SHOUTcast, WebRadios, WebTVs or even RTP/RTSP streaming allowing you to watch any kind of network or broadcast stream from your own GeeXboX hub.

### Get Going!

Setting up the system is not a difficult task at all. The following sections discuss the essentials.

### Reload The Ammo

Officially, GeeXboX requires at least a x86 Pentium-Class CPU or above (P2-400 MHz should be quite enough) or Macintosh NewWorld G3 (G4 highly recommended). However, we found that it sustains fine even on a 300 MHz Zenith PC. The DivX video format is known to cause some genuine hiccups on the oldies though. 64 MB of RAM is generally recommended.

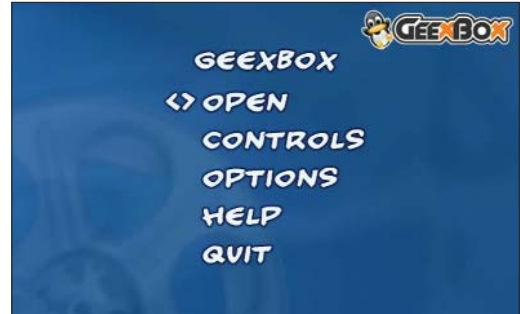
### Fire!

Follow these steps to kick-start a fully functional system in almost no time.

### Running off a live CD

- ❑ Download the GeeXboX ISO image file from [www.geebox.org](http://www.geebox.org) (Listed under downloads section). Next, burn the image, preferably to a Re-Writable CD, as you might want to add/remove features later. This can be done using your favorite CD toaster.
- ❑ Reboot the computer and enter the BIOS setup (Generally, press [Delete], [F8] etc. key after you restart). Change the boot order priority to boot from CDRW/RW drive making it the first.

- ❑ GeeXboX will automatically detect most hardware and auto-mount your partitions.
- ❑ If everything works out fine, you should see a progress bar followed by a graphical boot screen. This will bring you to a menu that displays various options. (If it leaves you at a # prompt then something has failed; more on that later)



Menu items

- ❑ Don't get alarmed when the CD drive's tray pops out after booting. This drive is now free and can be used for playing your own media.
- ❑ The keyboard can be used for navigation. The right arrow key is for moving forward and the left for back. Hitting [Esc] first and then pressing the down arrow key brings one back to the main menu. It is highly recommended that you exercise the *Help* option or keep a printout of the control key diagram as exhibited on the website under the Keys & Controls section.
- ❑ If you choose 'Open File' from the main menu, the media devices and partitions are listed. Navigate to the directory where your goodies are stored and hit the right arrow key to start playing.



Playing a movie

### Troubleshooting Tips

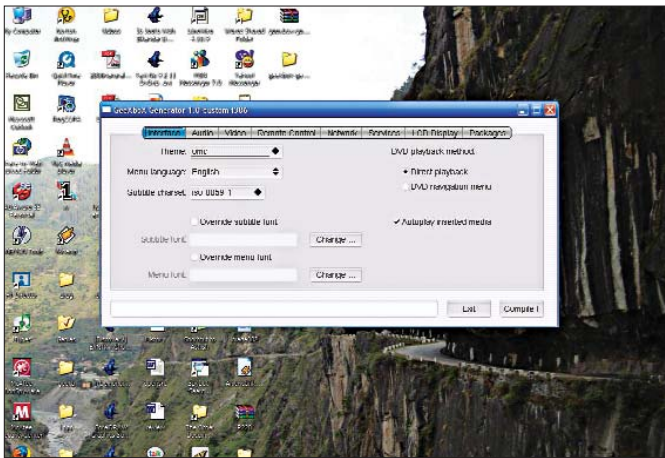
If a flickering black screen greets you right after the boot screen, your video chipset is not yet supported or the config files require a hack or two. This was a known problem with relatively newer Intel motherboards, but the problems were more or less fixed in the last release. The GeeXboX forum on the Web site addresses several such issues and the developers are always keen on increasing hardware support. If compatibility problems do occur, feel free to share information about your device. The response time is generally good and the open source community will do all they can to help you.

### Hack it!

The vanilla ISO image you just ran may not showcase the best features of the system. It may not even run natively without a few hacks on some systems. The following guidelines will demonstrate how you can customize GeeXboX to suit your needs or to recover from a futile attempt at running it.

- ❑ Get the GeeXboX ISO GENERATOR (not the earlier ISO) from the Web site. Uncompress

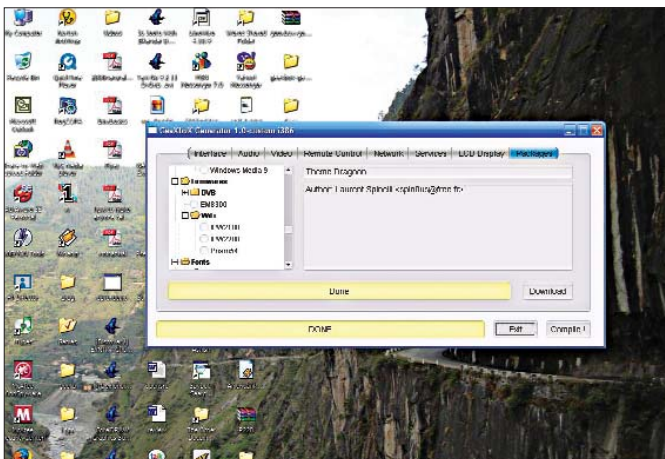




The GeeXboX ISO Generator

the generator which is in .tar.gz format. Linux users will soon discover the shell script they need to run while Windows people can cherish the blah.exe. The generator is designed for Macs too.

- ❑ From the *Remote Control* Menu, choose your remote control manufacturer's trade-name. Many are supported, like the ones from ATI, Pinnacle, Creative, RealMagic, StreamZap, MS Media Center USB remote, to name a few. Once again, the best thing to do is to refer to the website for help figuring out the control keys.
- ❑ After making the changes, click the *Compile* button. You may exit the generator after the status shows 'Done'.
- ❑ Notice that a new ISO image file is generated in the directory of the generator. This can now be written directly to the CDROM/RW like before.
- ❑ Reboot the system and follow the usual steps. Now you can control the system with nothing more than your simple TV tuner remote control, sitting yards away from the jukebox!



Wait till the Generator is done

## Putting Movies On The Box

The simplest way to do this is to remove your HDD from the box and copy the files from some other machine. However, to make things easier, there is support for most network interface cards and Samba (Windows shares). You can select the transfer method from FTP, Telnet and the like from the ISO Generator menu. For newer hardware, Wi-Fi support is also available. The following is excerpted from the Web site:

If you do not have a DHCP server on your network, you'll have to modify the `/etc/network` file which contains the following lines :

```
* HOST="" # GeeXboX IP (" for DHCP)
* SMB_USER="SHARE" # User Login (" for none)
* SMB_PWD="" # User Password (" for none)
```

You can easily modify the IP and Samba Login and Password. On boot, the GeeXboX checks for remote computers from a common domain and tries to auto mount the Samba Windows shares. Be sure that all of your computers are on the same domain/subnet in order to mount all the shares.

The `/etc` folder is found under `/main_GeeXboX_directory/iso`. It is very important to modify the mentioned files using a UNIX compatible text editor like Winvi or Ultraedit. If all goes well, any ftp or supported client can now be used. Note that you can only transfer files from other machines to GeeXboX, not vice-versa.

## Play Streams From The Internet

Although there is no support for a direct Internet connection (e.g. dial-up), you can gain access if your box is on a network that uses a router or a gateway. Simply define the gateway IP address in the `/etc/network` file.

```
* GATEWAY="" # Gateway IP (" for DHCP or no Internet connection)
```

If you have a DHCP server, you don't even have to change these settings. GeeXboX is now fully able to play live videos, sounds or streams, regardless of the contents. You simply have to put in a playlist file that contains the URL of the streams that you wish to play (e.g. Web-Radios). SHOUTcast activation is set in the `/etc/network` config file.

The `/etc/netstream` file can be used to create local and remote playlists. Remote playlists refer to Extended M3U files.

## Post Makeover

Your old box has been transformed into a fully functional jukebox. It even outshines most of the other music playing software. What can you do to enhance the experience? You can start off by making your own themes. The GeeXboX forum branches into a step-by-step tutorial for the same. The list of features is virtually endless. But one thing is for sure, GeeXboX can surely bring that old smile back to your PC. ■

readersletters@jasubhai.com



## Philips HTS3105 Value For Money

How thoughtful of Philips to include a 6 channel speaker setup with their new HTS3105 DVD player. Yes! its another bundle product, meaning you have a surround sound setup to watch those DVD's right out of the box. Supporting multiple video and audio formats this sturdy looking player is suitably feature rich (remote control, FM radio).

The 500W RMS speakers distort slightly at higher volumes (above 75 per cent). The subwoofer is decent, but lacks the depth necessary to go really low. The satellites deliver decent reproduction throughout the spectrum, but can't handle high volumes at all. The overall sound experience was, to sum it up, a touch weak considering the on-paper specifications. Our test DVD movies did sound good, but only at lower volumes.

Contact: Philips India Ltd  
Phone: : 022-56912276/56912000  
E-mail: vidyut.kaul@philips.com  
Web site: : www.philips.co.in  
Price: Rs.14,999



Overall a mediocre product, simply because at 14,999, (its price), you can easily buy a DVD player and good set of 5.1 speakers. Even the inclusion of FM doesn't do too much to sweeten the deal. Go for this only if you want the convenience of everything in one package.

### Specifications

Player: DVD/DivX/VCD/Music (multi-format) player, FM/AM radio inbuilt. Speakers: 5.1 surround, 500 W RMS (4 x 75 W + centre 100 W + subwoofer 100 W)

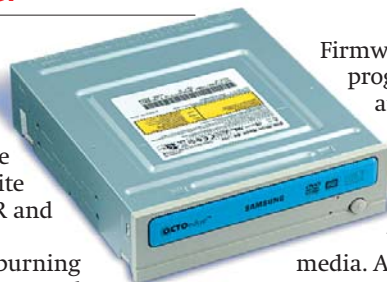
RATINGS	
Performance	★★★★●
Features	★★★★●
Ease of use	★★★★●
Value for money	★★★★●
Overall	★★★★●

## Samsung SH-S182D 18X Super-WriteMaster Spinning Faster

The Samsung SH-S182D is the newest DVD-Writer from Samsung and also the fastest, sporting a write speed of 18x to DVD-R and DVD+R media. It also supports high-speed burning of dual-layer DVDs at 8x, and 12x DVD-RAM burning—the highest available today.

The drive successfully read scratched CDs and DVDs. We tried overburning, but found that only CDs could be overburned, not DVDs. Due to the lack of 18x media, we could not test this drive's 18x burning speed.

The drive comes with an extra black bezel for those with black cabinets. Included with it is the Samsung



Firmware LiveUpdate program, which enables automatic firmware update online. The feature missing here is LightScribe, but then again, it's hard to find LightScribe media. All in all, a good drive!

### Specifications

2 MB buffer, write speeds: DVD+-R: 18x, DVD+-R DL: 8x, DVD+RW: 8x, DVD-RW: 6x, DVD-RAM: 12x, CD-R: 48x, CD-RW: 32x, read speeds: DVD+-R: 12x, DVD+-R DL: 8x, DVD+RW: 8x, DVD-RAM: 12x, DVD-ROM: 16x, CD-R: 40x, CD-RW: 40x, CD-ROM: 48x

RATINGS	
Performance	★★★★★
Features	★★★★★
Ease of use	★★★★★
Value for money	★★★★★
Overall	★★★★★

Contact: Samsung India Electronics Pvt Ltd  
Phone: : 011-41511234  
E-mail: hari.pandey@samsung.com  
Web site: www.samsung.com  
Price: Rs 3,000

## Aiptek mini PocketDV 8900

### ...Master Of None

The Aiptek mini PocketDV 8900 is a compact, pocket-able DV camera. The body is made of plastic, and does not appear very rugged. The 2-inch swivel LCD is of no use on outdoor shoots—it is almost impossible to view in daylight. Video capture resolution is only 640 x 480 at 30 fps, so forget about capturing DVD-quality movies. But the videos weren't that bad, after all. It can capture still photos at up to 5 MP, which can be interpolated to 10 MP—but the quality was nowhere near even what a 3 MP camera delivers: too much noise. There is no optical zoom, but thankfully, the autofocus works very well.

The PocketDV can also play MP3 and WAV, ASF video, and can display JPEG photos. You can even record voice and use the voice-canceling feature to turn it into a Karaoke machine. It can also be used as a Web cam. The 22 MB of inbuilt Flash memory is insufficient, but an SD/MMC card slot is provided to augment storage capacity.

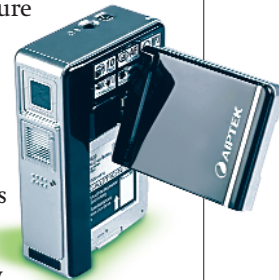
The 8900 comes bundled with loads of accessories. A remote is provided, and so are cables to connect it to a TV. A carry pouch and a pair of earphones are also comes along. Aiptek even included an almost-unusable mini tripod. The bundled software suite from ArcSoft is decent.

### Specifications

5 MP still photo, videos at 640 x 480 at 30 fps, 2-inch LCD viewfinder, video format: ASF, audio formats: MP3 and WAV, 22 MB internal memory, SD/MMC card support

RATINGS	
Performance	★★★★●
Features	★★★★●
Ease of use	★★★★●
Value for money	★★★★●
Overall	★★★★●

Contact: Wespro Corporation  
Phone: 9322288178  
E-mail: sales@wesproindia.com  
Web site: www.wesproindia.com  
Price: Rs 16,500 (special introductory price Rs 9,995)







## Sharp 37" Aquos LC-37AF3M

### One Great TV

LCD TVs just seem to be getting bigger: last month it was a Samsung 26-inch beauty, and this time, we received the 37-inch Sharp LC-37AF3M from their latest Aquos range. Setting up this one took no time at all—

motivation being the key—and all 26 kgs (stand included) were unpacked and hooked up in a jiffy! The finish on the panel isn't as good as that on the Samsung Bordeaux series we tested earlier; build quality is a little above average, though not outstanding.

With two Component connectors, an S-Video In, an AV-Out and even an HDMI (High Definition Media Interface), you have all the possible connectivity avenues. Thoughtfully, a headphone jack has also been provided, while the speakers are rated at 20W RMS. The high-res screen on the Aquos is suitable for high-definition content viewing. Vertically, the screen consists of 540 dots, exactly half the 1080i (1920 x 1080 interlaced HD) resolution specification, and three quarters of the 720p (1280 x 720 progressively scanned).

We set up this panel on our Xbox 360 first, for a round of *Project Gotham Racing* and *Dead or Alive 4*, and were in for a real joy-ride. The Aquos delivers smooth viewing with great colour reproduction and good wide-angle viewing. Next, we hooked up our DVD player and popped in one of our test DVDs. What followed was a sight for sore eyes! The screen delivers great colour and light contrast, making it ideal for home TV viewing. Although HD television is absent in India, you will notice the difference even with regular TV broadcasts. Just make sure you have a living room that's large enough to view this beauty from a distance of at least 15 feet, or you will notice pixelation, which is common to all LCDs when viewed from close.

At Rs 1,39,900, the Sharp Aquos is costly for a 37-inch display. The good news is that with prices expected to fall over the next few months, great LCD TVs like this one are about to get a whole lot cheaper.

#### Specifications

37" black TFT LCD, 960x540x3 dots, colour system: PAL / SECAM / NTSC 3.58 / NTSC 4.43 / PAL 60, TV: VHF/UHF/CATV (including hyperband), 99 auto-preset channels, input terminals: co-axial, 2x Component, S-Video, HDMI; output terminals: S-Video, 3.5 mm audio jack; operating voltage: 110 - 240 V 50 Hz, power consumption: 111 W, weight: 26 kg (with stand).

RATINGS	
Performance	★★★★★
Features	★★★★★
Package contents	★★★★★
Value for money	★★★★★
Overall	★★★★★

Contact: Sharp India Limited  
Phone: 022-55032884 / 55032885 E-mail: [perspective@mumbai@vsnl.net](mailto:perspective@mumbai@vsnl.net)  
Web site: [www.sharpiindialimited.com](http://www.sharpiindialimited.com)  
Price: Rs 1,39,900

## Kodak EasyShare P880

### Wide-Angle Delight

The mighty 8MP Kodak EasyShare P880 boasts of a fantastic mix of features. The sensor apart, the P880 has a superb wide-angle 24-140 mm lens. This allows taking close-ups and zoom shoots equally well. Fitted with optics from Schneider-Kreuznach, it offers manual zoom as well as a mechanically-linked focus ring. The ergonomics is spot on. Holding the camera is a little difficult, though. The body is completely made of plastic, but the P880 exudes a sturdy feel.

The five-way joystick is just fantastic, and so is the mode dial—both of them can be easily operated via a simple flick of the thumb. The large 2.5-inch LCD is a crisp display, though the resolution could have been a little better. The 1700 mAH Li-ion battery lasts long enough for over 200 shots. The P880 comes with 32 MB of onboard memory, which can be expanded using the SD slot.

What's really special about the pseudo-SLR P880 is the sheer number of features Kodak has cramped in, most of which are traditionally found on SLRs. A live histogram is one such very useful feature. The ability to save files directly in TIFF and RAW gives the P880 an edge.

Apart from the Auto mode, the P880 comes with complete manual, aperture priority, shutter priority and preset scene modes. Macro and super macro modes allow you to shoot subjects as close as 5 cm away. Dedicated buttons for white balance, ISO, flash, and focus let you change these parameters easily.

Colour saturation is near perfect—a Kodak trait—no traces of any colour noise at ISO 50. Focusing was sharp; in low light conditions, the focusing seems to be searching, but the occurrence of this problem is rare enough to ignore. Close-ups were astounding—sharp focus and good depth. Flash performance couldn't be better, at least for a camera in this range. At Rs 26,999, the Kodak EasyShare P880 is definitely worth the money. But hang on—what the P880 lacks is an image stabiliser, and that leaves some

scope for looking at similarly-priced cameras from Panasonic, such as the FZ-30. For wide-angle shoots, the P880 is undeniably the best camera in its class.

RATINGS	
Performance	★★★★★
Features	★★★★★
Ease of use	★★★★★
Value for money	★★★★★
Overall	★★★★★

Contact: Kodak India Private Ltd  
Phone: 022-66416300  
E-mail: [contactindia@kodak.com](mailto:contactindia@kodak.com)  
Web site: [www.kodak.co.in](http://www.kodak.co.in)  
Price: Rs 26,999

#### Specifications

8.0 megapixel, 24 mm - 140 mm, 5.8x optical zoom, 2.5" LCD, 32 MB internal memory, SD/MMC card slot, video capture: 640 x 480 at 30 fps, 320 x 240 at 30 fps

## MSI P610

### It's No Nano!

Here's an option for those who want something like the iPod nano, but don't want to spend as much. The MSI 1 GB P610 media player even looks similar to the nano.



The stylish P610 sports a sturdy steel metallic body, and weighs just 45 gms. The 1.8-inch TFT LCD is bright enough to view even in broad daylight, though the interface is not that great; it was sluggish during playback.

In addition to MP3 (with lyrics), WMA (also with DRM), and WAV playback, it also plays back MOV and AVI video—MPEG. A JPEG photo viewer, FM radio, voice / line-in recorder, and a text viewer completes the package.

There is support for SRS sound, WOW, and TruBass. The provided ear-phones do an excellent job in pumping bass into your ears, even though the

player itself does not produce noteworthy bass levels. Overall, the sound is good. There are two file transfer modes: Media Transfer Mode supported by Windows Media Player 10, and Media Class Storage, in which the player is recognised as a removable drive.

This player went on and on for around 15 hours. Priced at Rs.6,400, it looks good and performs well, but doesn't appeal as much: Apple offers double the space for just Rs 1,000 more!

#### Specifications

2 GB, 45 gms, 1.8-inch TFT LCD, USB MTP and MSC transfer mode, music formats: MP3, WMA, WAV; video formats: M-JPEG, photo format: JPEG, lyrics: TXT

Contact: Micro-Star International  
Phone: 011-41758808  
E-mail: marketing@msi-india.com  
Web site: www.msi-india.com  
Price: Rs 6,400

#### RATINGS

Performance	★★★★☆
Features	★★★★☆
Package contents	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

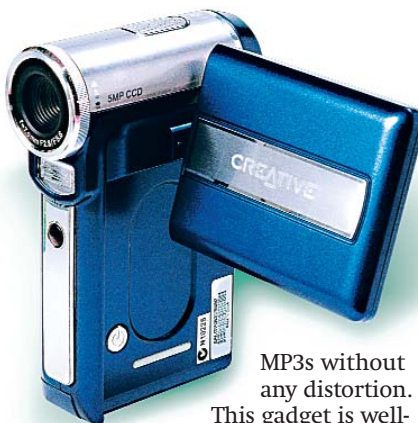
## Creative DiViCAM 525D

### A One-Stop Solution

Creative's DiViCAM 525D can moonlight as a video camera, a still camera, an MP3 player, a video player, a sound recorder, and even as a Web cam. All this in a package that fits perfectly in your palm. The screen neatly folds into the side, and turns on the camera when opened. This "multi-cam" has a 5 MP CCD. The 2.5-inch LCD screen is bright and has good colour reproduction. A proprietary motion stabiliser means jerk-free video.

With a Kingston 1 GB SD card in the bay, the Creative 525D promises 1 hr 27 minutes of video, or 415 photos at the highest resolution settings. Video quality is amazing, considering that this is an all-in-one solution, even under artificial light, and audio quality was equally good. A true camcorder will give you better results though.

Photo quality was average, both indoors and outdoors. The flash is powerful enough to give you clear shots in the dark. As a media player, it was brilliant, and played videos and



MP3s without any distortion.

This gadget is well-suited for users who want a single thing that can do it all. For those who are looking for a real handycam, we don't recommend this one—get an entry level camcorder from Sony or JVC instead.

#### Specifications

5 MP still photo, videos at 640 x 480 at 30 fps, 8x digital zoom, 2.5-inch LCD viewfinder, video format: AVI, audio formats: MP3 and WAV, 32 MB internal memory, SD card support, USB 2.0

#### RATINGS

Performance	★★★★☆
Features	★★★★☆
Build quality	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Contact: Compuage Infocore  
Phone: 022-23842200  
E-mail: irfan@ctl.creative.com  
Web site: www.creative.com  
Price: Rs 19,000

## Gigabyte GA-965P-DQ6

### 965 "Heat-Pipe" Edition

Built around Intel's shiny new P965 chipset, the DQ965 is a Premium offering. Based on a sturdy and overclocker friendly 12 phase design, this motherboard nonetheless makes do with passive cooling via heat-pipes.

Gigabyte's always been bundle and feature friendly and with integrated 8 channel HD audio, and co-axial audio outs, and firewire to go with the eight



serial ATA ports and bounty of PCIe slots (1 x 16x, 1 x 4x, 1 x 1x).

The DQ965 is reasonably laid out, though a longer graphics card will interfere with memory removal. The CPU region is a bit cramped as well due to the heat pipe solution.

The BIOS is eminently tweakable, and you can [Ctrl] + [F1] to find bountiful memory, CPU, and even PCI-E (graphics) tweaks. Nearly all voltages can be adjusted. With a lead of 85 points in PC Mark 05 (over similar configurations), this board is fast!

We were able to boot at 350 MHz FSB (default: 266), with our Core 2 Duo Extreme stable at 3.15 GHz with no tweaking at all. We could have gone even higher, but decided to call it a very satisfactory day! A great looker, a great performer, but at rupees 16,800 it's pricey!

#### Specifications

Intel 965P chipset, Core 2 Duo ready, 1066 MHz FSB, 12-phase power design, supports up to 4 GB DDR2 800 MHz, PCI-E x16, PCI-E x4, 8 SATA ports

#### RATINGS

Performance	★★★★☆
Features	★★★★☆
Build quality	★★★★☆
Value for money	★★★★☆
Overall	★★★★☆

Contact: Gigabyte Technology (India) Ltd  
Phone: 022-26526696/30616666  
E-mail: sales@gigabyte.in  
Web site: www.gigabyte.in  
Price: Rs 16,800



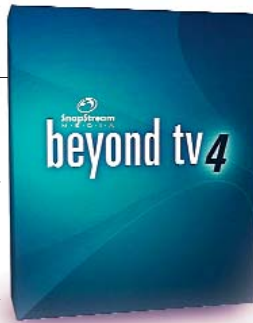
## Beyond TV 4.4

### The Best Yet!

Beyond TV from Snapstream has been known as one of the best PVR software available, so we decided to see if this claim holds any water.

We have just one word for the interface—beautiful! It's even better than the Windows Media Center PVR interface, which was our favourite until now. Beyond TV makes full use of the 3D hardware acceleration of your video card to apply transparency effects to the video overlay window.

The interface lets you configure various settings to fine-tune channels. It supports video capture in DivX, MPEG-2 as well WMV, and you can use the timeshift feature to pause Live TV and skip certain parts. To make videos portable, Beyond TV has a ShowSqueeze feature that recompresses movies for easy playback on portable devices. Beyond TV also has a media player that can play movies in the mentioned formats. It is capable of tuning



FM radio—if your TV-Tuner supports FM—and capturing audio from it as well.

Beyond TV supports all TV-Tuners (analogue and digital) that support Windows XP MCE, and a few more. It even supports multiple

TV-Tuners, allowing you to view multiple channels at the same time, or view one and record another simultaneously.

The only thing missing is the ability to directly burn captured content to DVD. Still, this is the best PVR software we have tested!

#### Specifications

Supports analogue and digital telecasts, supports HDTV, records in DivX, MPEG-2 and WMV, supports timeshift, play and pause FM Radio, Firefly PC Remote.

Web site: [www.snapstream.com](http://www.snapstream.com)  
Price: Rs 3,250 (\$69.99)

#### RATINGS

Performance	★★★★★
Features	★★★★★
Ease of use	★★★★★
Value for money	★★★★★
Overall	★★★★★

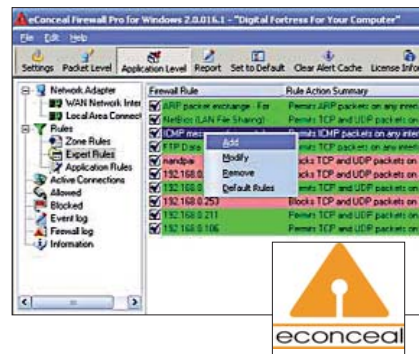
## eConceal Pro Firewall

### A No-Frills Firewall

eConceal Firewall is a software firewall from MicroWorld, the makers of eScan Antivirus. Whenever an application tries to access the Internet, eConceal prompts you with options as to whether that application is to be permitted to do so. You can create a rule to allow this application to always access the Internet, or block it permanently.

eConceal can be configured for packet-level filtering as well. In addition to the powerful user-defined rules, you can choose from preset rules created for different applications such as e-mail, FTP, chat clients, etc. The software supports port monitoring and alerts you in case of unauthorised intrusion attempts. The attacker's IP is automatically banned, and he can no longer attack using that port. You can surf invisibly—eConceal can be configured to only let in that content from the Web that you request.

Other features include a pop-up blocker, parental



controls to block porn sites (which can also be used by enterprises to block non-business Web sites), a graphical real-time report of network traffic, and password protection. A no-frills firewall that gets the job done!

#### Specifications

Application and packet-level filtering, user-defined and preset rules, port monitoring, stealth surfing, pop-up blocker, parental controls, real-time traffic

#### RATINGS

Performance	★★★★★
Features	★★★★★
Ease of use	★★★★★
Value for money	★★★★★
Overall	★★★★★

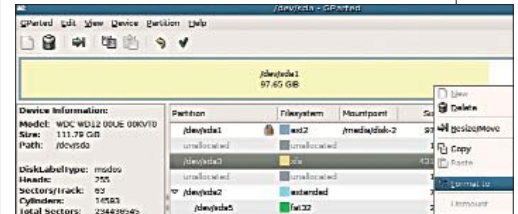
Contact: MicroWorld Software Services Pvt Ltd  
Phone: 022-28265701  
E-mail: [sales@mwti.net](mailto:sales@mwti.net)  
Web site: [www.mwti.net](http://www.mwti.net)  
Price: Rs 1,600 (approx)

## GParted

### Clean, Quick Partitioning

Finally, a partition manager just the way it should be. GParted (GNOME Partition Editor) is a freeware partition manager based on Linux, but it's not limited to that OS. *Get it Free from our this month's DVD.*

GParted is available in three forms: a binary that can be compiled on any



Linux distro, a LiveCD which can be burnt onto CD, and a LiveUSB distribution that can be run by booting off a USB drive. We booted off the LiveCD version to review this software.

The interface is simple, clean and very easy to understand. The top part of the window shows the hard drive as a rectangular diagram, and the partitions are drawn with proportional sizes. The file system, capacity, and free space of each partition are shown at the bottom.

You can right-click on a partition and resize, move, copy, format, or create a partition. After you perform a certain list of actions, a new pane pops at the bottom of the program, listing the actions and their sequence. This is just a preview of the actions, and you can review the actions and undo any or all actions. Once you feel that all is OK, you can click the Apply button to execute the actions. From this point on, you cannot undo anything.

GParted supports a host of file systems such as ext, ext2, FAT16, FAT32, NTFS, HFS, HFS+, and the list is seemingly endless. This software will give a run for their money to commercial Windows-based partition managers. We have only good things to say about it—full marks to GParted.

#### Specifications

Resize, move, copy, format, and create partitions, supports ext, ext2, FAT16, FAT32, NTFS, HFS, HFS+, JFS, Reiser4, ReiserFS, UFS, XFS, Linux Swap

#### RATINGS

Performance	★★★★★
Features	★★★★★
Ease of use	★★★★★
Value for money	★★★★★
Overall	★★★★★

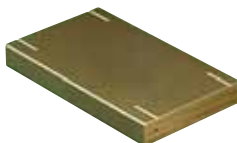
Web site: [gparted.sourceforge.net](http://gparted.sourceforge.net)  
Price: Free

### External Portable Hard Drives

#### Lacie Design by F.A. Porsche 40 GB

- ⊕ Inexpensive, good performance
- ⊖ None

Contact Neoteric Infomatique Pvt Ltd  
Phone 022-39828600  
E-mail sales@neoteric.co.in  
Price Rs 5,250



#### Internal PATA Hard Drive Hitachi Deskstar HDS725050KLT80

- ⊕ Speedy performance
- ⊖ Expensive

Contact Cyberstar Infocom Ltd  
Phone 9341057327  
E-mail lalit.sudrik@cyberstarindia.com  
Price Rs 4,950

### Linux SuSE Linux 10.1

- ⊕ Good software bundle
- ⊖ A little resource-heavy

Contact Novell India  
Phone 022-28342244  
E-mail apanjwani@novell.com  
Price Rs 2,650

#### Internal DVD-Writers Lite-On Super AllWrite SHM-165P6S

- ⊕ Good performance, supports all DVD formats
- ⊖ None in particular

Contact Mediatech India Distribution Pvt Ltd  
Phone 022-26361111  
E-mail digit@mediattech.india.com  
Price Rs 3,085



### Digital Cameras (High-End)

#### Sony Cybershot W50

- ⊕ Excellent image quality, vibrant colours
  - ⊖ Trouble focusing in low light
- Contact Macro Photo  
Phone 022-22618639  
E-mail macro.photo@gmail.com  
Price Rs 15,000



### Digital Cameras (Mid-range)

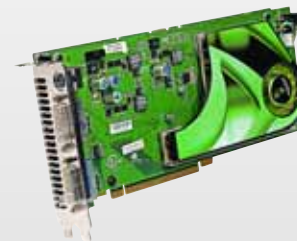
#### Sony Cybershot DSC L1

- ⊕ Great image quality
  - ⊖ Only 4 MP CCD
- Contact Macro Photo  
Phone 022-22618639  
E-mail macro.photo@gmail.com  
Price Rs 9,000

### Graphics Cards (High-End)

#### XFX PV-T71U-ZDD9 (NVIDIA 7950GX2)

- ⊕ Superb performer
  - ⊖ Runs slightly hot
- Contact Rashi Peripherals Pvt Ltd  
Phone 022-67090810  
E-mail navinderc@rptechindia.com  
Price Rs 38,500



### Graphics Cards (Mid-Range)

#### XFX PV-T73G-UDL7 (NVIDIA 7600GT)

- ⊕ Great bundle and performance
  - ⊖ None in particular
- Contact Rashi Peripherals Pvt Ltd  
Phone 022-67090810  
E-mail navinderc@rptechindia.com  
Price Rs 10,500



## The A-List



The best products tested so far in different hardware and software categories

### Internal SATA Hard Drive Seagate ST3750840AS

- ⊕ Huge 750 GB storage capacity
- ⊖ Expensive

Contact eSys Distribution Pvt Ltd  
Phone 011-41811694  
E-mail msinghal@esysmail.com  
Price Rs 23,500

### 2.1 Speakers

#### Altec Lansing MX-5021

- ⊕ Great sound and build quality
- ⊖ Slightly expensive

Contact Rashi Peripherals  
Phone 022- 55090909  
E-mail divya@rptechindia.com  
Price Rs 7,900



### Hard drive-based MP3 Players Apple iPod



- ⊕ Amazing Sound Quality, Easy Interface, Plays Video
- ⊖ No FM, No Protection For Screen

Contact Apple Computer International Pvt Ltd  
Phone 1800-425-4683  
E-mail indiainfo@asia.apple.com  
Price Rs 19,800

### 5.1 Speakers

#### Philips MMS 5.500 i/c

- ⊕ Good for Music
- ⊖ Not suitable for gaming

Contact Philips India Ltd  
Phone 022-56912332  
E-mail pcp.india.info@philips.com  
Price Rs 4,990

### Flash-based MP3 Players SAFAQ100

- ⊕ Good Sound and Interface
- ⊖ Very Small Screen For Video Playback

Contact Arihant Computers  
Phone 022-23822424  
E-mail arihant\_computers@vsnl.com  
Price Rs 8,600

### Projectors

#### Sharp XR-10S

- ⊕ Brilliant quality and performance
- ⊖ Bulky

Contact Sharp Business Systems Ltd  
Phone 011-26431313  
E-mail anilsodhani@sharp-oa.com  
Price Rs 71,000



### LCD Monitors (17-inch) NU QL-711V

- ⊕ Inexpensive
- ⊖ Below average build quality

Contact Shiba Comp Pvt Ltd  
Phone 011-26413437  
E-mail shiba@del2.vsnl.net.in  
Price Rs 11,970

### LCD Monitors (19-inch) NU L921G

- ⊕ Low price, good viewing angles
- ⊖ Below-average build quality

Contact Shiba Comp Pvt Ltd  
Phone 011-26413437  
E-mail shiba@del2.vanl.net.in  
Price Rs 18,000





**PVR Software****WinDVR 3.0**

- ⊞ Ease of use, pause TV, zoom in on TV, tiled preview of channels, DV-to-MPEG, good picture clarity
- ⊞ None

Contact [www.intervideo.com](http://www.intervideo.com)

**Feature-rich Cell Phones****Sony Ericsson K750i**

- ⊞ Very good camera & audio quality, good display crispness
- ⊞ Screen could have been bigger

Contact Sony Ericsson  
Phone 0124-2560808  
E-mail [dhiraj.soni@sonyericsson.com](mailto:dhiraj.soni@sonyericsson.com)  
Price Rs 14,995

**Home Inkjet MFDs****HP Officejet 4355 All-in-One**

- ⊞ Fax with handset, compact
- ⊞ Only sheetfed scanner

Contact HP India Sales Pvt Ltd  
Phone 0124-2566111  
E-mail [ashwini-k.aggarwal@hp.com](mailto:ashwini-k.aggarwal@hp.com)  
Price Rs 6,499

**Office Inkjet MFDs****HP Officejet 5610 All-in-One**

- ⊞ Good performance
- ⊞ Expensive, No memory card support

Contact HP India Sales Pvt Ltd  
Phone 0124-2566111  
E-mail [ashwini-k.aggarwal@hp.com](mailto:ashwini-k.aggarwal@hp.com)  
Price Rs 9,999

**Keyboard-Mouse Combos****Gigabyte GKM-10**

- ⊞ Good ergonomics
- ⊞ Can do with more features

Contact Gigabyte Technology (I) Ltd  
Phone 022-26526696  
E-mail [sales@gigabyte.in](mailto:sales@gigabyte.in)  
Price Rs 790

**Mono Laser Printers****Brother HL-5170DN**

- ⊞ Good build quality, network support
- ⊞ Expensive

Contact Lipi Data Systems Ltd  
Phone 022-22882960  
E-mail [sharatk@lipidata.com](mailto:sharatk@lipidata.com)  
Price Rs 21,900

**PCs above Rs 25K****Acer Aspire ASP V4324**

- ⊞ Good performance and package contents, low price
- ⊞ None in particular

Contact Acer India (Pvt) Ltd  
Phone 080-25219520  
E-mail [ailenquiries@acer.co.in](mailto:ailenquiries@acer.co.in)  
Price Rs 25,999

**Media Center PCs****HP Pavilion m7280in**

- ⊞ Great design, features, and performance
- ⊞ Expensive

Contact HP India Sales Pvt Ltd  
Phone 0124-2566111  
E-mail [incontact@hp.com](mailto:incontact@hp.com)  
Price Rs 63,999

**Budget Cell Phones****Nokia 2600**

- ⊞ Value for Money, Easy Navigation
- ⊞ 4k colour screen

Contact Nokia India  
Phone 30303838  
Website [www.nokia.co.in](http://www.nokia.co.in)  
Price Rs 2869

**Mid-range Cell Phones****Motorola L7**

- ⊞ Sleek and elegant looks, Good build quality, expandable memory
- ⊞ Quirky interface

Contact Motorola India Pvt. Ltd  
Phone 0124-2303212/7212  
Website [www.motorola.com](http://www.motorola.com)  
Price Rs.10,007

**Keyboards****iBall Power Key Designer**

- ⊞ Feature-rich
- ⊞ Looks gaudy

Contact Best IT World (India) Pvt Ltd  
Phone 022-30815100  
E-mail [sales@iball.co.in](mailto:sales@iball.co.in)  
Price Rs 990

**Mice****Logitech G7 laser mouse**

- ⊞ Feature-rich, offers fantastic performance
- ⊞ Expensive

Contact Logitech Electronic India Pvt Ltd  
Phone 022-26571160  
E-mail [kavita.nath@ap.logitech.com](mailto:kavita.nath@ap.logitech.com)  
Price Rs 6,495

**Mono Laser MFDs****Samsung SCX-4521F**

- ⊞ Good performance and quality
- ⊞ Low input tray capacity

Contact Samsung India Electronics Pvt Ltd  
Phone 011-26431313  
E-mail [vikram.negi@samsung.com](mailto:vikram.negi@samsung.com)  
Price Rs 21,990

**PC Webcams****Tech-Com SSD-641-MP**

- ⊞ Good image quality, inexpensive
- ⊞ No software bundle, bad build quality

Contact Shree Sagarmatha Dist India Pvt Ltd  
Phone 011-26428541  
E-mail [contact@techcomindia.com](mailto:contact@techcomindia.com)  
Price Rs 549

**Thin & Light Laptops****Dell Inspiron 6400**

- ⊞ Amazing performance
- ⊞ Looks gaudy

Contact Dell India Pvt. Ltd.  
Phone 080-25068026  
E-mail [belgundi\\_indrajit@dell.com](mailto:belgundi_indrajit@dell.com)  
Price Rs 64,000

**Performance Laptops****Sony VAIO AR18GP**

- ⊞ Mind boggling performance
- ⊞ Very expensive

Contact Sony India  
Phone 022-28231558  
E-mail [sonyindia.care@ap.sony.com](mailto:sonyindia.care@ap.sony.com)  
Price Rs 1,99,900





# IPv6

**This IP Address Format will be gone soon. Enter IPv6**

2001:0db8:3c4d:0015:0000:

Ram Mohan Rao

If you're reading this, you know what an IP (Internet Protocol) is—it looks something like 202.144.98.72, and all Internet hosts have one. Now, what we use today is called IPv4—version 4; the not-so-distant future network will use IPv6, or IPng (the “ng” is for “Next Generation”).

## Address Space

The first and most oft-cited reason for the move to IPv6—the evolutionary successor to IPv4—is the address space. IPv4 allows for about four billion unique addresses, which seems enough—after all, there are only about six billion people. But there are at least two reasons why we'll be running out of addresses. First, IPv4 addresses are classified as Class A, Class B, and so on. Think of IBM, which has been assigned the Class A range of 9.0.0.0 to 9.255.255.255. This is almost 17 million addresses—most of them unused, of course. Simply telling IBM to take a smaller range just won't do it! Second, and more interesting, is the fact that more and more devices—not just computers—will be connected to the information network of the future: your mobile phone (easy to believe), your smart fridge (a little futuristic), and even your alarm clock (sounds way out, but you better believe it)! To accommodate all these will require something much more than four billion, and that's one major *raison d'être* for IPv6.

## Why Not NAT?

You might have heard of NAT (Network Address Translation). An office, for example, might have a LAN, where 40 individual computers show up as just one IP to the external world—the NAT router takes care of what traffic from the outside should be routed to which computer on the inside. Now, this may look like a perfect solution, since 39 IPs have been conserved. There are several reasons cited for why this is not the ideal solution, amongst them the fact that hosts on the outside with “real” addresses can't initiate communication with the “NATted” computers. Also, direct, peer-to-peer communication is not possible if a network is NATted, because of the router.

## What It Looks Like

There are different types of IPv6 addresses, but not to get into the details, a typical address looks like FECC:B672:391C:2322:CD51:AAEE:3DEC:0921 (instead of like 202.144.98.72).

This is a stringing of eight 16-bit hexadecimal values, and means a 128-bit address space—which in turn means  $3.4 \times 10^{38}$  addresses—you don't need to imagine that number; it's practically infinite!

If an address has long sub-strings of all zeroes,

the sub-strings can be abbreviated by a double colon. In addition, up to three leading zeroes per four hex values can be omitted. Taking both these together, FECC::1 corresponds to FECC:0000:0000:0000:0000:0000:0000:0001.

## Routing Tables

Routing tables are what enable your Internet packets to reach their destination—they contain information about where a packet should go next en route to its destination. With IPv4, the Internet backbone routers—which control Internet traffic at the top level—contain routing tables that are already very large, and are growing. This means inefficiency, and further growth will hamper their very functioning.

Now, IPv6 has been designed so that Internet backbone routers will need to have much smaller routing tables. The tables, instead of including every possible route, need only include routes to those routers that are directly connected to them. How that works is beyond our scope here, but suffice it to say that IPv6 solves “the exploding routing table problem” to a large extent.

## Other Goodies

There are several other advantages of IPv6 that justify a worldwide switchover. For example, it Quality of Service (QoS) is inbuilt in IPv6; this, while not essential, is a good thing for VoIP and multimedia, for example. It also allows for prioritisation of data—time-sensitive streams such as videoconferencing data can be assigned a higher priority than, say, Web browser requests.

Then, in the realm of security, consider IPsec. Short for “IP Security,” it is a set of protocols to support secure exchange of packets. IPsec is widely used in the implementation of Virtual Private Networks (VPNs). IPsec is optional in IPv4; in IPv6, it's embedded in the headers. Setting up a VPN through IPv4 requires confirmation that the other user also supports IPsec; IPv6 will eliminate this requirement.

IPv6 brings with it new functions that simplify the configuration and management of the addresses on a network, which are typically labour-intensive. Several tasks typically performed by a system administrator are automated. For example, the auto-configuration feature in IPv6 can automatically configure router and interface addresses.

There are many more good things about IPv6, and even more sites from where to get information; for a start, you could try [www.ipv6.org](http://www.ipv6.org).

IPv6 is already being deployed in some areas, especially in Asia. Worldwide deployment is not a whether, but just a “when”. As for the “How” of the matter, that's a story for a different time! ■

*ram\_mohan@thinkdigit.com*



# Tips & Tricks

SECRETS THAT KEEP YOU AHEAD IN THE RACE

## TIPS

Macro's in Word  
Formulas in Excel  
Symbian

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## 30 MINUTES EXPERT

Resource Hacker  
Be Your Own Anti-Spyware

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## WORKING WITH MACROS IN MS WORD



Illustrations Harsho Mohan Chatteraj

**T**o use all the macros that follow, you'll need to know where to type in the code. Here is the general procedure in Word 2002 (Word XP).

Go to **Tools > Macro > Macros**.

Under "Macro Name", type in the name of the macro, and click Create. The VBA editor will open up, with the name of the macro and the "End Sub" text filled in. You'll need to type the macro in between these two.

To assign a keyboard shortcut to a macro, go to **Tools > Customize**. In the Commands tab, choose Macros, then choose your macro from the list on the right. Press "Keyboard". Now under "Categories", choose Macros, and choose

your macro from the list on the right. Place the cursor in "Press new shortcut key", and do just that—press the shortcut key you want to use, for example, [Ctrl] + [Alt] + [5]. Finally, click Assign, and OK your way out.

Assigning a toolbar button to your macro is a little harder. Go to **Tools > Customize**, and click the Toolbars tab. Click New and then type in your Toolbar name. Click OK. You should see a new menu listed and checked. The checkbox indicates that this menu is in use. You can also see that on your document, there is a floating toolbar. Now click the Commands tab. Click Macros in the Categories list. You will see your macro listed in the commands list as Normal.NewMacros.MacroName.

Drag this macro from the Commands list to your new toolbar. The toolbar will change its appearance. Drag the item to where you'd like it on the Standard Toolbar.

To customise the appearance of your button, on the Tools menu, click Customize. With the Customize dialog box open, do the following: click the Normal.NewMacros.MacroName button on the toolbar. Then in the Customize dialog box, click Modify Selection, click Name on the shortcut menu, and then type over the current name with a new name. Click the Normal.NewMacros.MacroName button on the toolbar. And in the Customize dialog box, click Modify Selection, point to Change Button Image on the shortcut menu, and then click an image.



## Bold Italics

Aren't so many words and phrases bold *and* italicised? The two often go together. To bold-italicise something requires two actions, whether on keyboard or by mouse. Wouldn't it be nice to have a toolbar button called "BI" that does it, or a single keystroke? Here's a macro for just that.

Sub BI1()

```
Selection.Font.Bold = True
Selection.Font.Italic = True
End Sub
```

The macro above turns on bold and italics, but it can't do any toggling—meaning you can't turn off bold italics using the same macro. So here's a longer macro that toggles our bold-italics procedure.

Sub BI2()

```
Dim B1Status As Integer
B1Status = 0
If Selection.Font.Bold Then B1Status = B1Status + 1
If Selection.Font.Italic Then B1Status = B1Status + 1
If B1Status = 0 Then
    Selection.Font.Bold = True
    Selection.Font.Italic = True
End If
If B1Status = 1 Then
    Selection.Font.Bold = True
    Selection.Font.Italic = True
End If
If B1Status = 2 Then
    Selection.Font.Bold = False
    Selection.Font.Italic = False
End If
End Sub
```

The way we've written this macro, it will convert text to bold + italics in two cases: if neither bold nor italics is on, or if either of them is on. If both are on, it removes both the bold and the italics. Inspect the code a little and you'll get the hang of what's going on, and then you can change the macro to what you want.



## Remove Hard Returns

Most ASCII files—such as those you might download off the Net, and then need to put in Word in a presentable format—have a hard return, the equivalent of an actual [Enter] keypress, at the end of every line of the file. They also have two hard returns at the end of every paragraph, so you can't just globally replace hard returns with an empty value. The macro that follows formats a file so there are only hard returns at the end of paragraphs:

```
Sub RemoveHardReturns()
    Remove1 "^p^p", "{ |}"
    Remove1 "^p", "{ @}"
End Sub
```

```
Remove1 "{@}", "{@}"
Remove1 "{@}", "{@}"
Remove1 "{|}", "^p"
End Sub
```

```
Sub Remove1(FromWord$, ToWord$)
Set myRange =
ActiveDocument.Content
myRange.Find.ClearFormatting
myRange.Find.Execute
FindText:=FromWord$,
ReplaceWith:=ToWord$, _
MatchCase:=0, Replace:=wdReplaceAll
End Sub
```

### Parenthesise Easily

When you need to parenthesise a lot of words in a document, it's convenient to just select the word using your mouse and then pressing a shortcut key to parenthesise the word. Here's a simple macro that will parenthesise selected words for you.

```
Sub Parenthesise()
Dim iCount As Integer
iCount = 1
While Right(Selection.Text, 1) = " " Or
Right(Selection.Text, 1) = Chr(13)
Selection.MoveLeft Unit:=wdCharacter,
Count:=1, Extend:=wdExtend
iCount = iCount + 1
Wend
Selection.InsertAfter "("
Selection.InsertBefore ")"
Selection.MoveRight Unit:=wdCharacter,
Count:=iCount
End Sub
```

Note that you could just as well use square brackets or curly braces in the macro. Any spaces or paragraph marks at the end of your selection are compensated for. When you are done running the macro, the insertion point is left at the end of the original selection.

### Easy Quotation Marks

Similar to the above macro, the following one inserts quote marks around selected text. The macro determines the proper type of quote marks to use, depending on whether you have Word's SmartQuotes feature turned on or not.

```
Sub Quotise()
Dim sBegQ As String
Dim sEndQ As String
If
Options.AutoFormatAsYouTypeReplaceQ
uotes Then
sBegQ = Chr(147)
sEndQ = Chr(148)
Else
sBegQ = Chr(34)
sEndQ = Chr(34)
End If
Selection.InsertBefore sBegQ
Selection.InsertAfter sEndQ
End Sub
```

### Correcting A Document #1

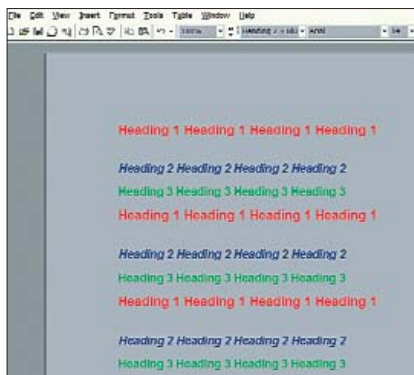
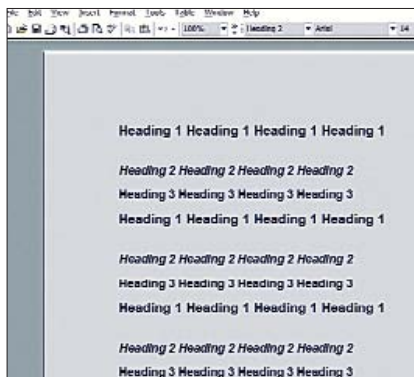
In some grammatical circles, it is standard to capitalise the first letter of the word immediately following a colon. In some others, it is not. If you belong to the first school of thought, you probably wish that Word included a feature to automatically capitalise the first word after a colon. The solution? Use a macro!

```
Sub MakeCaps()
With ActiveDocument.Range.Find
.ClearFormatting
With .Replacement.Font
.SmallCaps = False
.AllCaps = True
End With
.MatchWildcards = True
.Text = ":[a-z]"
.Replacement.Text = ":" & \1"
.Execute Replace:=wdReplaceAll
End With
End Sub
```

There is one thing to take note of with this macro: it does not change the first character after a colon to an actual capital letter. What it does is, it changes the formatting of the colon, space, and first character to all caps. This means that the character, even though lowercase, is displayed by Word as uppercase.

### Easily Change Colours

If you are developing a document that uses colours to signal special meanings to the reader, it can be a real



Easily change the colours of specific text using a macro command

pain to use the menu again and again to change colours in the text. This is an invitation for a macro, and here it is: it changes the colour of the selected text to red.

```
Sub MarkAsRed()
If Selection.Type = wdSelectionNormal
Or _
Selection.Type = wdSelectionBlock
Then
Selection.Font.ColorIndex = wdRed
Else
Beep
End If
End Sub
```

Naturally, you can use this macro for any colour besides red, but the value above is "wdRed"; you need the values for the colour you need. Find alongside a table that gives you the values for different colours.

### Text Colour What To Use

Auto	wdAuto
Black	wdBlack
Blue	wdBlue
Cyan	wdTurquoise
Green	wdBrightGreen
Magenta	wdPink
Red	wdRed
Yellow	wdYellow
White	wdWhite
Dark Blue	wdDarkBlue
Dark Cyan	wdTeal
Dark Green	wdGreen
Dark Magenta	wdViolet
Dark Red	wdDarkRed
Dark Yellow	wdDarkYellow
Dark Grey	wdGray50
Light Grey	wdGray25

### Correcting A Document #2

Did you know that there is a shortcut in Word for changing the capitalisation of text? You can quickly change between lowercase, uppercase, and initial caps: all you need to do is to select the text you wish to alter, and then press [Shift] + [F3]. Pressing the key sequence cycles through the three cases.

If you are working with a large document where you want to change the case of the words in all occurrences of a particular style, you'll need a macro. Say you have a document in which Heading Level 1 was originally intended to be in ALL CAPS, and now, you need to change it to Sentence Case. The following macro will search for all occurrences of the Heading 1 style and change it to Sentence Case.

```
Sub ChangeTextCase()
Selection.HomeKey Unit:=wdStory
Selection.Find.ClearFormatting
Selection.Find.Replacement.ClearF
ormatting
Selection.Find.Style =
ActiveDocument.Styles("Heading 1")
```



```

Selection.Find.Execute
While Selection.Find.Found
Selection.Range.Case =
wdTitleWord
Selection.Find.Execute
Wend
End Sub

```



### Correcting A Document #3

Now here's a long and somewhat cumbersome macro, but one that's very useful once you're done writing it. The idea is, you want only one space after the end of every sentence. Several people, as you would have found if you work with documents, leave two or more spaces after sentences. Now this can be remedied by replacing all double spaces by single spaces, but it involves more than one keystroke. Besides, what if there are intentional double spaces in, say, a table?

You can use the following macro to get rid of unwanted spaces at the end of sentences:

```

Sub NoMoreThanTwo()
Call TheChange("Normal", ".")
Call TheChange("Normal", "!")
Call TheChange("Normal", "?")
End Sub

Sub TheChange(StyName As String,
PuncMark As String)
Selection.HomeKey Unit:=wdStory
Selection.Find.ClearFormatting
Selection.Find.Style =
ActiveDocument.Styles(StyName)
Selection.Find.Replacement.ClearForm
attng
With Selection.Find
.Text = PuncMark & " "
.Replacement.Text = PuncMark & " "
.Forward = True
.Wrap = wdFindContinue
.Format = True
End With
Selection.Find.Execute
Replace:=wdReplaceAll
Selection.Find.Text = PuncMark & " "
Selection.Find.Execute
Replace:=wdReplaceAll
End Sub

```

This macro will only take extra spaces out of paragraphs formatted in the Normal style, which ensures you won't mess up the formatting in tables or other elements where you might want extra spaces after full stops, exclamations, and question marks. You can change the type of punctuation searched for, and search in different style paragraphs—just look in the first macro, which explains itself.



### Freezing Numbered Lists #1

You have, in all probability, used Word's numbered list feature. As you're selecting parts of a document and get to a numbered list, you'll see that the numbers don't get selected. In

addition, as you add and delete points to the list, the existing items get renumbered appropriately. This can sometimes be an annoyance, in the case where you want a list to be set as it is with the existing numbers, and you want to add more items—say some with a new numbered beginning.

The brute-force way of dealing with this involves using the Paste Special feature. You first select the list that you want as permanent, and press [Ctrl] + [C] to copy the list. Then choose Paste Special from the Edit menu. This will cause the Paste Special dialog box to pop up. If you choose "Unformatted Text" and click OK, the list should get pasted as it is, with the numbers "frozen"—Word will convert the numbering to text. However, you'll lost any formatting you may have had in the items in the list. To not lose formatting, you'll need to use the macro in the next tip.



### Freezing Numbered Lists #2

If you want a numbered list frozen as above but without losing formatting (except in the numbers themselves), here's the macro to use:

```

Sub NumberedList()
Dim lp As Paragraph
For Each lp In
ActiveDocument.ListParagraphs
lp.Range.ListFormat.ConvertNumbersToText
Next lp
End Sub

```

Note that selecting text and running the macro will affect the numbering in the entire document—they will all be frozen!



### Deleting A Page

If you want a quick way to delete the current page, there's a simple macro:

```

Sub DeletePage()
ActiveDocument.Bookmarks("\Page").
Range.Delete
End Sub

```

You can now easily delete the current page, that is, the one in which the insertion point is located. Note that the macro decides what a page is based on the current pagination of your document, which is affected both by the printer driver you're using and by other formatting properties.



### Deleting All Comments

When a team is working on a document, adding text and comments, you could end up with a file with a lot of comments from different reviewers and writers. So what do you do when you want the document finalised and uncluttered, free of all comments?

The simple way to do this is to click the upside-down triangle next to the

Reject Change / Delete Comment button. A drop-down list of options will come up; choose "Delete All Comments in Document".

(If the Reviewing Toolbar is not displayed, go to **View > Toolbars**, and check Reviewing.)

The straightforward way, unfortunately, might not get rid of all comments in the documents. This happens if the document is complex—for example, if some reviewers have turned on Track Changes and then commented, and some others haven't. You'll need a macro to handle such cases:

```

Sub DeleteAllComments1()
For Each cmt In
ActiveDocument.Comments
cmt.Delete
Next
End Sub

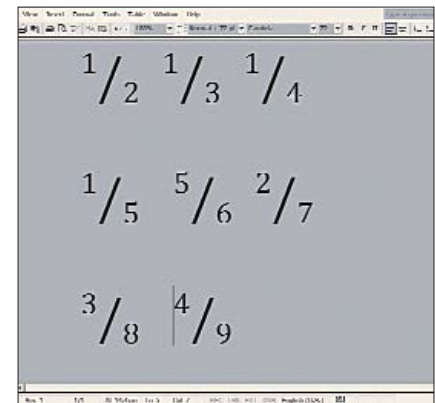
```

This will get rid of all comments in all cases.



### Pretty Fractions

You've seen that Word only converts 1/2 and 1/4 into their nicer-looking forms, but not fractions like 2/7 and 3/10. The



Change all fractions to look like fractions

very helpful macro that follows will format any fraction this way—select the characters that make up the fraction and run the macro.

```

Sub ConvertToFraction()
Dim fractionbit As Range
Dim iSlashPlace As Integer
With Selection
iSlashPlace = InStr(Text, "/")
Set fractionbit = ActiveDocument.Range _
(Start:=Start, End:=Start + iSlashPlace - 1)
fractionbit.Font.Superscript = True
Set fractionbit = ActiveDocument.Range _
(Start:=Start + iSlashPlace, End:=End)
fractionbit.Font.Subscript = True
End With
End Sub

```

What the macro does is, it formats the portion of what you selected before the slash as a superscript, and the portion after the selection as a subscript. ■



# Become A Resource Hacker

Did you know there are goodies embedded within EXEs and DLLs? Here's how to access and play around with them

Jayesh Limaye

**R**esource Hacker is a freeware utility that allows you to view the cursors, icons, bitmaps, GIF, AVI, and JPEGs embedded within files. These are referred to as resources. For example, an EXE file will have an icon, version number, and more embedded within it. You'll also come across embedded WAV and MIDI resources. Essentially, using the tool, you can view, modify, add, delete, and extract resources in 32-bit Windows executables, DLLs, screen-saver (.scr) files, and more. It works on almost all 32-bit versions of Windows, including XP and 98.

In addition to the above, menus and dialogs can be viewed as they would appear in a running application, so you can view, in real-time, the effects of the modifications you make to the file.

Resources can be saved as image files; as script files (.rc); as binary resource files (\*.res); or as binary files (.bin). The program can also modify, add and delete resources.

You can download Resource Hacker from [www.angusj.com/resourcehacker](http://www.angusj.com/resourcehacker). It is no longer being updated, however. Extract the contents of the .zip file to a folder of your choice, and you're ready to run the program.

## The Interface

After you launch Resource Hacker and open a file such as a DLL or EXE, you will be presented with a window that has a blank space on the right and a list of



Interface of Resource Hacker

resources on the left, which appear similar to directories in Windows Explorer. The name of the directories (which are the listed resources) explain what resource of the source file they contain. For example, "Icon" contains icons, "Cursor" contains cursor files, and so on. It's that simple!

In order to view an embedded resource, just double-click on the direc-

tory to expand it and click on the name of the resource. Each resource consists of three parts.

❑ **Resource Type:** This indicates whether the resource is a cursor, bitmap, menu, or whatever.

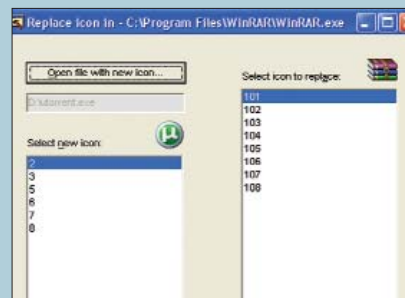
❑ **Resource Name:** Each resource has a unique name in a file.

❑ **Resource Language:** This is the code number of the language used in the file.

## Modifying Resources

❑ **Change an icon, cursor or bitmap**

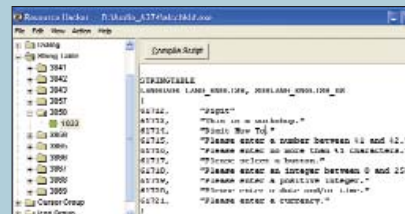
As already stated, you can change the icon of an EXE using Resource Hacker. Let's replace the icon of WinRAR.exe



Replace WinRAR's Icon

with that of utorrent.exe or µTorrent, as in the screenshot. Open WinRAR.exe in Resource Hacker and expand the Icon resource folder. Expand the 2 folder, right-click on 1029, and select "Replace Resource..." Click on "Open file with new icon" and select utorrent.exe. Now click Replace. Save the file, and when you open it, you'll see that the icon has changed!

❑ **Edit menus, strings, and dialog boxes**  
Select the desired resource (such as String Table > 3858 > 1033). Make your



Edit Other Resources like Menus, Strings or Dialog boxes

changes by typing in the new text you wish to include, and click Compile Script. The script will be compiled; an error message will come up if some-

thing goes wrong, so that you can rectify the problem.

❑ **Add new resources**

Click on **Action > Add a new Resource**. Click the "Open file with new resource" button. Select the resource and click Open. Specify the resource Type, Name and Language, and click on the Add Resource button.

❑ **Add new menu items**

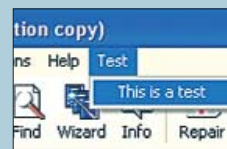
New menu items can be added to an application. Go to the desired menu (for example, **Menu > 215 > 1033**). Add a line anywhere inside POPUP "{Menu Name}" in the following format:

```
MENUITEM "your_string", 12345,
MFT_STRING, MFS_GRAYED |
MFS_DEFAULT
```

Here, "your\_string" is the text that will be displayed on the screen, "12345" is the unique identifier which defines the function associated with the menu item (you might need to use trial and error to find it), MFT\_STRING means it is a menu item with text, MFS\_GRAYED means the menu item is disabled, and MFS\_ENABLED means it is enabled. MFS\_DEFAULT sets the menu item text to bold.

Let's modify the menus in WinRAR—add a menu called "Test". Open WinRAR.exe using Resource Hacker. In the left of the window, click on **Menu > MAIN\_MENU > 1049**. In the right-hand side, scroll down to the bottom of the window. Before the last closed curly brace, add the following lines:

```
POPUP "&Test"
{
MENUITEM "&This is a test",190
}
```



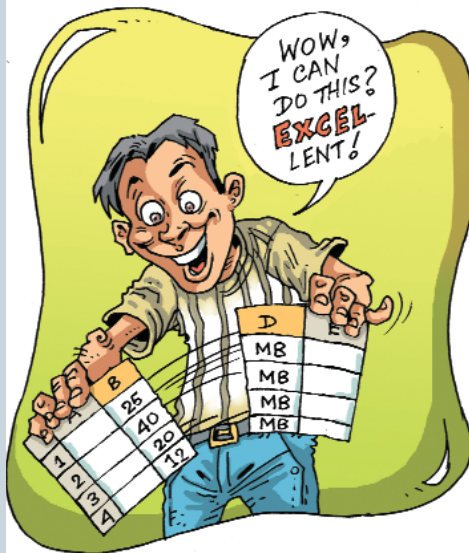
Add an additional Menu to WinRAR

Click "Compile Script" and save the file. On opening WinRAR, you will see an extra menu called "Test" after "Help", and when you click on that, you will see a menu item: "This is a test". Use the Ampersand (&) before the letter you want to set as the item's accelerator. For example, M&enu will make the menu accessible using [Alt] + [E]. ■

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## FORMULAS IN EXCEL



### Using The Numbers #1

Think of when you have values such as “3.2 GHz” in numerous cells. You obviously can’t use that “3.2” as it is—you’ll need to “extract” it from the full string. There happens to be a way to do this. Assume the entries all consist of a number followed by a space, followed by some characters. You can perform the extraction by following these steps: first, make sure there’s a blank column to the right of the entries. Then select the entries. Choose “Text to Columns” from the Data menu. Excel will display the first step of the Convert Text to Columns Wizard.

Select the “Delimited” radio button and click Next. Excel will display the second step of the wizard. Now, making sure the Space checkbox is selected, click Next. The third step of the wizard will be displayed; click Finish.

	A	B
1	3 GHz	3
2	2.2 GHz	2.2
3	5 GHz	5
4	6.1 MHz	6.1
5	7 GHz	7
6	44.1 KHz	44
7	11 GHz	11
8	10 GHz	10
9	11.1 GHz	11
10	12 GHz	12

Separating numbers and text, so that you can use the numbers for calculations

Excel splits the entries into two columns, with the numbers in the left one and the alphabetic characters in the right. You can then run any functions on the numeric values!

### Using The Numbers #2

If it doesn’t seem a good idea to separate the data into columns—for example, if it might cause problems with others using the worksheet—then a different approach is needed. There are two ways you can do the extraction mentioned in the previous tip.

You can use this formula on individual cells:

```
=VALUE(LEFT(A1,LEN(A1)-4))
```

The LEFT function strips off the three rightmost characters (the space and the “GHz”) of whatever is in cell A1, and then the VALUE function converts the result to a number. You can then use this result as you would use any numeric value.

### Using The Numbers #3

On the same problem, if all you want to do is sum the column containing your entries, you could use an array formula. Enter the following formula into a cell:

```
=SUM(VALUE(LEFT(A1:A10,LEN(A1:A10)-4)))
```

You need to make sure you actually enter the formula by using [Shift] + [Ctrl] + [Enter].

### Using Names

Excel allows you to define names that can refer to formulas or constants. This can be useful in several cases: suppose you use a constant, say an interest rate equal to 12 per cent, quite often in your worksheet. To define a name for that 12 per cent, you’ll need to do the following: first, select the Name option from the Insert menu and choose Define from the sub-menu. Excel will display the Define Name dialog box. Change the Refers To field at the bottom of the dialog box so that it contains the desired formula—that is, “=12%”. Click on Add, and your name will have been defined. Click OK.

You can now use the constant in formulas. For example, if you used “digit” in the Name field, you can now say “=(50\*digit)” in a cell, and you’ll get 6.25 in that cell.

### Using An Input Mask...

When you’re keying in times into cells using the numeric keypad, what

slows you down is the need to enter the colons. There happens to be a way to use an input mask so you can enter values such as 6:30 by typing in just “630”! Use the following procedure:

First select the cells you want to use for inputting the time. Then go to **Format > Cells**. Under the Number tab, in the Category list, choose Custom. Replace whatever is in the Type box with “#.:”00 (a hash sign, a quote mark, a colon, another quote mark, and two zeroes). Click OK. You can now enter your times using only digits!

### ...And Then A Formula

The problem with the above tip, of course, is that the cells don’t really contain times. If you entered “630” for 6:30, it doesn’t contain 6:30 as a time—it contains *six hundred and thirty*. As a result, you can’t use the contents of the cell in time calculations.

In order to get around this, you can use a separate column to show the entered numbers converted into a time. You’ll need a formula for this. Say the time you entered is in cell B1; use the following:

```
=(INT(B1/100)/24)+((B1-INT(B1/100)*100)/1440)
```

Now you just need to format the cell that contains this formula so it displays a chosen time format.

### [Alt] + [Enter] In A Formula

When you’re entering data in a cell, you can use [Alt] + [Enter] to start a new line within the current cell. You may want to create a new line in a formula as well, just as if you had pressed [Alt] + [Enter].

Say you’re working with the formula that concatenates text values: =A1 & A2 & A3, and you need a way to make it appear on separate lines. You can use the actual character code that Excel uses when you press [Alt] + [Enter], as in the following formula:

```
=A1 & CHAR(10) & A2 & CHAR(10) & A3
```

The “CHAR(10)” inserts a line feed character. If you don’t see the results on separate lines, it’s because you haven’t turned on wrapping for the cell. You’ll be seeing a square box where the line feed character is located. To see the results of the formula on separate lines, go to **Format > Cells > Alignment** and check the Wrap Text box.

### Numbers With Signs #1

As you work with a large set of numbers consisting of both negative

and positive values, you might sometimes want to separate them into columns based on their sign. There are two ways to do this, the first of which is described in this tip.

	Mixed	Positive	Negative
1	12	12	0
2	234	234	0
3	-32	0	-32
4	902	902	0
5	-342	0	-342
6	-2223	0	-2223
7	10	10	0
8	-10	0	-10
9	1209	1209	0

Differentiating between positives and negatives

Use a formula in the columns to the right of the column with mixed values. If the mixed column is A, place this formula in the cells of column B:

=IF(A2>0,A2,0)

The result of this will be that column B will only contain values greater than zero. Then, in column C, use this formula:

=IF(A2<0,A2,0)

Column C will only contain values less than zero. So what you have is two new columns of the same length as the original column. Column B is the same as column A with negative values replaced by zero, and column C is the same as column A with positive values showing up as zero.

### Numbers With Signs #2

Starting from the above tip, say you want columns that only contain negative or positive values, with no zeroes. You'll need to use Excel's filtering capabilities. Say the mixed values are in column A, with the column heading in A1. You'll need to follow these steps:

In cell E2, place the formula ">0". Select any cell in the mixed values of column A. Choose **Data > Filter**, then choose **Advanced Filter** from the resulting sub-menu. Excel will display the **Advanced Filter** dialog box. The **List Range** should already be filled in, representing the range of mixed values in Column A.

Now, make sure the "Copy to Another Location" radio button is selected. Select

the **Criteria Range** box, and with the mouse, select cells E1:E2. Select the "Copy To" box and click once in cell B1. Then click OK. Column B now contains cells that are greater than zero.

In E2, place the formula "<0". Then, once again choose **Data > Filter**, and choose **Advanced Filter** from the sub-menu that comes up. Excel will display the **Advanced Filter** dialog box. The settings in the dialog box should be the same as the last time you used them. Select everything in the "Copy To" box, and then click once in cell C1. Then click OK. Column C will now contain cells less than zero. Of course, you can now delete the cells at E1:E2.

### What If...

Suppose you want to calculate how much money you will need to deposit in a savings account for each of 12 months in order to have Rs 10,000 in it at the end of one year. You know the interest rate, but you're not sure of the amount you need to put in. You can use a future value calculator for this (FV). In cell A4 is your deposit amount which is unknown right now. Say cell A5 contains your interest rate of 5 per cent, and cell A6 is the number of months (12). In cell A7, you can enter the formula:

= -FV(A5,A6,A4)

If you wanted to determine how much you needed to deposit in the account each month, you could repeatedly change the deposit value (A4) until you got close to the desired goal. Here's where the goal seeking tool comes in. Here are the steps:

First select the **Future Value** cell (the one at A7). Choose **Goal Seek** from the **Tools** menu. This displays the **Goal Seek** dialog box. The **Set Cell** field will have already been set to A7. Now move the insertion point to the "To Value" field and change it to 10000. This is the amount you want to have at the end of two years. Then move the insertion

point to the "By Changing Cell" field and click on cell A4 (the cell that will contain your regular deposit amounts). Click OK. Excel tells you it has found a solution. Click OK again. Your worksheet will reflect the solution.

### Evaluating Formulas

How exactly does Excel arrive at a particular result? This can be hard to determine, particularly if the formula is complex. Thankfully, Excel provides a tool to help figure out what is going on when it evaluates a formula. To access this tool, first select the cell containing the formula you want to evaluate. Choose **Tools > Formula Auditing**. Excel will display a sub-menu. From the sub-menu, choose **Evaluate Formula**. Excel will display the **Evaluate Formula** dialog box.

The full formula from the cell will be shown with part of it underlined. This underlined area represents the part of the formula that will next be evaluated, and this allows you to see what intermediate steps Excel follows in arriving at a result. Every time you click the **Evaluate** button, Excel replaces the underlined portion of the formula with a result.

Nothing you do with the formula evaluator affects the formula itself. When you're done using the **Formula Evaluator**, click **Close**.

### Counting Non-Blank Cells

You might already know that you can use the **COUNTBLANK** function to return the number of blank cells in a range. If you want to count the number of non-blank cells in the range, you could use:

=COUNTA(A1:A10)

The problem here is that this doesn't return the complementary value to what **COUNTBLANK** returns. This is because **COUNTBLANK** and **COUNTA** treat formulas differently: **COUNTBLANK** includes, as blank, formulas that return a blank value. **COUNTA** does not consider such cells blank (even though a blank is returned), so it includes them in its count.

If you define non-blank cells to be those that are not returned by the **COUNTBLANK** function, you'll need to use the following formula:

=(ROWS(A1:B10)\*COLUMNS(A1:A10))-COUNTBLANK(A1:A10)

How this works is pretty straightforward, so we'll refrain from explaining it further. ■

### Bet You Didn't Know

#### A Shortcut For Viewing Formulas

You probably know how to display the formula contents of cells rather than the results: **Tools > Options**, and then in the **View** tab, you check the **Formulas** box.

A faster way to do this is to press [Ctrl] + [']. The key is the "backwards apostrophe," just to the left of the [1] key. This shortcut toggles, meaning you can use it to switch between the display of formulas and results.





# Be Your Own Anti-Spyware

Bust troublemaking software and tweak your system with HijackThis

Nimish Chandiramani

Want more control over your computer's security? Or just want a more in-depth look at what's going on inside the box? HijackThis is an unassuming tool that hides the power to turn you into a human anti-spyware program! This program tells you all, but doesn't make any judgement—so it won't warn you if you're being plagued by adware/spyware/malware, but if you can identify the offending program, you can rid yourself of it permanently. Get it from <http://www.spywareinfo.com/~merijn/index.php>

You can also end up ridding yourself of some essential Windows services, so watching your step is advisable.

## Scanning For Problems

At the HijackThis startup, the first thing you should do is a system scan. Saving a log file is optional, but a good idea when you're just starting out—you might need to show this log to someone else just to get a second opinion. Once you've done the scan, you're presented with a list of entries like "R0 - HKLM\Software\....." and so on. Here's what you should look out for in these entries:

Browser Helper Objects (BHOs, appear as O2 - BHO: [name] - {etc.}): These are the worst offenders. Any

toolbar that you install for IE is a BHO, and has effectively the same control over the computer as you. Malicious code writers usually use this category to wreak their havoc, so if you see something unfamiliar here, mark the checkbox next to it and click "Fix Checked" at the bottom.

Services (O23): Another favourite with malware authors is disguising their programs as NT services; you should make sure that you know the origin of each of these services. If it looks suspicious, Fix It!

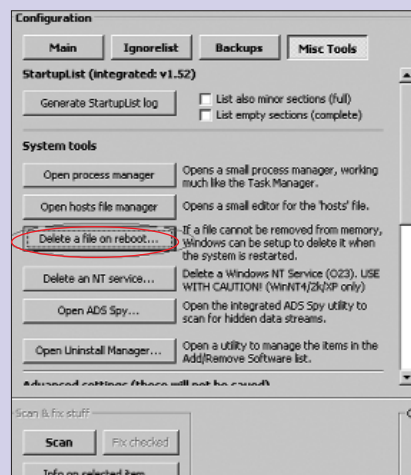
Note: Before fixing anything, make sure you're saving backups for those entries. On the bottom-right corner, click Config, and under the Main tab, make sure that the "Make backups before fixing items" checkbox is checked. It's on by default, but you should always double-check.

## Restoring Backups

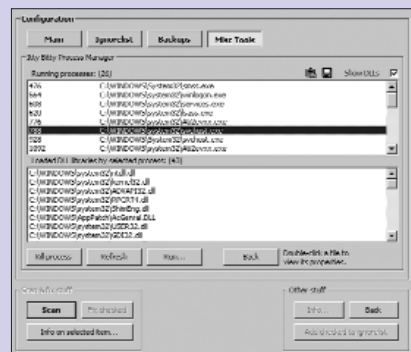
If you start experiencing problems with your system after you've used HijackThis, just restore the last backup you made. If you've just started the program, click on "Open the Misc. Tools Section" or Config if you've already run a scan. Under the Backups tab, you will see a list of backed-up items. Restore them one-by-one till your system runs fine again.

## Delete Obnoxious Files

If you've found a malicious EXE that refuses to be End Tasked through the Windows Task Manager, in order to be able to delete it, salvation is at hand. Under the Misc. Tools tab in HijackThis, you'll find the "Delete a file on reboot" button—its function is quite self-explanatory. It's quite effective, especially if you're infected with a virus that refuses to let you even open the Task Manager. To get rid of malicious services, use "Delete an NT Service"; be careful when using this one, though.



Delete files that refuse to be deleted



The Process Manager is a more detailed Task Manager

## Spy On Ads

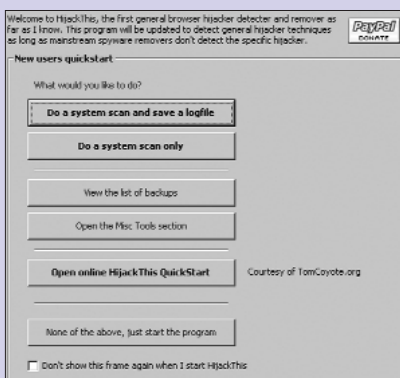
If you're worried about data being transmitted from your PC without your knowledge, use the ADS spy to scan your PC. It detects outgoing data from programs like keyloggers and other spyware that transmit your personal data to their parent sites.

## Get The Low-down On Your PC

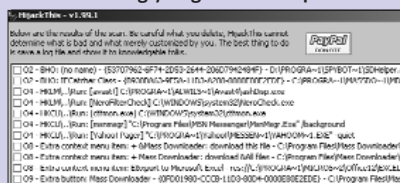
For a more advanced version of the Windows Task Manager, use the Process Manager from the Misc. Tools section. It also shows you which DLL files have been loaded by each program—tremendous value if you're doing this for academic interest.

Finally, if you're ever in doubt about making changes to your system with HijackThis, get some help—post your HijackThis log on a tech forum where more experienced people should be more than willing to assist you. ■

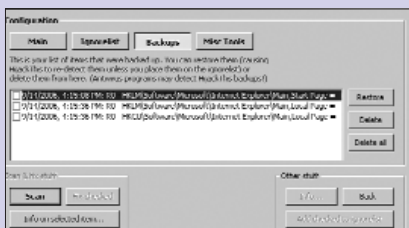
[nimish\\_chandiramani@thinkdigit.com](mailto:nimish_chandiramani@thinkdigit.com)



The first dialog you get at startup



What you're faced with after you do a system scan



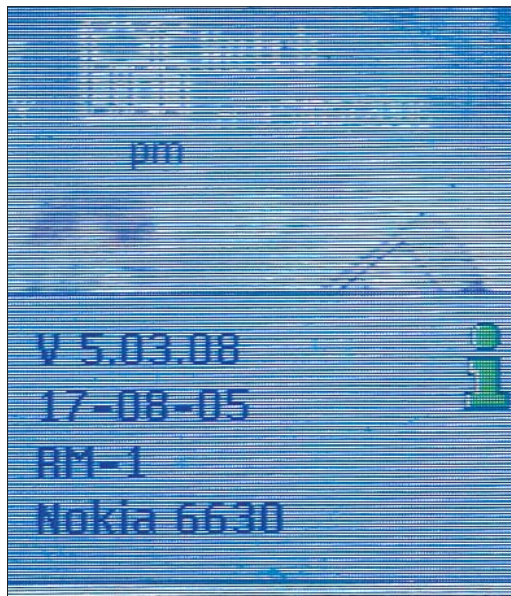
Restore backups from the Backup section

## SYMBIAN TRICKS

The Symbian OS in its Series 60 (now known as S60) avatar is by far the most popular, powering a majority of smartphones around the world. Whether you have a Nokia 6600 or an N70 or a Samsung X700, these tricks should provide a richer experience with that phone, besides demonstrating the power of the S60 platform.

### Check Your Firmware Version Number

You can check your phone's model number, the OS version and its date of release on your Symbian Series 60 phone by pressing the key combination **\*#0000#**. This is particularly useful in case you plan a firmware upgrade and want to know what version you are currently using.



Checking your firmware version number

### The End Call key

The red button on your Symbian cell phone that is used to end an active call can also be used to quick return to the main menu. Say you are using notepad, and need to type a quick SMS. Use the end key to be taken to the startup (home) screen. The notepad application is simply minimized to memory and not closed. Later on, when you wish to get back to the notepad where you were working all you need to do is access the task manager and switch to the notepad task. This works for all applications, and you can switch between several applications in this way.

### Selecting multiple files

This tip is for all those who have a huge inbox of say 300-plus SMSes, and



Selecting multiple files

want to delete many at a time. Keep the edit button pressed (the one with the pencil), simply scroll through your messages, and you'll find that they get a check/tick mark besides them. To keep a message you want, simply let go of the edit button while scrolling past it. Pressing the delete ([C]) key will delete all the messages that have been check marked. This trick works for all files.

### Deep Format

Sometimes your S60 phone may boot up to the Nokia screen and nothing else. This little tip is also useful when you are unable to delete some files from your C: drive (you will need a utility like FE Explorer installed to view drive partitions) available for download at [http://www.gosymbian.com/FE\\_download.html](http://www.gosymbian.com/FE_download.html). There is a

hard format option which works on the newer crop of S60 phones. Before following the following steps please ensure that you have at least 75 percent of battery charge left, if this format process is interrupted you'll be compelled to make a trip to your nearest Nokia center for a complete software install.

Shutdown your S60 phone, and remove the memory card. Now press the green (call) key, your [\*] (asterisk) key and the number [3]. Keep them pressed while you power on your phone. Do not release any of these three keys until you see a formatting screen appear. After the format is complete your cell phone will be back to its factory default state.

### Smart memory card removal

When removing your memory card, always power down the phone and remove it. Though some S60 phones sport hot swap, you will find the themes and icon arrangement switches to default after you put the memory card back. This happens with all S60 phones simply because most themes would be stored on your card by default. When you power off the phone and remove the card, your OS cannot determine that it's been removed. So power down and swap away, your current theme and icon settings will survive the MC swap.

### Startup in Safe Mode

Starting up in safe mode is very useful for basic debugging—diagnosing whether a memory card is corrupt, or if you are getting a system error. Safe mode does is prevents third-party applications on your phone from auto starting, making troubleshooting easier. To boot into safe mode simply power down your S60 phone and power up again with the edit (pencil) key pressed. Now you'll be asked for your lock code if you have one. If not, you'll boot into safe mode, and can double check this by keeping the menu button pressed and checking the running programs.

### Auto Saving SMSes

This tip is for you if you have an older S60 phone say an N-Gage, or an X700. You cannot save SMSes to your MMC (this feature is factory disabled because these phones don't support hot swapping, though it can be done on 6630s and later phones).

Backup your messages before this, because even though they're on your phone, this trick doesn't move current messages from your C: drive (we're assuming you have FE explorer installed), it just changes the default path for future messages, you won't be able to see them, unless you change the path again. In case you are doing this to save space, after backing all the SMSes up, delete them from your C: drive.

You'll need to install MsvDriveE (available at <http://www.carareok.com/bluemint/index.php/p98>).

Run this application just once, change your message storage to E: (MMC) from C: (phone mem). You can create folders as required. To switch back to the default phone memory follow these steps in order—simply switch off your phone, remove the MMC card, switch the phone back on, navigate to messaging and you're done. Oh, you can re-insert your MMC card now! ■



# Q&A

Your Questions, Our Answers

## Moving To A Different Player

**Q** I've been trying to open .mov files in Windows Media Player, but it doesn't seem to work. The error message states that WMP cannot play back the file. I am using Windows XP.

**Ganmish Kumar Setty**

**A** Files with the .mov extension can be handled by Apple's QuickTime player for Windows. To download it, go to [www.apple.com/quicktime/download/win.html](http://www.apple.com/quicktime/download/win.html). You can also get it from a Digit CD/DVD—we periodically distribute the latest version.

## A Question Of Identity

**Q** I have a motherboard that displays as "P4M266-D", the display adapter is an S3 Pro Savage DDR, and the motherboard chipset is VT8233A. It has one 4X AGP and five PCI slots. I can't identify my sound card and motherboard information in detail, and I can't find my motherboard and sound card drivers. I am therefore unable to do a fresh install of Windows XP.

**Suman Thapa**

**A** Download the drivers for your motherboard from [www.via.com.tw](http://www.via.com.tw). If you need to know more about your motherboard and the components of your computer in general, you can download a utility called Everest Ultimate Edition from [www.lavalys.com](http://www.lavalys.com). This utility will also guide you to the driver updates page of each of the components of your PC.

## Audio Cassette to CD

**Q** Is there any way of getting those old songs on cassettes onto CD? Can Windows XP MCE be used with any TV-Tuner card?

**Akshay**

**A** Songs recorded on audio cassettes can be transferred to CDs. This requires you to connect the line-out of the audio cassette player (or the headphone jack if there is no line-out) to the line-in of your PC's sound card. You can then use software such as Sony Sound Forge to record the songs to your PC in various formats such as MP3, WMA, WAV, OGG, and more.

Windows XP Media Center Edition can only be used with the TV-Tuners that it supports. Such TV-Tuners have certain

features such as hardware MPEG encoders, which are not very common on regular TV-Tuners. You can view a list of supported TV-Tuners from <http://www.windowmarketplace.com/Results.aspx?collID=98>.

## Go Away!

**Q** I have a Pentium 4 system, running Windows XP. I installed Microsoft Visual Studio 6.0, but I now want to uninstall it. It doesn't uninstall successfully: the message which appears is, "Setup is unable to open the data file C:\program files\microsoft visual studio\common\setup\1033\Setup.stf; run setup again from where you originally ran it."

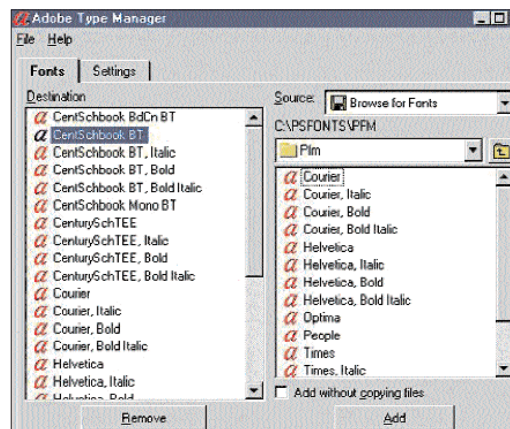
**Jayesh Gawandi**

**A** You will need to insert the original Microsoft Visual Studio 6.0 CD in your CD drive to uninstall the software.

## A Format Fix

**Q** I need to convert .PFB and .PFM files (font files) to the TTF format. How can this be done?

**Ravi Joshi**



The Adobe Type Manager Light interface

**A** You can easily convert .PFB and .PFM files to .TTF using Adobe Type Manager (ATM). You can download the Light version of ATM from <http://www.adobe.com/products/atmlight/download.html>.

## Too Hot To Handle

**Q** I have an AMD Athlon XP 1500+ system with an ASUS motherboard and 512 MB of RAM. I have an NVIDIA GeForce FX 5200 graphics card. When I use my system, it gets very hot, and all processes slow down. Sometimes the monitor gets into standby mode, and after a few seconds a blue screen appears saying "dumping physical memory to disk," and suggests that I upgrade the display driver. Is this a problem with the motherboard or graphics card? When I removed the graphics card, the problem disappeared, but the system hangs for a few seconds while playing audio or video.

**Azhad K**

**A** It is likely that your system is getting overheated, and there are a few things you need to do. Open your cabinet and see if all the cooling fans (processor, cabinet ventilation, power supply, and graphics card—if it has one) are running. It is always a good idea to clean the fans and also the heat sinks of the CPU and the graphics card, which are prone to accumulating heaps of dust. Using a paintbrush to clean them should suffice. Remove the memory modules from the slots and brush the slots and contact areas. If you can, remove the heat sink from the CPU, clean it, and apply a fresh thin coat of heat sink compound to it before fixing it back. Cables in your PC cabinet being cluttered may be a hindrance to proper ventilation. Tie up the cables so that air flows freely. Don't place the cabinet close to a wall, as this could block ventilation.

Defragmenting your hard drive(s) will most likely solve your problem with the audio and video. It is good practice to defragment your drive(s) once a fortnight. Also, just in case, install the latest drivers for your sound as well as video card.

## Media Madness

**Q** In Windows Media Player, I often receive an error that states "Specified module not found." It pops up whenever I try to play any type of media file, be it MP3 or AVI or DAT. I had WMP 9 and I installed WMP 10, but the problem persists. I have DirectX 9.0c installed.

Karthik K T G

**A** You can first try downloading and installing VLC Media Player from [www.videolan.org](http://www.videolan.org), or from the *Digit* CD. This player can play most types of audio and video files without even the need for installing codecs.

To get to the root of your problem with WMP, run the DirectX diagnostic tool by typing in "DXDIAG" at a command prompt. In the dialog that appears, select the Display tab; under the "Notes" header, you should see "No problems found", otherwise do as suggested in the message there. If you see "No problems found", you may need to downgrade WMP to a lower version such as 7. If the problem goes away, you can later update WMP to the latest version from the *Digit* CD/DVD. If this fails as well, you may need to repair your Windows XP installation (assuming you're running XP) from the XP Recovery Console (Refer *Digit* September 2006). You will not lose any file settings and will not need to reinstall any applications.

## You're Locked Out!

**Q** I installed Folder Lock 5.0 to hide certain important files and folders. I've forgotten the password I had set. Is there any way to retrieve the files?

Amlan Mohapatra

**A** Sorry, there is no way to access files protected by Folder Lock 5.0 other than by providing the original password!

## Preview Pane Problems

**Q** I am using Windows XP Professional. When I open the Display Properties to change my desktop wallpaper and click on a JPG, GIF or HTM file in the list, I am not able to view the preview of my Desktop with the image as the wallpaper.

Rahil Ahmad

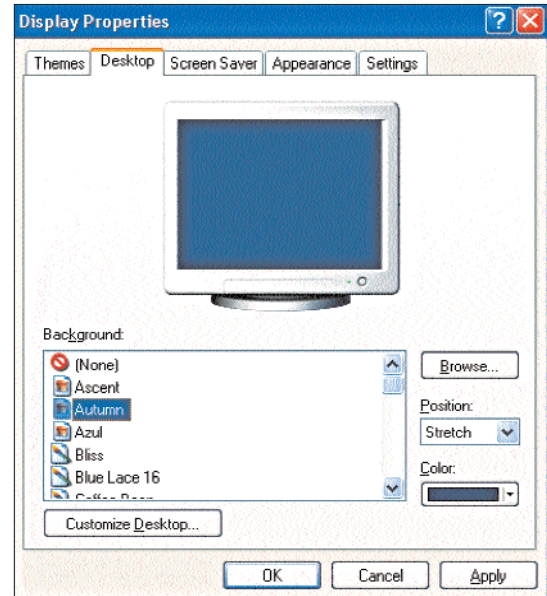


Image preview is not available in the Display Properties

**A** Type in the following commands at a command prompt:

```
REGSVR32 /i SHIMGVW.DLL
REGSVR32 /i MSHTML.DLL
```

Close and reopen the Display Properties dialog. If the problem persists, or if the Preview Pane turns white when you select a wallpaper, then run this command:

```
REGSVR32 /i SHELL32.DLL
```

You should be able to preview the wallpaper.

## Playing Cops And Robbers

**Q** If a GSM mobile phone is stolen, is there any way to block it from being used?

Nilesh Bansal

**A** The first thing you need to do if your phone is lost or has been stolen is to contact your mobile service provider and ask them to block your number. To block your phone from being used from any network at all, you must have its IMEI number. The IMEI number is a 15-digit serial number that is unique to each wireless instrument.

To find out your IMEI number on your GSM phone, key in \* # 0 6 # and the IMEI number will appear on your screen. You can give this number to the service provider and also to the police station you have contacted. This will ensure that your mobile phone cannot be used, and that it can be tracked even if the SIM card has been changed.



# Sing Along With Your PC

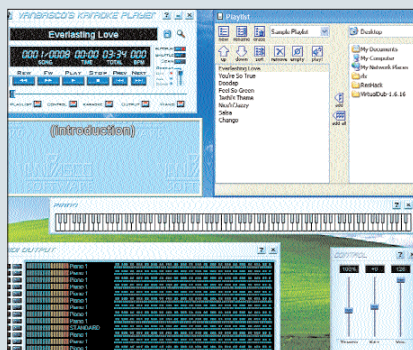
Unleash the singer within—turn your PC into a Karaoke machine!

Jayesh Limaye

There are more closet singers amongst us than you might imagine: some sing out loud when no-one's around, and some, of course, do it in the happy privacy of their bathrooms. Such folks generally like the idea of Karaoke, and would do well to check out the software we're about to talk about—vanBasco's Karaoke Player, a free-ware application. Naturally, you'll also need a microphone and speakers if you want to sing along with your PC.

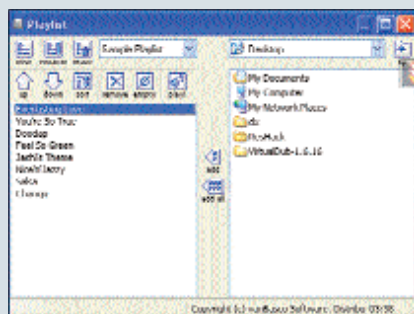
The software can be found at [www.vanbasco.com](http://www.vanbasco.com)—it's a small download, at 864 KB. The program plays MIDI and Karaoke files and also displays the lyrics embedded within the file. Thus, it is possible for this program to not only play the music, but also view the lyrics in synch.

**1 STEP** Go to [www.vanbasco.com/midisearch.html](http://www.vanbasco.com/midisearch.html) and type the title of a song or the name of an artist into the Search box. Check the box labelled "Only results with Karaoke Lyrics", then hit the Search button. Here, you can find hits such as *Nikita* by Elton John, *Yesterday* by The Beatles and even *In The End* by Linkin Park!



vanBasco's Karaoke Player

**2 STEP** Start the Karaoke Player program. In the Playlist window, use the right pane to browse for the file you downloaded. Select it, then click the Add button to add it to the playlist in the left pane.



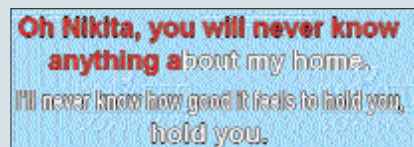
The Playlist window

**3 STEP** Play the song by selecting it in the Playlist window and then clicking the Play button in the Karaoke Player window. As the song plays, the notes will appear on the keyboard in the Piano window.



The Piano window

**4 STEP** The lyrics appear in the Karaoke window (the one with the pale blue background). Click and drag this window to the



The Karaoke window

middle of your screen to make it easier to read. Right-click it and choose Full Screen to make it larger—right-click it again to shrink it.

**5 STEP** You can change the way the lyrics appear by right-clicking the Lyric window and choosing

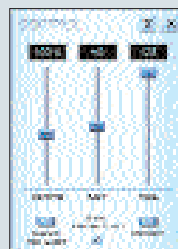
Options. Click the Karaoke tab, then use the drop-down lists to alter the settings. Click

Configure the Karaoke window



OK when you're done.

**6 STEP** To alter the tempo and key of the song to suit your voice, use the sliders in the Control window. Click the Reset button to cancel any changes you make here.



The Control window

**7 STEP** You can silence a particular instrument in the MIDI Output window by clicking the red button by its name. To hear that instrument on its own, click the grey button.

Here are some tips to work better with vanBasco's Karaoke Player. For fullscreen Karaoke, either double-click inside the Karaoke window or choose "Full Screen" from the Karaoke window's context menu (right-click inside the Karaoke window to open the context menu). You can drag and drop files onto vanBasco's Karaoke Player from file managers like Windows Explorer. If your files sound wrong, try setting the SYSEX delay in the setup dialog to a value greater than 30. If you encounter hanging notes during fast-forward or when pressing the Pause button, please enable "Reset On Pause". To do Karaoke while running other apps, check "Always On Top" in the Karaoke window's context menu (click inside Karaoke window with right mouse button). Choosing the Scan mode (click on SCAN in the main window) is handy for trying multiple files. You can specify the scan interval in the setup dialog. You can quickly navigate to a particular song in the current playlist using the quick select window (in the main program window, click the file name or press "Q" on your computer's keyboard).

Now that your personal Karaoke machine is ready, you can tweak and perfect (or try to perfect) your singing in private before you treat your family and friends to a rendition of your all-time-favourites. And please remember—if you've got a song in your heart, you've got to make a start! ■

[jayesh\\_limaye@thinkdigit.com](mailto:jayesh_limaye@thinkdigit.com)

## 98 To The Rescue

**Q** I have Windows XP Pro installed. Recently, I've started getting the error message "NTLDR not found" during bootup, and I'm not able to boot into Windows. I don't want to lose my programs and data. Please help.

**Santosh Rane**

**A** If you have FAT32 on your boot drive, that is, the drive on which Windows resides, just boot with a Windows 98 bootable floppy. Select the "Boot with CDROM support" option. Insert your Windows XP CD into the drive. Copy the NTLDR and NTDETECT.COM files from the i386 folder of the

CD to the root of the boot drive.

If your boot drive has been formatted with NTFS, then first boot with the Windows XP CD. At the first "R=Repair" option, press [R] key. Press the number that corresponds to the correct location of the boot drive. If Windows is installed on the C: drive, then this number is 1. Enter the Administrator password when prompted to do so. Enter the following commands:

`COPY X:\i386\NTLDR C:\`

`COPY X:\i386\NTDETECT.COM C:\`

Replace "X" with your CD-ROM's drive letter. Eject the CD-ROM and type in "exit". You should no longer face the problem you described.

## At Sixes And Sevens

**Q** I have an original Nero Burning ROM 6 CD, which I got free with my writer. My problem is, I cannot update my Nero 6 original with the Nero 7 you gave out on your CD/DVD.

**Dilip Wakil**

**A** You can only upgrade for free when there's a minor version upgrade. To upgrade to a major new version, you need to purchase that version of Nero. You can upgrade to Nero 7 at a discount (you have Nero 6) from [http://www.nero.com/enu/Upgrade\\_InfoPage.php](http://www.nero.com/enu/Upgrade_InfoPage.php).

## Reliance Unreliable?

**Q** I use RConnect (Reliance) for connecting to the Internet. I've started facing a strange problem. Whenever I try to connect, RConnect says "error720:PPP control protocol not configured." What does this mean?

**Akshit Gaur**

**A** The RAS (Remote Access Services) Server to which you are dialling does not have the TCP/IP protocol installed or configured for RAS. (Remote Access Services lets you connect your computer from a remote location). To resolve this issue, edit your phone book entry to use the same protocol the RAS Server is using: in Control Panel, double-click "Network Connections". Right-click on the icon for your ISP's connection and select Properties. Select the Networking tab, and ensure you have the "Type of dial-up server" set to "PPP: Windows 95/98/NT4/2000, Internet". If you do not have this option, select the one starting with "PPP:". Click OK at the bottom of the page and attempt the connection.

## The Ways Of The Worm

**Q** I run Windows XP Pro. My system has become very slow, and I suspect it's infected by a virus. I am not able to open the Registry Editor to disable startup programs. I have found that in my user profile folder under Local Settings\Application Data, a new folder called "Bron.tok-24" has been created. I know this is a virus, but how do I get rid of it?

**Prakash Mallik**

**A** Your system has been infected by W32.Rontokbro@mm, which is a worm. It can be removed by following these steps:



### Get Help Now!

E-mail us your computing problems along with your contact details and complete system configuration to [sos@jasubhai.com](mailto:sos@jasubhai.com), and we might answer them here! Since we get many more mails per day than we can handle, it may take some time for your query to be answered. Rest assured, we are listening!

Disable System Restore.

Update your virus definitions.

Run a full system scan and delete all the files detected as infected.

Download and run Symantec's security response tool from <http://securityresponse.symantec.com/avcenter/venc/data/tool.to.reset.s.helloopencommand.registry.keys.html> to reset the changes made by the worm to the Registry. This will allow you to launch the Registry Editor.

Now, open the Registry Editor and go to HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run, and delete the "Bron-Spizaetus" = "C:\WINDOWS\PIF\CVT.exe" value.

Next, go to Control Panel > Scheduled Tasks. Look for an offensive Task that has been created by the worm. To check, right-click a task icon and select properties. If the contents show something like "%UserProfile%\Templates\A.kotnorB.com", delete it!

## Vista Or MCE?

**Q** Can I view TV channels after installing Windows XP Media Center Edition without a TV-Tuner card? Can Windows Vista also do that? Which of these two OSes is better for 3D games and graphics?

**Rana Deep**

**A** You'll always need a TV-Tuner for watching TV on your PC. Vista will ship with DirectX 10 and will be a better OS than Media Center Edition for 3D games and graphics. Microsoft lists rather modest minimum PC hardware requirements for Vista, which is a "modern processor" running at 800 MHz, 512 MB of RAM, and a DirectX 9 compatible graphics solution.

## Die-X?

**Q** Whenever I view a DivX movie in full screen mode, it skips or hangs. The processor usage is shown as 100% at this time. What could be the problem? I have an AMD Athlon XP 1800+, GeForce FX 5200, and 512 MB of RAM.

**Sabir S R**

**A** Uninstall all the codecs you may have installed (including codec packs). Download and install the latest version of the DivX codec and player from [www.divx.com](http://www.divx.com). You should now have no problems running DivX movies. ■



# The Lean Look

**LCD panels are cheaper than you'd think, is what I found out**

I recently moved a bit closer to good ol' office, and as some of you might know, I'm lazy. Too lazy to carry my chunky CRT over. I'd also upgraded my rig with an (ahem) Asus 7900GTX card, and was looking for a new mate for this baby...

And I was about to go the CRT way, primarily because I game a lot, but I lamented the sheer bulk that comes with the visual quality! A friend who'd taken the flat-panel plunge was all praise about them. I was sceptical—after all, LCDs are plagued with high response times. Higher response times translate to what we call ghosting and/or streaking—typically while gaming, and occasionally while watching movies. A decent response time should be around 4 to 8ms. LCDs also—usually—have poorer contrast ratios.

To placate my friend, however, I promised a cursory look at the very least at some of the LCDs available. Admittedly, I was yearning for something I could carry around with myself for our monthly LAN parties—I'd gotten sick of the crappy 15-inch monitors my friends used to set up.

As I discovered, widescreen LCDs have a good presence in the market now, and offer a 16:10 or 16:9 viewing experience. They are ideal for DVD and HD movie viewing (typically widescreen content), as well as gaming.

The best bang for your buck lies in the 17- and 19-inch segments, and I don't recommend a 15-inch screen any more—simply because the extra that you pay—about Rs 2 or 3K—is worth the larger display area!

Armed with the decision to get myself an LCD, I boarded a train to that hardware den of Mumbai, Lamington Road, or Lammy as we call it. Now I didn't want to show that I knew a bit about LCDs, and I also wasn't sure what screen size I'd settle for, so I played the innocent "*Bhaiya mujhe LCD monitor khareedna hai*" stereotype.

A shop I happened to stop by had a couple of LCDs on display. The good man pointed me towards a BenQ FP71E+, which at Rs 9,950 is the latest from the BenQ 17-inch stables. He was quick to mention its response time—8 ms, "which is the fastest available, and good for gaming," to quote him. This monitor has a contrast ratio of 500:1, which should be good enough for all purposes. I noted that this one had inbuilt speakers, not bad at all if space constraints disallow desktop speakers. But I have an Altec Lansing MX5021, so I decided I wouldn't shell out extra for speakers. I was shown the 17-inch

Samsung 740N, which at Rs 11,500 seemed a decent purchase. What I really liked was the very thin side bezel trim, that is, the front casing of the LCD panel, due to which it's ideal for a dual-monitor setup. The 740N has an 8 ms response time, and I found this model better aesthetics-wise than the slightly bulkier FP71E+.

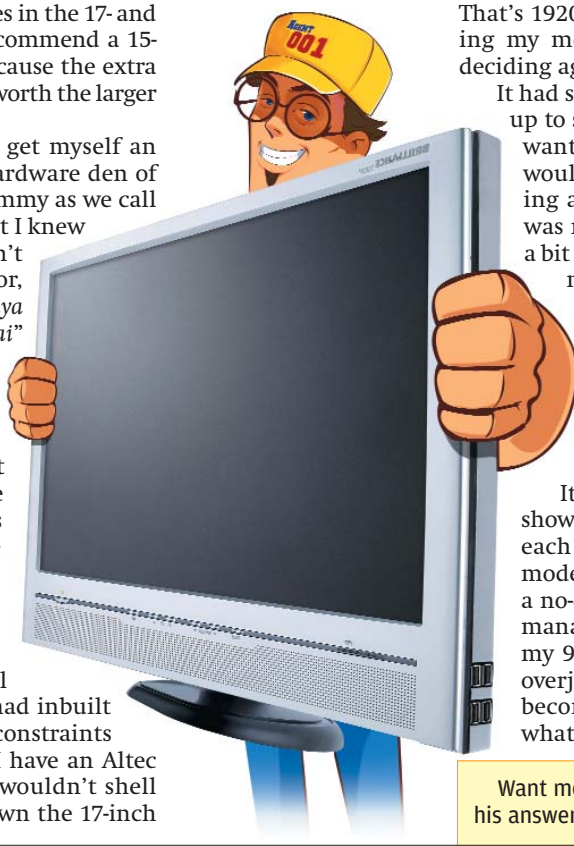
Popping into the shop next door, I asked to be shown 17- and 19-inch models. The shop owner promptly brought up a 17-inch LG 1730S which costs Rs 10,750, and the earlier Samsung 740N. The LG 1730S has a 16 ms response time, which can cause lag as far as games and movies go. He also had a BenQ 19-inch FP91G+, which could be mine for Rs 13,750. BenQ models seem to be cheaper than their Samsung and LG counterparts. I also checked out an LG 1950S—a 19-incher—at Rs 14,750. This monitor has a relatively slow 12 ms response time, but what put me off was the stand, which looked too boxy. I like to flash my hardware around—so I just dropped this one!

Shop #3 was a high-fi dealer who showed me a 19-inch ViewSonic VX924, priced at Rs17,000. The VX924 has a claimed response time of 3 ms. He also told me that he could arrange for a Dell flat panel; I enquired further, and got a whopping quote of Rs 40,000 for a Dell 2407. This is an amazing display, widescreen and 24 inches! That's 1920 x 1200 pixels of pure bliss. Lamenting my meagre resources, I shook my head, deciding against donating a kidney.

It had started to drizzle by the time I walked up to shop #4. Irritating—I certainly didn't want my new monitor to get wet; in fact, I wouldn't even settle for the carton catching a few drops of H2O! The shopkeeper was rather enthusiastic and even chatted a bit with me. He showed me two Samsung models—the 940B and 940BW, both 19-inch models. The "W" model is widescreen, and supports a 16:10 resolution of 1440 x 900. These two are priced at Rs 15,000 and 16,000 respectively.

I really liked the 940BW—the display area of this monitor is huge!

It has a response time of 4 ms. He also showed me a couple of 17-inch models, one each from Samsung and LG—the same models that shop #2 had shown me. It was a no-contest, really. I bargained a bit, and managed to cut 500 bucks off the price. So my 940BW cost me Rs 15,500, and I was overjoyed! But drat—the drizzle had become a downpour. Well, we can't get what we want *all* the time, now, can we? ■




Want more of Agent 001? Turn over to read his answers to your buying questions

Illustration Pradip Ingale

## Under The Hood

**Q** I have a 915GEV motherboard, which supports DDR 2. However, I am not sure whether I have DDR or DDR 2 memory installed. How do I check?


**Aditya Patnaik**

 If your board is an original Intel, then the chances of it having a DDR module are quite slim. Some manufacturers did come up with combo motherboards that had support for both DDR as well as DDR 2 memory. Look on the Net for an application called Everest, using which one can verify what kinds of components are installed on the PC. You can also find it on the Digit CD (January 2006).

## LCD: Low Clarity Display?

**Q** I have an Intel Pentium D 2.8 GHz and an Intel 945 GNT motherboard, hooked up to a 17-inch Samsung LCD monitor. When I play games such as *Unreal Tournament*, it looks bad. Do LCD monitors give bad resolutions in games? Also, what is the safe processor temperature for a Pentium D?

**Pradeep**


 There's nothing wrong with the LCD monitor. Since you haven't mentioned your graphics system, I'm assuming you're using the onboard controller. The Intel 950 GMA is much better than the previous generation onboard graphics controller; however, it still can't be used for gaming. If the games you're playing look washed out, it's not the LCD display's fault.

Pentium D processors can go up to 75 to 80 degrees C at full load, and that's considered normal; however, lowering the temperature will extend its life. You can try some Artic Silver—it will help lower the temperature by about 5 degrees minimum. Contact Prime A.B.G.B. at 022-32950191.

## Upgrading On A Budget

**Q** I plan to upgrade my computer with a new Pentium 4 processor, a new motherboard, 512 MB of RAM and an 80 GB or above SATA hard drive. I have allocated a budget of around Rs 16,000. Please suggest a suitable configuration.

**Nicky Anto**


 Ideally, I'd have recommended a system based on the new Intel Core 2 Duo. However, your budget is quite limited. AMD has recently slashed prices on its processors; you could try cutting a good deal with an AMD dealer. Go with an AMD Athlon X2 3800+ or above, pair it with an NVIDIA 6150 chipset based motherboard—the ASUS A8N-VM CSM. As for memory, opt for 512 MB of Kingston or Transcend RAM. Get a Hitachi or WD 80 GB SATA II drive. These components together shouldn't exceed your budget.

## Of Brands And Burners

**Q** I want a DVD-Writer for my PC. My dealer says

I should go with a Samsung Super WriteMaster SH S18-2D. How good is this writer?


**Abhishek**

 I haven't personally come across the Samsung Super WriteMaster SH S18-2D, so I can't speak for it. But from our experience with DVD drives, we can certainly vouch for Lite-On and Sony. I don't know whether Lite-On drives are available where you live, but Sony drives should be available. Opt for Sony's DRU-820A.

## Revvng It Up

**Q** I have a reasonably fast machine, and I now want to pep up its graphics system in order to play games. My budget is Rs 8,000. However, with the myriad of chipsets available, I am confused as to what graphics card to buy. What would the following cards cost: GeForce 6600GT, GeForce 6800 XT, GT and Ultra, and GeForce 7600 GT?


**Udit Singh**

 I think cards based on the GeForce 6600GT and GeForce 7300 GS will fall within your budget. Cards based on the 6800 chipset are way too expensive; the same goes for the 7600 GT. I suggest you refer to the graphics card shootout we've done in this issue to choose the right card for your purposes.

## Swearing By Nokia

**Q** I want to buy a smartphone with a good-quality MP3 player. I have fiddled with the Nokia 3230, 6630, and 6670; I liked the 3230 most. It has mono sound, and the sound clarity is not up to the mark, according to some forums. According to *Digit*, the SE K750i is a good phone for music; however, I don't like the design, and I want a Nokia.


**Sree Prasad**

 If you want a cell phone for music, Sony Ericsson is what you're looking for. I haven't come across a Nokia phone that can match SE's capability as far as music quality goes—partly due to the earphones bundled with Nokias. You can try out the new Nokia 6233—we haven't tested it yet, but it should be good. Also check out the SE W810i if you feel the K750i's design is too pallid.

## Simply Digital

**Q** I am planning to buy a digicam in the range of Rs 15 to 20 K. I want at least a 5-megapixel CCD, 4x optical zoom, and good battery life.

**Sanjay Kote**

 The point-and-shoot Canon A700 is a good camera to start with. Your second option is the Canon S3 IS: it has a massive 12x zoom, a 6-megapixel sensor, an image stabiliser, and lots of manual options. The Kodak P880, reviewed this month, is an 8-megapixel camera with 5x zoom and lots of features. For the latter two, you might have to shell out a little extra; they typically sell for around Rs 22 to 23K. ■



### Ask Away!

Want a tech product, but don't know how to go about buying it? E-mail [agent001@thinkdigit.com](mailto:agent001@thinkdigit.com) with your complete contact details, and he might answer them here! Please note that Agent001 only answers purchase-related questions in this space.



# Reading The Newspapers Vs. Getting RSS Feeds

Someone in office began a debate about what was better—reading the newspapers or getting one's daily dose from RSS feeds. News is very important to me, so I use both. But just for the heck of it, I decided to find out which kept me better informed, given the condition that I could only use one. A week each. So how did it go?

**Samir Makwana** ([samir\\_makwana@thinkdigit.com](mailto:samir_makwana@thinkdigit.com))



**Leisurely in the library...**



**...and looking seriously at the screen**

**Day  
1**

I needed to resist using RSS feeds, so I ordered two extra dailies. What can I say—I need my fix!  
Three newspapers really made my mornings a lot more cheerful, and I just had to carry them to work with me. After all, that's where my RSS addiction is at its peak. The papers got me through the first day with ease.

The first thing I had to do was to go to my newspaper vendor and tell him I didn't want papers for a week. He seemed surprised, and gave me the "First it's give me three, now it's none at all—make up your mind, will you" look. I sheepishly lied and said I was out of town for the week—much easier than explaining this article to him!

**Day  
3**

All this reading is good, but I realised that a lot of the content is the same—just different viewpoints. Plus, when my bosses walk by, it always seems like I'm goofing off, reading the papers! In some select cases, mostly political news, getting various viewpoints was a boon—especially for the "friendly" debates I have with my colleagues at lunch.

It's really hard. For someone who's made it a morning ritual of reading the newspaper in the loo for 20-odd years, just stopping suddenly set my bio-rhythm haywire! I know there are a lot of people out there who will understand what I'm saying... Once at office, I was OK though. I just signed up for even more feeds using Google Reader.

**Day  
5**

There's nothing worse than forming an addiction for the comic strips of three different newspapers! I just realised that there was no way I could afford to continue buying all three publications for the rest of my life! The crosswords and leisure sections were no help either. And let's not even start about the temptations of having three Page Three sections to ogle at...

Thus far, I had mainly subscribed to specialised RSS content that suited my interests, and found that I also needed my fix of "other" news! I signed up for more general news feeds. The constant updates, and fresh news about once every five minutes, meant much more news in smaller doses. Plus, I had the advantage of seeming that I was hard at work!

**Day  
7**

After spending a week like a government employee (doing everything in triplicate), I realised that there really is such a thing as information overload. This is especially true for newspapers, where I'm not really choosing the content. Funnily, I didn't seem to miss the RSS feeds the first day, but by Day 7, I was happily looking forward to going without the papers!

RSS feeds sure bring me a lot more news, in a more reader-friendly way, and just seem to be more interesting—because I choose what I subscribe to, obviously. However, what do I do when I'm at home, on a bus, taking a break, or basically anywhere away from my computer? There's always the thumbs to twiddle, of course...

Time taken: **1 Week**  
Fun: **5/5**



Time taken: **1 Week**  
Fun: **5/5**



**AND  
THE  
WINNER  
IS...**

**T**o be honest, I just cannot choose one over the other. RSS feeds give me the news I like, and a lot faster than a newspaper, but limit me to sitting in front of my computer. Newspapers, on the other hand, provide me with a broad spectrum of news, even news

I didn't think I needed, and which is more localised and relevant to my city. Plus, I can read them just about anywhere. I have no choice but to admit that, today, a news junkie like me just can't live without either. Joint winners!



# Notable Portables

Take a look at the best laptops available in the market, across the most popular segments

Vishal Kansagra

**T**he affordability of laptops today is clear from the number of notebooks used by students. And thanks to faster and less power-hungry processors, notebooks can well compete with desktops in terms of performance.

We felt the need for this shootout for the same simple reason—they're very affordable, and there are many of us in the market for laptops right now. We divided the notebooks into four categories, listed below.

## Entry-level

All notebooks below Rs 50,000 were marked as entry-level. This category is the fastest moving in India. Students, especially those in B-schools, find notebooks very useful, and many colleges have made notebooks mandatory.

## Thin-and-light

Mostly used by professionals and mid-level executives, this category comprises laptops that give you a lot of power, look sleek, and weigh less than 3 kg. With increasing power and decreasing weight, this category poses a serious challenge to low to mid-range desktops.

## Ultra-portable

Targeted at the upwardly mobile, this category is characterised by a small form factor and very low weight. All notebooks with screen sizes smaller than 12.1 inches qualified in this category.

## Powerhouses

Comprising desktop replacements and multimedia performers, this category is the elite among notebooks. All the notebooks that have big screens, big performance and great multimedia features figured here.

Photograph Jiten Gandhi  
Imaging Pradip Ingale



## JUST YOUR REGULAR LAPTOP

Here, we take a look at what's available in the sub-50,000 price band, which can also be used as PC replacements.

As expected, the category was choc-a-block with laptops from ACi, Zenith, Acer, Gigabyte, and Compaq. In all, 12 models made it to this category, offering affordable mobility.

## Look And Feel

Laptops still exude a feeling of luxury, so look and feel matter. The Compaq V6102AU is undoubtedly the best-looking laptop of the bunch. Its black body with its lustrous finish is outstanding, and the design refreshingly new. Acer notebooks come second-best in terms of finish and build quality. The design is typical Acer—subtle silver-grey on the lid and matte black on the inside—nothing's wrong with this, but we'd appreciate a cosmetic makeover. None of the ACi models could match the Compaq or Acer's. Gigabyte and Zenith seem to have a monolithic approach as far as designing laptops goes. The silver-black combination is just too drab and dated. Build quality, however, wasn't an issue here; they felt sturdy.

## Ergonomics

Cutting corners to lower prices is the most preferred way of going about releasing any entry-level product. With laptops, the keyboard, touchpad and hinges are where such compromises often happen. When buying a laptop, get a good feel of the keyboard and the touchpad—they speak volumes for the overall quality.

The Compaq Presario V6102AU again comes out tops on ergonomics—the keyboard offers good resistance and feel, and the touchpad is equally good. However, the buttons are a bit mushy. The Acer twins come close to perfection—the keyboards are really good, but the touchpads are a tad glossy. Strangely enough, the lower-specification TravelMate 2428 comes with a nice curved keyboard, while the higher-priced Aspire 5551 comes with a regular keyboard.

The Zenith, Gigabyte, and ACi laptops have fair ergonomics, but there's nothing special. The keyboard on the ACi Emerald C2 is a tad better than those on the rest, though.

## Specifications

As one would expect, the models in this category are fitted with low-end processors such as the Celeron M, but the Pentium M, Core Duo, and AMD Turion are also found happily crunching numbers in these entry-level laptops. Both the Intel 915GM and 945GM were used extensively, while Compaq's stunning V6102AU was based on NVIDIA's GeForce 6150 platform, with Zenith's Executive model being based on VIA's P4M800 Pro.

The i915GM is slightly older than the i945GM, and that's evident from the memory scores. What's interesting is that the NVIDIA platform delivers performance equivalent to that of the Intel platform in most tests.

The Compaq V6102AU was the only laptop in the entry-level category to come with a full gigabyte of memory—which was, no doubt reflected in the scores. The Gigabyte W431UD, ACi Icon S, and ACi Ethos Duo sported 512 MB of memory, and the rest dragged along with a paltry 256 MB, and sharing it with the graphics controller to boot! We suggest you bump up the memory to at least 512 MB when using Windows XP.

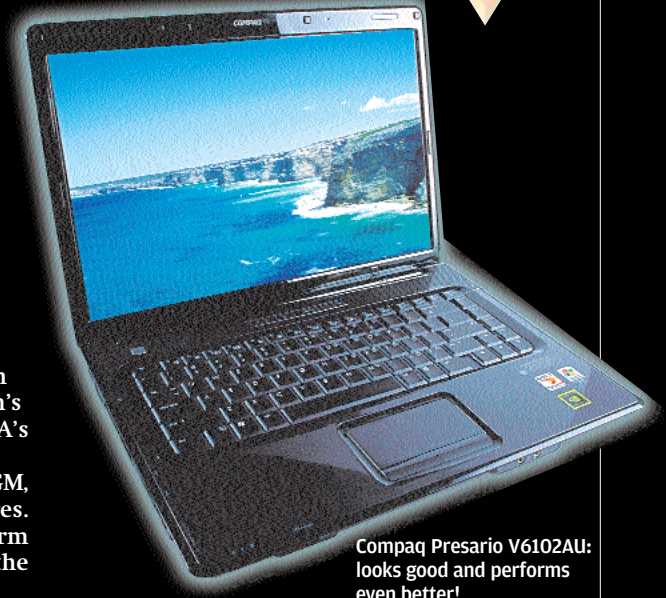
Coming to storage, Compaq's V6102AU had a 100 GB hard drive crammed in, followed by ACi (80 GB). Gigabyte and Zenith gave out 40 and 60 GB drives respectively. On the storage front, the more the merrier, but you should choose according to your usage.

14-inch widescreens were the norm, except the Compaq V6102AU and Zenith Strategist, which provided 15.4-inch screens. If you want real estate, opt for the 15.4 inch widescreen models—the extra screen area helps when working with applications such as Excel and Photoshop.

Frills at best included memory card readers, Gigabit LAN on certain models such as the Zenith Strategist and the ACi Ethos Duo 1530, and switches for Wi-Fi. Compaq has included a little button on the top of the touchpad to deactivate—comes in real handy during lots of keyboard usage. Finally, the Zenith Strategist and Presario V6102AU were the only laptops in this category that allow watching movies without starting the OS.

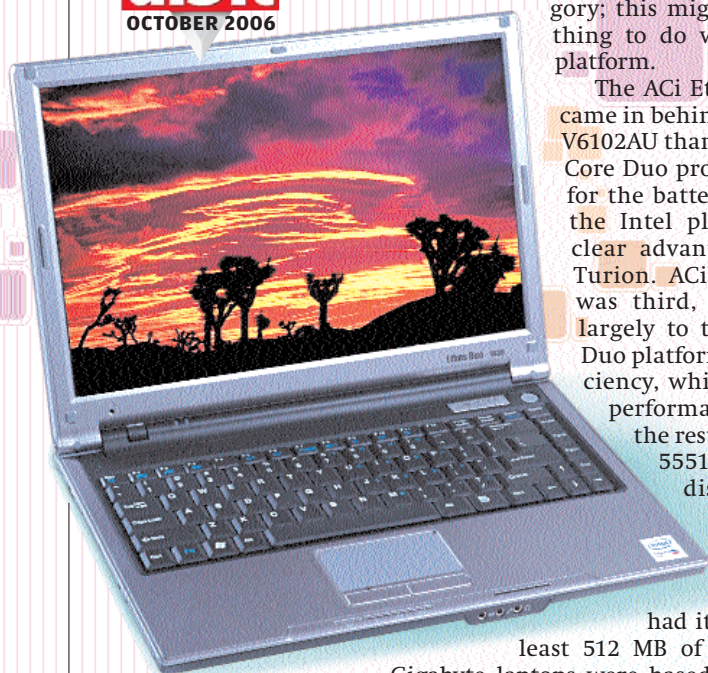
## Performance

With AMD's Turion at 1.6 GHz, 1 GB of memory and NVIDIA's 6150 chipset at its disposal, the Compaq V6102AU was undoubtedly the best performer. It scored equally well across the barrage of tests we threw at it. Whether it was pure processing power or a memory-intensive test, the Compaq was up there with the best Intel-based notebooks. However, it seems battery life isn't the platform's best strength—this



Compaq Presario V6102AU: looks good and performs even better!

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ACi finally redeems itself with the Ethos Duo 1430

was the only benchmark where Intel is way ahead of the AMD platform. The Compaq V6102AU also tends to get a little hotter than the rest of the laptops in the category; this might have something to do with the AMD platform.

The ACi Ethos Duo 1430 came in behind the Compaq V6102AU thanks to the Intel Core Duo processor, except for the battery test, where the Intel platform has a clear advantage over the Turion. ACi's Ethos 1530 was third, again thanks largely to the Intel Core Duo platform's power efficiency, which propels its performance score over the rest. Acer's Aspire

5551 came close to dislodging both the ACi laptops from the podium, had it come with at least 512 MB of memory. The

Gigabyte laptops were based on the older Pentium M and Celeron M processors, and consequently, the scores were proportionally lower. However, we do expect them to introduce

laptops with newer processors—for now, they are overshadowed by better products. The Zenith Strategist pulled a stunner by displaying some great battery life, but the performance in other tests was average at best.

Coming to battery life, the Compaq V6102AU posted the lowest—but two hours is not too shabby, considering the performance on offer. The Zenith Strategist was able to run our test for a full four hours, and with regular applications, it should go even further. Generally speaking, laptops based on the Pentium M and Core Duo processors were able to provide more battery life per charge.

## Our Conclusion

There are many options to consider in the Entry-level category. First, if you are on an absolute shoestring budget, the cheapest you get is the ACi Emerald C2. From our past experience with ACi laptops, they weren't up to the mark—they generated too much heat. However, this time round, the Intel Centrino platform in the Emerald C2 is a tried-and-tested solution, and it's very hard to go wrong with it. Furthermore we didn't encounter any heating issues during the tests.

In the bracket nearing Rs 35,000, the Acer TravelMate 2428 is the best performer. There's nothing really wrong with the Gigabyte and Zenith laptops, but the Acer laptop's fit and finish, complemented by its superior performance, outclass Gigabyte and Zenith.

## How We Tested

Here's a description of the tests and benchmarks we used to compare the laptops.

### Features

Features such as the size of the display, the number of I/O ports, hard disk size, type of optical drive, etc. were noted and rated. Extra features, if present, were also noted. Weightages were assigned to the noted features according to their importance.

### Usability

Usability is evaluated on the basis of how easy it is to handle the laptop in day-to-day life. Importance was given to weight and dimensions, as well as the ergonomics of the keypad, touchpad, etc. Music files were played to rate the speakers on a scale of 5.

### Package Contents

We took into account the OS, recovery, and driver CDs provided by the vendor. Extra accessories or bundled software got extra points.

### Performance

To gauge the performance, we ran a series of tests to evaluate each sub-system. We used the following benchmark suites:

#### PC Mark 2004 v1.3.0

This system-wide benchmark tests the entire system as well all the individual components—the CPU, memory, graphics sub-system, and hard drive. It returns the combined score as well as individual scores by running day-to-day apps such as file encryption, virus-scanning, and graphics applications.

#### SiSoft Sandra Engineer 2007

Another system-wide benchmark suite. We used it to evaluate the

performance of the CPU, memory and hard disk.

#### Ziff-Davis Business Winstone 2004

This tests the system by performing a scripted run of applications used on a daily basis—MS Office, as well as applications such as Norton Anti-virus and WinZip. The overall system performance is evaluated, and a composite score is returned at the end of the run. The higher the score, the better is the system's performance.

Apart from these, we also did a few real-world tests:

#### Video encoding

This involved converting a 100 MB VOB file to AVI using DivX Creator 6.2, and the encoding time was noted.

#### Gaming benchmark

We tested the OpenGL capabilities with *Call of Duty*. The game was run at 800 x 600 and 1024 x 768 with all the details turned on. The average scores were noted.

#### LCD screen display tests

DisplayMate Video Edition was used to gauge the sharpness and level shift of the LCD screens.

#### Digit Battery Meter

We charged the battery to full capacity and then ran a VOB file until the battery ran out. During the test, the screensaver and power management features were disabled. The volume level was set to the maximum, brightness to 50 per cent, and Wi-Fi was turned off. This tells us whether the notebook will last a long enough to watch a full movie.



Jump onto the next bracket nearing the Rs 44,500 to 50,000 mark and we have no doubt: it has to be the Compaq Presario V6102AU—believe us, its refreshing design is irresistible, and the superb performance just adds another feather to its cap. It's clearly above the competition, but do keep in mind its low battery life and slight heating issues. Our Silver award goes to the ACi Ethos Duo 1430, because of its overall performance and features.

## THE USUAL SUSPECTS

The largest category, with 13 laptops, is designed to brave the daily grind. Endurance apart, these laptops sported some of the best lookers, and the most well-configured of the lot. Heavyweights such as Dell, Toshiba, LG, and HP had one model each competing for the award, as did ASUS, MSI, Gigabyte, and TCL. The contenders are the Asus Z35H, ASUS V6000J, MSI Megabook S425, Gigabyte W551N, Gigabyte W511U, Toshiba Tecra A8, Toshiba Satellite L100, LG XNote T1, LG XNote P1, Dell Inspiron 6400, Dell Inspiron 640m, TCL K41, and the HP Pavilion dv2025TU.

## Features

### Look and Feel

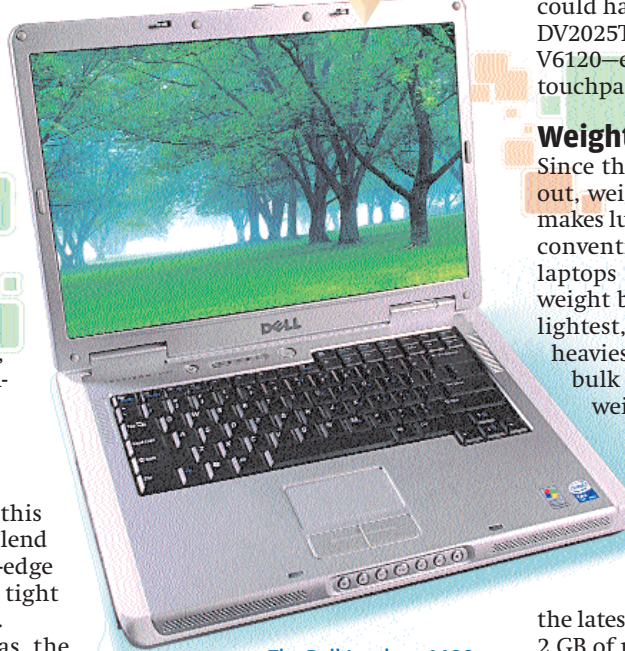
The laptops that fall in this segment are designed to blend aesthetics with cutting-edge performance, keeping a tight check on weight and size.

The ASUS V6000J was the best looking of them all. Sporting a metallic body with a brushed aluminium finish, the design is sumptuous. Intelligent use of blue for backlighting certain buttons, switches, and the touchpad gives the V6000 its distinctive character. The ASUS Z35H, on the other hand, is the opposite: it sports a completely silver body—uninspiring. The duo from Dell—the Inspiron 6400 and Inspiron 640m—came in the familiar all-silver package.

The Toshiba L100 comes up next on the list. The well-contoured body, good use of colour, and cheeky-looking speakers make the Toshiba L100 stand out of the crowd. The Toshiba Tecra A8, on the other hand, relies on conservative styling, and it should be at ease in any corporate environment. The LG laptops sported the most exciting design—white keyboards set in silver bodies. With their tapering design, they are in a league of their own. No wonder they've won the International Forum Design awards!

The HP Pavilion DV2025TU is part of the new breed of laptops that HP is promoting aggressively on TV. Smugness apart, the glossy, high-lustre finish with smart patterns give these new laptops a strong corporate identity. All MSI Megabooks had the same look and feel—elegant, but nothing to rave about.

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The Dell Inspiron 6400—a fully-loaded Mercedes at the price of a Maruti!

## Ergonomics

The ASUS V6000J features a big and well laid-out keyboard, and the largish touchpad fits flush with the body without any undulation. We liked the ample palm-rest this notebook provides. LG's T1, with its sleek body, good tactile keyboard and super-sensitive touchpad, offers the best possible comfort. The Toshiba L100 offers a good keyboard, but the touchpad doesn't live up to expectations. Despite its bulk, the drooping edges provide good positional support for one's palms. The Toshiba Tecra A8 sports a run-of-the-mill keyboard layout. The touchpad is large, but the buttons are soft and mushy. The Dell duo comes with the same impressive touch and feel as other Dell products, though the touchpad could have been better. As far as the HP Pavilion DV2025TU goes, it is quite similar to the Presario V6120—ergonomically near-perfect, but the touchpad buttons are too mushy.

## Weight

Since these laptops will be used day in and day out, weight plays an important role—too much makes lugging it around a pain. Going by general convention, the “thin and light” category laptops should fall within the 2 and 2.7 kg weight bracket. LG's XNote T1 at 1.9 kg was the lightest, whereas Dell Inspiron 6400 was the heaviest at 3.1 kg. The ASUS V6000J, despite its bulk and metallic body, managed to keep the weight down to an acceptable 2.5 kg.

## Specifications

One brand stood out from the crowd by offering mind-bending configurations—ASUS manages to bundle in the best available hardware in both its laptops. The V6000J sported the latest 2 GHz Core duo processor, a mammoth 2 GB of memory, and NVIDIA's GeForce Go 7400 with 256 MB dedicated memory—what more could one ask for? The ASUS Z35H sported a 1.8 GHz Core Duo processor with 1.5 GB of memory and Intel's onboard graphics adapter.

The laptops from Dell were next with some spell-binding hardware. While the Inspiron 6400 was decked with the 2.16 GHz Core Duo processor, the Inspiron 640m ran a 1.8 GHz processor. Both notebooks were well-supplemented with 1 GB of memory. The Inspiron 6400 had the latest ATI X1400 display adapter with 256 MB of dedicated memory, which should help when playing today's games. The rest of the crowd sported either a Pentium M or Core Duo processor, and 512 MB of memory was common across the board.

With the production cost of 15.4-inch widescreens proving to be more economical than that of regular 15-inch screens, most laptops in the thin and light segment now sport a wide aspect ratio screen. There was a heady mix of 14.1-inch as well as 15.4-inch screens. The Dell Inspiron 6400 comes with a 15.4-inch widescreen that supports a high resolution of 1680 x 1050, meaning lots of desktop space.

Coming to storage, both ASUS and HP generously offered 100 GB hard drives in their laptops. 60 GB was quite common in this category, with

## Cover Story | Laptop Test



### Scoreboard

### Just Your Regular Laptop

BRAND	Acer	Acer	ACi	ACi	ACi
MODEL	Aspire 5551	TravelMate 2428	Emerald C2	Icon S	Ethos Duo 1530
<b>Features</b>					
Processor Type / GHz	Core Duo T2250/1.73	Pentium M 745/1.8	Celeron M 360J/1.4	Pentium M 725/1.6	Core Duo T2300/1.66
Chipset	Intel 945GM	Intel 915GM	Intel 910GML	Intel 915GM	Intel 945GM
Memory Type / Speed / Amount	DDR2/533MHz/256MB	DDR2/533MHz/256MB	DDR2/533MHz/256MB	DDR2/533MHz/512MB	DDR2/533MHz/512MB
<b>Graphics</b>					
Integrated / Dedicated	Integrated	Integrated	Integrated	Integrated	Integrated
Graphics system / Max. memory allocated	Intel 82915GM/128MB	Intel 82915GM/128MB	Intel 82910GML/128MB	Intel 82915GM/128MB	Intel 82945GM/128MB
<b>TFT Display</b>					
Screen Size / Native resolution	14.1 Wide/1280x800	14.1 Wide/1280x800	14.1 / 1024x768	14.1/1024x768	15.4 Wide/1280x800
<b>Storage</b>					
Hard disk (capacity, speed)	60 GB, 5400 rpm	60 GB, 5400 rpm	40 GB, 5400 rpm	80 GB, 5400 rpm	80 GB, 5400 rpm
Optical drive type	DVD-Writer	Combo drive	Combo drive	Combo drive	Combo drive
<b>Ports</b>					
USB (nos.) / FireWire (nos.)	2/0	3/0	3/0	3/1	4/1
Expansion slot type PCMCIA (Type I/II)	Type II	Type II	Type II	Type II	Type II
<b>Connectivity</b>					
IrDA/Wi-Fi/Bluetooth/Ethernet	✗/a,b,g/✓/10/100	✗/b,g/✗/10/100	✗/b/✗/10/100	✓/b,g/✗/10/100	✓/a,b,g/✓/Gigabit
<b>Audio-Video OUT options</b>					
S-video out / Monitor D-sub	✗/✓	✗/✓	✗/✗	✗/✓	✓/✓
<b>Memory Card Reader</b>					
Type of cards that can be read	SD, XD, MS Pro, MMC	✗	✗	SD, MMC	SD, MMC, MS/Pro, XD
Miscellaneous Features	Wi-Fi and Bluetooth switch	Browser / e-mail buttons	Browser / e-mail buttons and media player button	✗	Volume control buttons
<b>Usability</b>					
Dimensions (L x B x H) (cm)	33 x 25.5 x 3.5	33.3 x 24.3 x 3.8	31 x 25.5 x 3.5	31.5 x 26 x 3	36 x 27 x 4.25
Weight (kg)	2.38	2.3	2.2	2.4	2.8
Overall ergonomics (So5)	3.50	3.50	3.75	3.17	3.50
Built-in speaker quality test (So5)	3	3	3	2.5	3
<b>Package Contents</b>					
Preloaded OS	Linux	Windows XP Pro SP2	Linux	Linux	Linux
Driver/Recovery CDs	✓	✓	✓	✓	✓
Miscellaneous	✗	✗	Nero Burning ROM	Nero Burning ROM	NTI CD DVD maker
Carry case	✓	✓	✓	✓	✓
<b>Performance</b>					
<b>Overall system benchmarks</b>					
ZD-Bench Business Winstone 2004	18	18.7	16.4	Failed	22.3
Video encoding test	155	158	198	Failed	147
<b>SiSoft Sandra 2007 Engineer's edition</b>					
CPU - Dhrystone / Whetstone	11786/8724	5529/4365	4576/3415	5002/3738	11337/8354
Multimedia - CPU Integer / FPU SSE	26996/36798	16028/18830	13018/14715	14295/16146	25954/35256
Int bandwidth / Float bandwidth (MB/s)	2950/2957	1828/1821	2303/2307	1896/1902	3118/3119
Drive Index MB/s / Random access (ms)	31/10	32/10	29/9	30/9	27/12
Call of Duty (800 x 600 / 1024 x 768) fps	33.8/33.4	35.4/29.8	31/27	43/35.5	48.8/43
<b>PCMark 2004 (Build 1.3.0)</b>					
CPU / Memory	4619/2993	3489/2727	2681/2268	Failed/Failed	4901/3312
Graphics / HDD	936/3189	770/3257	634/2588	Failed/Failed	930/2949
Overall	4250	3078	2382	Failed	4367
<b>DisplayMate</b>					
Viewing angle	155	155	155	155	150
Average DisplayMate score	3.8	4	3.6	3.7	3.9
Battery life (Hours:Minutes)	2:16	2:19	2:33	2:59	2
<b>Final Score</b>					
Features (Out of 30)	19.26	17.59	16.32	18.09	21.52
Performance (Out of 50)	32.34	30.06	27.70	27.76	33.62
Price Index (Out of 20)	9.55	12.31	17.00	12.14	8.85
Grand Total	61.15	59.96	61.02	57.99	64.00
Price (Rs)	44,499	34,499	24,990	34,990	47,990

\* Same result even after repeated attempts



+ Good finish  
- Low on RAM



+ Value for money  
- Low on RAM



+ Value for money  
- Looks drab



+ Value for money  
- Poor build quality



+ Good bundle  
- Mushy keyboard



## Just Your Regular Laptop

ACi Ethos Duo 1430	Compaq Presario V6102AUAI	Gigabyte N521UC	Gigabyte W431UCC	Gigabyte W431UD	Zenith Executive	Zenith Strategist
Core Duo T2300/1.66	Turion X2 TL-50/1.6	Celeron M 360/1.4	Celeron M 360J/1.4	Pentium M 740/1.73	Celeron M 360J/1.4	Pentium M 725/1.68
Intel 945GM	NVIDIA GeForce 6150	Intel 915GM	Intel 915GM	Intel 915GM	VIA P4M800 Pro	Intel i945GM
DDR2/533MHz/512MB	DDR2/667MHz/1GB	DDR/333MHz/256MB	DDR2/533MHz/256MB	DDR2/533MHz/512MB	DDR2/533MHz/256MB	DDR2/533MHz/256MB
Integrated	Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
Intel 82945GM/128MB	GeForce Go 6150/256MB	Intel 82915GM/128MB	Intel 82915GM/128MB	Intel 82915GM/128MB	VIA S3G Unichrome/16MB	Intel 82945GM/128MB
14.1 Wide/1280x800	15.4 Wide/1280x800	15 / 1024x768	14 Wide/1280x768	14 Wide/1280x768	15.4 / 1024x768	15.4 Wide/1280x800
80 GB, 5400 rpm	100 GB, 5400 rpm	40 GB, 5400 rpm	40 GB, 5400 rpm	60 GB, 5400 rpm	40 GB, 5400 rpm	40 GB, 5400 rpm
Combo drive	DVD-Writer	Combo drive	Combo drive	DVD-Writer	Combo drive	Combo drive
3/1	3/1	4/1	4/1	4/1	4/1	3/1
Type II	Type II	Type II	Type II	Type II	Type II	Type II
✗/a,b,g/✗/10/100	✓/a,b,g /✗/10/100	✓/b,g/✗/10/100	✗/b,g/✗/10/100	✗/b,g/✗/10/100	✗/✗/✗/10/100	✗/a, b, g/✗/Gigabit
✓/✓	✓/✓	✓/✓	✗/✓	✗/✓	✗/✓	✓/✓
SD, MMC, XD, MS/Pro	SD,MMC,SM,MS/Pro,XD	MMC, SD, MS/Pro	MMC, SD, MS/Pro	SD, MMC, MS/Pro	✗	✗
Volume control buttons	Media control buttons and Wi-Fi switch	Browser / e-mail launch button and Wi-Fi switch	✗	Browser / e-mail and media launch button	Browser / e-mail launch button and Wi-Fi button	Wi-Fi switch, InstantON feature, and vertical scroll
33.5 x 24 x 4	35.6 x 25.6 x 3.8	33.3 x 27.6 x 3.2	32.8 x 24.4 x 2.45	32 x 24 x 3.5	33 x 27.5 x 4	35 x 29 x 5
2.4	2.7	2.81	2.2	2.2	2.7	3.28
3.50	3.38	3.63	3.63	3.50	3.63	3.38
3	3	3	3	3	3	3
Linux	Windows XP Home SP2	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Pro SP1	Windows XP Pro SP2	Windows XP Pro SP2
✓	✗	✓	✓	✓	✓	✓
NTI CD DVD maker	Sonic and (trial) NIS 06	CyberLink PowerDVD	✗	✗	Roxio Easy Media Creator	Nero Burning ROM
✓	✗	✓	✓	✓	✗	✗
21.9	20.1	12.2	12.4	8.4	16.3	14.8
149	160	238	183	154	160	593
11344/8365	11660/9874	4552/3396	4548/3395	5613/4201	4546/3393	5235/4094
25984/35368	30229/32914	13008/14669	12997/14696	15661/18184	12991/14688	15129/17722
3486/3482	4371/4419	2120/2118	2226/2221	2329/2362	1610/1614	1903/1932
26/13	32/9	24/12	25/12	26/13	30/9	29/9
50.5/46.8	88.9/85.6	26.3/25.6	30.5/25.2	44/36.6	Failed/Failed	25.6/28.2
4921/3510	4438/3872	2705/2316	2703/2332	3343/3056	2677/1893	3254/2543
1029/2761	1373/1*	623/2152	699/2124	776/2702	516/3103	778/2695
4470	4185	2426	2425	2998	2309	2595
150	160	155	150	155	155	3.8
3.9	3.8	3.7	3.5	3.6	3.8	155
2:38	1:41	2:20	1:47	2:21	2:22	4:18
20.25	22.52	20.09	19.60	20.16	15.52	18.16
35.28	34.48	24.74	24.41	29.46	27.18	30.97
9.44	8.50	12.68	12.31	8.17	13.70	11.48
64.97	65.49	57.51	56.33	57.78	56.41	60.61
44,990	49,990	33,499	34,499	51,999	31,000	37,000



+ Good bundle  
- Mushy keyboard



+ Good performance  
- Heats up quickly



+ Value for money  
- Mediocre looks



+ Value for money  
- Small click buttons



+ Good build quality  
- Small click buttons



+ Professional looks  
- Underpowered



+ Good looks  
- Low on RAM



## Scoreboard

## The Usual Suspects

BRAND	ASUS	ASUS	Dell	Dell	Gigabyte	Gigabyte
MODEL	Z35H	V6000J	Inspiron 6400	Inspiron 640m	W511U	W551N
<b>Features</b>						
Processor Type / GHz	Core Duo T2400/1.83	Core Duo T2500/2	Core Duo T2600/2.16	Core Duo T2400/1.83	Pentium M 740/1.73	Core Duo T2300/1.66
Chipset	Intel 945GM	Intel 945PM	Intel 945GM	Intel 945PM	Intel 915GM	Intel 945PM
Memory Type / Speed / Amount	DDR2 /667MHz/1.5GB	DDR2/667MHz/2GB	DDR2/533MHz/1GB	DDR2/533MHz/1GB	DDR/333MHz/512MB	DDR2/667MHz/512MB
<b>Graphics</b>						
Integrated / Dedicated	Integrated	Dedicated	Dedicated	Integrated	Integrated	Dedicated
Graphics system/max. memory allocated	Intel 82945GM/128MB	GeForce Go 7400/256MB	ATI X1400/256MB	Intel 82945GM/128MB	Intel 82915GM/128MB	GeForce Go7400/128MB
<b>TFT Display</b>						
Screen Size / Native resolution	14.1 Wide/1280x800	15 / 1400x1050	15.4 Wide/1680x1050	14.1 Wide/1280x800	15.4 Wide/1280x800	15.4 Wide/1280x800
<b>Storage</b>						
Hard disk (capacity, speed)	100 GB, 5400 rpm	100 GB, 5400 rpm	80GB, 5400rpm	60 GB, 5400 rpm	40 GB, 5400 rpm	80 GB, 5400 rpm
Optical drive type	Combo drive	DVD-Writer	DVD-Writer	Combo drive	Combo drive	DVD-Writer
<b>Ports</b>						
USB (nos.) / FireWire (nos.)	3/1	4/1	4/1	4/1	3/1	4/1
Expansion slot type PCMCIA (Type I/II)	Type II	Type II	Type II	Type II	Type II	Type II
<b>Connectivity</b>						
IrDA/Wi-Fi/Bluetooth/Ethernet	X/a, b, g/X/10/100	✓/a, b, g /✓/Gigabit	X/a, b, g/✓/10/100	X/a, b, g /✓/10/100	✓/b, g /✓/10/100	X/a, b, g/X/Gigabit
<b>Audio-Video Out options</b>						
S-video out / Monitor D-sub	✓/✓	X/✓	✓/✓	✓/✓	✓/✓	✓/✓
<b>Memory Card Reader</b>						
Type of cards that can be read	MMC, SD, MS/Pro	SD, MMC, MS/Pro	SD, MMC, MS/Pro, XD	SD, MMC, MS/Pro, XD	MMC, SD, MS/Pro	X
Miscellaneous Features	Volume jog dial and Wi-Fi switch	X	Media direct buttons	Media direct buttons	Browser / e-mail buttons and docking port	X
<b>Usability</b>						
Dimensions (L x B x H) (cm)	31.5 x 25 x 3.5	32.5 x 27.5 x 2.8	35.5 x 26.5 x 3.6	33 x 24 x 4.2	36.5 x 27.4 x 3	35.5 x 25.4 2.55
Weight (kg)	2.2	2.5	3.1	2.4	2.95	2.76
Overall ergonomics (So5)	3.67	3.75	3.75	3.75	3.50	3.63
Built-in speaker quality test (So5)	3	3	3.5	3	3	3
<b>Package Contents</b>						
Preloaded OS	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Home SP2	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Pro SP2
Driver / Recovery CDs	X	X	X	X	✓	✓
Miscellaneous	X	X	Roxio RecordNow	Roxio RecordNow	X	X
Carry case	X	X	X	X	✓	✓
<b>Performance</b>						
<b>Overall System Benchmarks</b>						
ZD-Bench Business Winstone 2004	23.1	24	26.5	24	18.7	19.7
Video Encoding Test	130	156	112	159	165	191
<b>SiSoft Sandra 2007 Engineer's edition</b>						
CPU - Dhrystone/Whetstone	11154/9089	6818/5019	14684/10732	12471/8643	5635/4204	11346/8365
Multimedia - CPU Integer/FPU SSE	27204/35524	15614/21253	33661/45764	28554/38883	16100/18206	25963/35379
Int. bandwidth/Float bandwidth (MB/s)	3578/3562	3629/3622	4028/4038	3068/3068	1937/1954	3532/3537
Drive Index MB/s/Random access (ms)	35/10	34/11	30/10	28/11	24/12	30/11
Call of Duty (800x600/1024x768) fps	60.2/58.4	159.7/153.6	160.1/128	53.2/45.6	41.8/32.7	96.6/93.4
<b>PCMark 2004 (Build 1.3.0)</b>						
CPU/Memory	4902/3763	5594/1973	*/4240	5272/3384	3385/2841	4925/3601
Graphics/HDD	949/3359	2789/3342	2079/3106	930/3080	711/2246	2527/3177
Overall	4678	5673	6386	4731	3021	4833
<b>DisplayMate</b>						
Viewing angle	4	3.9	4.1	4.1	3.8	3.7
Average DisplayMate score	155	160	160	160	155	155
Battery life (Hours:Minutes)	2:18	2:36	2:33	2:19	2:13	1:52
<b>Final Score</b>						
Features (out of 30)	17.46	20.94	21.06	19.50	21.08	20.04
Performance (out of 50)	34.07	36.01	37.43	32.88	25.82	31.47
Price Index (out of 20)	15.12	10.03	16.54	17.94	19.60	16.31
Grand Total	66.65	66.98	75.03	70.32	66.50	67.82
Price (Rs)	70,000	1,05,540	64,000	59,000	53,999	64,900

\* No result even after repeated attempts



+ Value for money  
- Small screen



+ Brushed finish  
- Expensive



+ Feature rich  
- Looks gaudy



+ Great performance  
- Looks gaudy



+ Good configuration  
- Small hard drive



+ Good graphics  
- Mediocre looks



## The Usual Suspects

HP	LG	LG	MSI	TCL	Toshiba	Toshiba
Pavilion dv2025TU	X Note T1	P1	Megabook S425	K41	Tecra A8	Satellite L100
Core Duo T2250/1.73	Core Duo L2400/1.83	Core Duo T2250/1.73	Pentium M 740/1.73	Core Duo T2050/1.6	Core Duo T2300E/1.66	Core Solo T1300/1.66
Intel 945GM	Intel 945GM	Intel 945GM	Intel 915PM	ATI RC410M	Intel 945GM	Intel 945GM
DDR2/533MHz/512MB	DDR2/667MHz/512MB	DDR2/667MHz/512MB	DDR2/533MHz/512MB	DDR2/533MHz/512MB	DDR2/533MHz/512MB	DDR2/667MHz/256MB
Integrated	Integrated	Integrated	Dedicated	Integrated	Integrated	Integrated
Intel 82945GM/128MB	Intel 82945GM/128MB	Intel 82945GM/128MB	GeForce Go 6200/128MB	ATI Radeon 200M/64MB	Intel 82945GM/128MB	Intel 82945GM/128MB
14 Wide/1280x800	14.1 Wide/1440x900	15.4 Wide/1280x800	14.1 Wide/1280x768	14.1 Wide/1280x800	15.4 Wide/1280x800	15 / 1024x768
100 GB, 5400 rpm	60 GB, 4200 rpm	80 GB, 4200 rpm	60 GB, 5400 rpm	60 GB, 5400 rpm	60GB, 5400 rpm	60 GB, 5400 rpm
DVD-Writer	DVD-Writer	DVD-Writer	DVD-Writer	Combo drive	Combo drive	DVD-Writer
3/1	3/1	3/1	3/1	3/1	3/1	4/0
Express	Express	Type II	Type II	Express	Type II	Type II
✓/a, b, g /✓/10/100	✗/a, b, g /✓/Gigabit	✗/a, b, g /✗/Gigabit	✗/a, b, g /✓/10/100	✗/b, g/✗/10/100	✗/a, b, g/✗/Gigabit	✗/a, b, g/✗/10/100
✓/✓	✓/✓	✓/✓	✓/✓	✗/✓	✓/✓	✓/✓
SD, MMC, MS/Pro, XD 1.3 MP camera, media buttons, Wi-Fi switch, mousepad lock button	SD, MMC, XD, MS/Pro Fingerprint scanner and HDD security	SD, MMC, XD, MS/Pro Fingerprint scanner and HDD Security	SD,MMC,XD,MS/Pro/Duo ✗	SD, MMC Wi-Fi switch	SD Fingerprint scanner, vol- ume control, AV button	✗ Wi-Fi switch and media buttons
33.5 x 23.5 x 3.5	33.4 x 24 x 2.15	35.5 x 26.1 x 3.17	33 x 23 x 3.5	33 x 23 x 3.5	36 x 25.5 x 4	33 x 27.5 x 3.5
2.4	1.9	2.78	2.3	2.3	2.86	2.8
3.50	3.75	3.75	3.63	3.50	3.38	3.63
3	3.5	3.5	3	3	3	3.5
Windows XP Home SP2	Windows XP Home SP2	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Home SP2
✗	✓	✓	✓	✗	✓	✓
Sonic and (trial) NIS 06	Norton AV 2006	Norton AV 2006	✗	✗	✗	Norton AV 2006
✗	✗	✗	✗	✗	✗	✗
18.1	20.2	16.7	17.1	11.8	19.4	15.1
150	154	172	167	255	147	145
11790/8696	11346/8385	11795/8695	5622/4197	5445/4022	11351/8386	5665/3949
26981/36764	25985/35366	27017/36764	16061/18151	12467/16968	25993/35385	12968/17629
2357/2354	3418/3407	3064/3064	2402/2422	2208/2228	3164/3164	3263/3235
33/11	21/12	27/11	23/12	30/10	35/10	35/11
53.7/52.6	50.4 /45.3	49.8/46.7	78.3/75	15.8/16.1	49.4/43.6	38.4/38.1
5007/2853	4907/3449	3365/3198	3362/3130	2370/1973	4914/3333	3326/3381
848/3533	931/1966	986/2788	1625/2244	1090/2691	929/3226	1085/3290
4357	4396	3116	3406	2439	*	3100
3.8	4.1	4.1	3.8	3.9	4.1	4
160	160	155	155	155	155	155
2:36	3:55	2:26	1:51	2:05	2:29	2:18
21.06	21.58	20.29	20.14	15.30	17.55	18.59
30.87	31.67	28.70	25.97	22.27	27.70	31.09
18.90	9.62	10.58	19.24	17.64	17.64	12.45
70.83	62.86	59.58	65.35	55.21	62.89	62.14
55,990	1,09,990	99,990	55,000	59,990	59,990	84,990



+ Great features  
- Too gaudy



+ Slim and sleek  
- Expensive



+ Biometric scanner  
- Looks gaudy



+ Decent configuration  
- Mushy keypad



+ None in particular  
- Slow performer

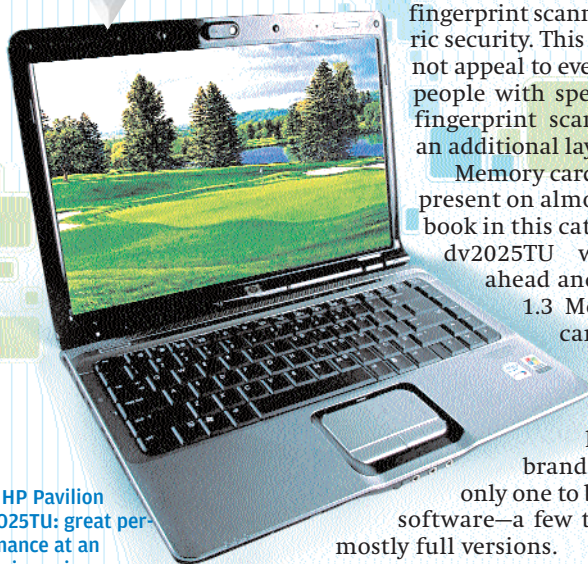


+ Good performance  
- A little expensive



+ Good ergonomics  
- Low on RAM

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OCTOBER 2006



The HP Pavilion dv2025TU: great performance at an amazing price

some stray 80 GBs. Ideally, anything over 60 GB is a luxury, unless you need to store a huge collection of movies and songs. Not all models come with DVD-Writers—the ASUS Z35H, Dell Inspiron 640m, Gigabyte W511U, TCL K41, and Toshiba Tecra A8 offer just a combo drive.

Very few laptops came with Bluetooth inbuilt, whereas almost all of them supported the faster b+g Wi-Fi standard.

The Toshiba Tecra A8 and LG's XNote T1 and P1 were the only ones with a fingerprint scanner for biometric security. This feature might not appeal to everyone, but for people with specific needs, a fingerprint scanner provides an additional layer of security.

Memory card readers were present on almost every notebook in this category. The HP dv2025TU went a step

ahead and integrated a 1.3 Megapixel Web

camera, which works quite well, on the laptop

lid. Of all the brands, HP was the

only one to bundle tons of software—a few trialware, but mostly full versions.

## Performance

### Application performance

Loaded with the best hardware, the ASUS V6000J was expected to deliver, and it did. However, the Dell Inspiron 6400 was neck-and-neck with the V6000J in almost all the tests, at times setting scores better than the V6000J. In fact, the Dell Inspiron was better at memory utilisation—this is confirmed by its Si-Soft Sandra scores and the ZD-Bench Business Winstone benchmark.

Despite its 1 GB advantage, the ASUS V6000J loses the performance crown to the Dell Inspiron 6400 by a small margin. The other ASUS sibling, the Z35H, comes out as the third-best performer of the lot.

The HP dv2025TU, Toshiba Tecra A8, LG XNote T1 and Gigabyte W551N are tied for

fourth position. These notebooks had similar hardware, and their scores are nearly identical.

## Battery life

When it comes to battery life, LG's Xnote T1 has the performance to match its award-winning looks. This notebook was able to stretch the battery to an amazing four hours. In our gruelling DVD file playback test, that score is fantastic; this laptop should run at least an hour more when regular applications are used. The HP DV2025, ASUS V6000J, and Dell Inspiron 6400 offer the next-best battery life of around two and a half hours.

Overall, as far as performance goes, Dell's Inspiron 6400 came out tops as the undisputed leader. Its superb hardware enabled it to sail smoothly through most of our tests, and the longer battery life is the icing on the cake.

## Our Conclusion

The Dell Inspiron 6400, with its fabulous hardware, not only works out as the greatest performer; its sensible pricing, too, makes it the best buy. The only area where it falls a little short of our expectations was the look and feel—it's not a particularly sleek-looking notebook.

While the ASUS V6000J has great hardware and performance, it is priced on the higher side. At Rs 1,05,540, the price does justify the product, but better products such as the Dell Inspiron play spoilsport on ASUS' attempt to provide the best combination of price and performance.

The HP Pavilion dv2025TU, with its steady performance, great looks and equally impressive performance, came out as the overall second-best amongst the usual suspects, and Dell's Inspiron 6400 does manage to sneak in on to the podium for third place.

## ZEN AND THE ART OF BONSAI

While the term "ultra-portable" reminds us of the 10-inch notebooks from Sony, Toshiba, and Fujitsu, most manufacturers now have at least one model in their line-up for frequent fliers.

The ultra-portables' power consumption and screen dimensions have evolved to make them better suitable to handle newer, resource-hungry applications—screen sizes have gone up

## Gaming On The Move

Breaking the barriers of graphics performance are the gaming laptops from some very reputed companies. Leading the pack is Alienware, with the distinction of being the first company to build SLI notebooks. Alienware's Aurora MALX series is the most powerful laptop series in the world in terms of graphics performance. You get to choose from a wide range of GPUs from the NVIDIA family, but the dual GeForce Go 7900GTX, with a total memory of 1 GB, rules them all. A huge 19-inch widescreen display lets you enjoy and admire the true power of these beasts. To carry all your music, videos, and games, this behemoth can have two hard disks in RAID 0 configuration, with a maximum storage space of 240 GB. Currently, this series is powered by AMD's older Turion series of CPUs, but it would be really interesting to see the performance once Alienware starts

shipping similar notebooks with Core 2 Duos. In short, it'll have enough power to kick any Desktop around. These custom-made laptops look better than mass-produced laptops—just like an F1 car looks and performs better than a family car! With a base price of \$4,499 (Rs 2,11,000), a comparison between the two car types is befitting.

Dell has also started looking towards gaming laptops with its XPS series. This series is actually not purely gaming-oriented—it lies somewhere between the gaming and lifestyle laptops.

With Dell having acquired Alienware in the recent past, we hope they will capitalise on Alienware's expertise in the high-performance gaming arena to bring out faster and more stunning laptops.



from 10 inches to 12.1 inches with a wide aspect ratio, and processing comes from the power-optimised Intel Centrino platform and AMD's Turion platform as well.

This category consisted of 10 models from various vendors. Sony and Fujitsu each had one, and Acer, Compaq, MSI, ASUS, TCL, and ACI were the other contenders.

## Features

### Feel and build quality

Ultra-portables offer a fine balance between size, weight, performance, and battery life. The size and weight are primarily determined by the screen size. In this round-up, all the notebooks were equipped with 12.1 inch screens, except for the Sony VAIO TX37GP with its 11.1 inches—some resorting to widescreen, and others to a normal aspect ratio. The display quality offered was nearly the same on all these models—except for the Sony TX. Instead of relying on conventional CFL (Compact Fluorescent Lightbulbs) for the display's backlight, Sony has used bright LEDs. There are two advantages of using this: first, the screen was an amazing 0.5 cm thick, and second, they help conserve battery usage.

Fujitsu's Q2010 was another product that exuded quality. Despite being slightly larger than the Sony VAIO, it's light-weight, with superb build quality. The Fujitsu Q2010 is a conventional ultra-portable—that is, the optical drive is built into a dock that features additional ports. Fujitsu was generous enough to bundle along an extra battery that can be charged in the dock while the other battery powers the laptop.

The ASUS U5F was the lone contender from Taiwan: it has a personality of its own, and does not rely on the similar-looking SKUs (Semi-Knockdown Unit) coming out of Taiwan's factories. As with most products from ASUS, it has good build quality. However, the area surrounding the screen has scope for improvement—it's quite flimsy.

Compaq and Acer come next in build quality. Compaq offers a better look and feel, and Acer has their typical robust feel going for them. Zenith and Gigabyte had the typical silver-black combination—they can definitely do with face-lifts. The sparkling black body on the MSI gives it a distinct identity among its Taiwanese brethren.

The ACI Elite reminded us of the older Toshiba Protégés, with the distinct grille that hides the speakers. Build quality was sturdy and up to the mark. The TCL K22 looks a little too old for our liking.

## Weight

Tipping the scales at 1.2 kg, Fujitsu's Q2010 (sans its battery dock) was the lightest. Sony's VAIO TX37GP is another feather-weight at 1.25 kg. MSI's and ACI's ultra-portables are at the other end of the scale at 2.1 and 1.8 kg respectively. The rest had their weight spread across the 1.4 - 1.8 kg spectrum.

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The ASUS U5F  
Top-notch performance in  
a pint-sized package

## Ergonomics

Ergonomics is one parameter all ultra-portables have to compromise on. Despite its size, the Fujitsu Q2010 offers the best ergonomics of them all—a good keyboard and a nice touch pad. The Sony VAIO comes nipping at Fujitsu's feet; however, its keyboard is a little taut. The ASUS U5F and Compaq are neck-and-neck for third position—they have similar keyboards. The Acer 3012, MSI Megabook, and Zenith have reasonable keyboards, touchpads, and space for one's palm. The Gigabyte N211U has a mushy keyboard that could do with some improvement.

## Specifications

On paper, the ASUS U5F certainly seems to be the killer ultra-portable.

With a 2 GHz Core Duo processor mated with 1.5 GB of memory on an

Intel 945GM chipset, the configuration is something one rarely sees even on much larger notebooks. The VAIO TX37GP, on the other hand, comes with a 1.2 GHz Core Solo processor with 512 MB memory—a trifle

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## Scoreboard

## Zen And The Art Of Bonsai

BRAND	ACi	MSI	TCL	Acer
MODEL	Elite	Megabook S-271	K22	TravelMate 3012
<b>Features</b>				
Processor Type / GHz	Pentium M 730/1.6	AMD Turion 64 X2 TL-50/1.6	Core Duo T2050/1.6	Core Duo T2300E /1.66
Chipset	Intel 915GM	ATI RS482M	ATI RC410M	Intel 945GM
Memory Type / Speed / Amount	DDR/333MHz/512MB	DDR2/667MHz/512MB	DDR2/533MHz/512MB	DDR2/533MHz/512MB
<b>Graphics</b>				
Integrated / Dedicated	Integrated	Integrated	Integrated	Integrated
Graphics system / Max. memory allocated	Intel 82915GM/128MB	ATI Radeon 200M/128MB	ATI Radeon 200M/128MB	Intel 82945GM/128MB
<b>TFT Display</b>				
Screen Size / Native resolution	12.1 / 1024x768	12.1 / 1280x800	12.1 Wide/1280x800	12.1 Wide/1280x800
<b>Storage</b>				
Hard drive (capacity, speed)	40 GB, 5400 rpm	60 GB, 5400 rpm	60 GB, 5400 rpm	80 GB, 5400 rpm
Optical drive type	Combo drive	DVD-Writer	Combo drive	DVD-Writer (external 1394)
<b>Ports</b>				
USB (nos.) / FireWire (nos.)	3/1	3/1	3/1	3/1
Expansion slot type PCMCIA (Type I/II)	Type II	Type II	Express	Type II
<b>Connectivity</b>				
IrDA/Wi-Fi/Bluetooth/Ethernet	✓/b,g/✗/10/100	✗/g/✗/Gigabit	✗/b,g/✗/10/100	✓/a,b,g/✓/Gigabit
<b>Audio-Video Out options</b>				
S-video out / Monitor D-sub	✗/✓	✗/✓	✗/✓	✗/✓
<b>Memory Card Reader</b>				
Type of cards that can be read	SD, MMC	SD, MMC, MS	SD, MMC	SD, MMC, MS/Pro
Miscellaneous Features	✗	✗	Wi-Fi switch	Wi-Fi and BlueTooth switch
<b>Usability</b>				
Dimensions (L x B x H) (cm)	27 x 25.5 x 3.5	30 x 24 x 3.8	30 x 21 x 4	29.7 x 22.5 x 3
Weight (kg)	1.8	2.1	1.9	1.4
Overall Ergonomics (So5)	3.13	3.63	3.5	3.63
Built-in speaker quality test (So5)	3	3	3	3
<b>Package Contents</b>				
Preloaded OS	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Pro SP2
Driver/Recovery CDs	✓	✓	✓	✓
Miscellaneous	NTI CD DVD maker	NIS 2006	✗	NAV 06 and NTI CD DVD maker
Carry case	✓	✗	✗	✓
<b>Performance</b>				
<b>Overall System Benchmarks</b>				
ZD-Bench Business Winstone 2004	19.6	20.6	11.8	19.9
Video Encoding Test	164	161	245	174
<b>SiSoft Sandra 2007 Engineer's edition</b>				
CPU - Dhrystone / Whetstone	5187/3879	11491/9689	5451/4028	11381/8392
Multimedia - CPU Integer/FPU SSE	14847/16779	29803/32419	12483/16993	26029/35478
Int bandwidth/Float bandwidth (MB/s)	1816/1774	3791/3825	2203/2271	3301/3296
Drive Index MB/s / Random access (ms)	29/10	27/12	29/10	33/9
Call of Duty (800 x 600 / 1024 x 768) fps	39.2/30.6	15.6/15.3	15.7/15.8	48.3/42.8
<b>PCMark 2004 (Build 1.3.0)</b>				
CPU/Memory	3150/2763	4343/3589	2373/1973	4920/3382
Graphics/HDD	661/3044	1077/3107	1087/2789	908/3405
Overall	2805	4194	2410	4423
<b>DisplayMate</b>				
Viewing angle	155	150	155	150
Average DisplayMate score	3.8	3.8	3.9	4
Battery life (Hours:Minutes)	3:16	2:40	2:28	2:33
<b>Final Score</b>				
Features (Out of 30)	22.70	24.33	20.95	26.98
Performance (Out of 50)	28.57	30.74	23.23	31.96
Price Index (Out of 20)	9.87	6.05	5.36	4.41
Grand Total	61.15	61.12	49.54	63.35
Price (Rs)	37,990	62,000	69,990	84,999



+ Value for money  
- Slower DDR RAM



+ Decent configuration  
- Slow performer



+ None in particular  
- Expensive



+ Good performance  
- Expensive



## Zen And The Art Of Bonsai

Sony Vaio VGN-TX37GP	Fujitsu Q2010	Gigabyte N211U	Zenith Presidio DW1H	Asus U5F	Compaq Presario B 1914TU
Core Solo U1400/1.2	Core Solo U1400/1.2	Pentium M 740/1.73	Core Duo T 2050/1.6	Core Duo T2500/2	Core Duo T2250/1.73
Intel 945GMS	Intel 945GMS	Intel 915GM	Intel 945GM	Intel 945GM	ATI Radeon Xpress 200M
DDR2/533MHz/512MB	DDR2/533MHz/1GB	DDR/333MHz/512MB	DDR2/533MHz/256MB	DDR2/533MHz/1.5GB	DDR2/667MHz/1GB
Integrated	Integrated	Integrated	Integrated	Integrated	Integrated
Intel 82945GM/128MB	Intel 82945GM/128MB	Intel 82915GM/128MB	Intel 82945GM/128MB	Intel 82945GM/128MB	ATI Radeon 200M/128MB
11.1 Wide/1366x768	12.1 Wide/1280x800	12.1 / 1024x768	12.1 Wide/1280x800	12.1/1024x768	12.1 Wide/1280x800
80GB, 4200 rpm	80 GB, 4200 rpm	60 GB, 5400 rpm	40 GB, 5400 rpm	120 GB, 5400 rpm	100 GB, 5400 rpm
DVD-Writer	DVD-Writer (dock)	DVD-Writer	DVD-Writer	DVD-Writer	DVD-Writer
2/1	2+4/1	3/1	4/1	3/1	3/1
Type II	Type II	Type II	Type II	Express	Express
✗/a,b,g/✓/10/100	✗/a,b,g /✓/Gigabit	✗/b,g /✗/10/100	✗/a,b,g /✗/ 10/100	✗/a,b,g /✓/Gigabit	✗/a,b,g/✗/10/100
✗/✓	✗/✓	✗/✓	✓/✓	✗/✓	✓/✓
SD, MS	SD	SD, MMC, MS/Pro	MMC, SD, MS/Pro	MMC, SD, MS/Pro/Duo	SD, MMC, MS/Pro, XD
Wi-Fi switch, volume control, and fingerprint scanner	Volume jog dial and special function buttons	Wi-Fi switch and media button	✗	✗	✗
27.2 x 19.5 x 2.85	29.5 x 21.5 x 2.5	27.5 x 22.5 x 2.08	29.5 x 22 x 3	27.5 x 23 x 3	28.7 x 22.4 x 3.4
1.25	1.2	1.8	1.9	1.6	1.79
3.63	3.75	2.88	3.63	4	3.5
3.5	3	3	3	3.5	3
Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Home SP2	Windows XP Pro SP2	Windows XP Pro SP2	Windows XP Home SP2
✗	✓	✓	✗	✓	✓
NIS 2006 and Roxio	Software application CD	✗	CyberLink PowerDVD 6	NIS 2005	NIS 2006 (trial) and Sonic
✗	✓	✓	✗	✓	✗
7.5	15.8	19.1	19.5	24.1	12.1
189	201	169	158	121	282
4074/2914	4080/3008	5726/4249	10882/8022	13640/10038	5443/4012
9333/12675	9342/12690	16109/18230	24914/33909	31236/42453	12462/16965
2379/2378	2607/2607	1944/1956	2974/2968	3418/3507	2311/2326
21/13	22/13	24/12	31/10	34/10	34/11
35.6/31.7	Failed	42.1/33.9	32.7/31.6	58.3/50.4	16.4/16.3
2383/2528	2402/2670	3392/2872	4657/3068	5864/3853	2385/1943
774/2477	669/2587	921/2178	965/3106	969/3326	1175/3276
2243	2256	3106	4157	5170	2479
160	160	150	160	160	155
4.8	3.7	3.7	3.9	4	3.8
6:09	2:33	2:28	2:37	2:15	1:46
27.21	27.62	24.40	23.09	27.74	26.63
27.62	24.61	26.77	30.99	34.85	22.77
3.00	2.03	6.15	8.52	4.69	3.28
57.83	54.25	57.31	62.60	67.28	52.69
1,24,900	1,85,000	60,999	44,000	80,000	1,14,195



+ Long battery life  
- Expensive



+ Very thin & light  
- Expensive



+ Good value for money  
- Poor ergonomics



+ Inexpensive  
- Low on RAM



+ Fully loaded  
- Bad touchpad



+ Good package  
- Slow performer

of a compromise, but the battery life makes up for that. The Gigabyte N211U and ACi Elite have older processors based on the Sonoma platform—Pentium M processors. When it came to storage, ASUS dished out the goodies at 120 GB, followed by Compaq with 100 GB—enough to make you want to put your iPod in cold storage!

## The Frills

The Sony VAIO TX37GP has an AV mode that lets you play media files without booting into the OS. The fingerprint scanner completes the features a potential buyer should look for. Fujitsu's Q2010 comes with an extra battery, the versatile dock, and a fingerprint scanner as well. Compaq, not to be left behind, bundled a touchpad deactivator—it's one critical component that a laptop should have, and on an ultra-portable, it's a must!

## Performance Applications

No points for guessing the winner—the ASUS U5F, of course! The no-compromise hardware configuration made sure the competition was left biting the dust. The Acer TravelMate 3012 returned the second-best overall scores. MSI and Zenith were tied for third spot. A point to note here is the equivalent performance on the AMD Turion processor, which the MSI MegaBook proudly boasts of.

Between the Sony VAIO and the Fujitsu, Sony climbs higher on our performance scale, simply because of its stunning battery life. The Compaq B1900, based on an ATI chipset, seems to lack steam—the platform seems unable to match the Intel 945 chipset.

Both Gigabyte and ACi, based on the older Pentium M hardware, could hardly match the new configurations on other ultra-portables—it wouldn't be fair to compare them with the rest.

## Battery life

The most important parameter of them all, battery life is where ultra-portable buyers have their eyes keenly set. The Sony VAIO TX37GP



The Acer TravelMate 3012—mobility without compromises

went on for 369 minutes—a little over six hours—playing our DVD video file; expect even better life when working with daily applications. The ACi Elite was next with a little over three hours, followed by Zenith, MSI and Acer—all separated by just a hairsbreadth.

## Our Conclusion

Traditionally, ultra-portable laptops commanded a high premium, and fewer players meant consumers had few options. Not anymore! The ACi Elite, for example, is priced at an unbelievable Rs 38,000.

Taking all three parameters—Features, Performance, and Price into account, the ASUS U5F came out on top, thanks largely to its superb performance and reasonable price for the configuration on offer. Acer's TravelMate 3012WTMi came in second, running up in performance and boasting a good feature bundle.

Comparing the Sony VAIO and Fujitsu Q2010 with the rest would be unfair. While their performances are above average, the flaunt value these stylish notebooks offer is unbeatable; if you're one of those who want style and can shell out the dough, we say buy them!

Zenith's Presidio is a steal! It just lost out on second place due to its anaemic 256 MB of memory—bump it to 512 MB, and it will definitely give the Acer TravelMate a run for its money. If you are in no mood to spend Rs 80,000 on the Acer, the Zenith is the way to go.

## KINGS OF THE RING

If you ever thought laptops were only for well dressed, sober-looking gentlemen running nothing beyond Excel and PowerPoint, you'd be wrong! There are plenty of laptop powerhouses that boast of features not even seen on Desktop PCs. Yes, you heard right; we even have a laptop with a Blu-ray disc writer!

We looked at eight machines in the performance segment—the Dell latitude D820, Toshiba's Qosimo F20, LG's LW60 Express, the MSI MegaBook 1034, ACi Matric 1400, the HP Pavilion dv8216TX, and the real stunner—the Sony VAIO AR18GP.

## Features Look and Feel

Sony's VAIO AR18GP is one exceptional performance machine. Oozing bleeding-edge technology from every corner, it has the looks to put a Miss World to shame. This lustrous dark beauty exudes quality, and its monstrous proportions sets it apart from the crowd. A sensible touch of chrome adds a "bling" factor to the otherwise all-black body.

The milky-white Toshiba Qosimo F20 stands at the other end of the spectrum. Though monstrous in its own right, the Toshiba is still dwarfed by the Sony. Its white apparel aside, the Qosimo does exude a "built-to-last" feel.

HP's dv8000 has been around for some time now, and it created some amount of flutter when it was launched a year and a half ago. Its dimensions are similar to the Sony, but is rather conservative in its styling—the boring silver-grey outfit doesn't do the HP justice. On the inside, it's a

Decision Maker		Laptops
Segment	Usage	Solution
Students	Word processing, surfing, and casual gaming. Budget-conscious	Acer TravelMate 2428, Acer Aspire 5551, Compaq Presario V6102AUU
Professionals	Good performance, impressive looks, and portability. Price no bar	ASUS V6000J, ASUS U5F, Dell Latitude D820
Enthusiasts	Best performance and good upgradability. Price—what's that?	Sony VAIO AR18GP, HP Pavilion dv8216TX



different story—the all-black keyboard with touches of blue backlighting looks good.

The ASUS F3JM is very much on the lines of the V6000J. The brushed aluminum finish is great to touch, and the laptop feels quite sturdy.

## Ergonomics

For a performance machine, ergonomics are of prime importance—these laptops will be used for extended periods of time. The HP Pavilion dv8216TX takes the crown here—it's very comfortable to use. The touchpad

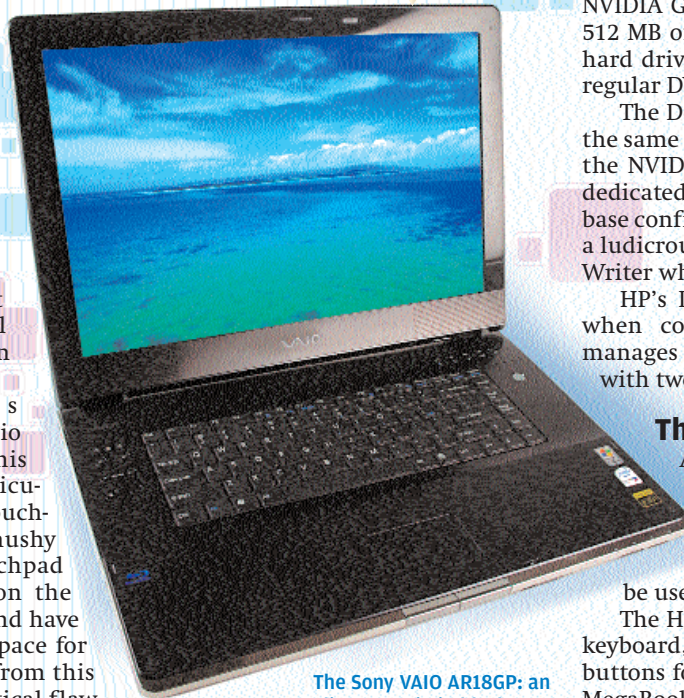
is very good, and comfortably placed towards the right. Scroll notches on the touchpad let you scroll through long spreadsheets and Web pages. The keyboard has a proper numeric keypad on the right side. The tactile feel could have been better, though.

Nothing's perfect—the Sony VAIO AR18GP proves this with its rather ridiculous placement of touchpad buttons and a mushy keyboard. The touchpad buttons are lined on the edges of the body, and have very little contact space for any comfort. Apart from this small but rather critical flaw, everything else is in right place. Sony could also have made much better use of the space by providing a full keyboard.

The Latitude D820 is a typical no-nonsense laptop from Dell, and everything is exactly in place for providing the best comfort. Toshiba's Qosimo F20 had nothing to point a finger at; however, the laptop does tend to get hot, making the cooling fan work overtime.

## Specifications

One look at the Sony AR18GP's specifications will leave you gasping for breath. Harboring the fastest Core Duo 2.16 GHz, 1 GB of RAM,



The Sony VAIO AR18GP: an elite assassin in black!

and the GeForce Go 7600 GT 256 MB, the configuration rocks! If that's not satisfactory enough, it comes with 160 GB of storage in the RAID 0 configuration—a big boost to hard drive performance. To top it all, this was the only machine with a Blu-ray disc writer. A superb, bright 17-inch high definition-ready display (HD 1080P) completes the VAIO's stunning specs—the DVD movies we watched on this screen were memorable experiences!

Next in line was the ASUS F3JM with a 2 GHz processor, an insane 2 GB of memory, and an NVIDIA GeForce Go 7600 display adapter with 512 MB of dedicated memory. A single 120 GB hard drive provides storage, topped off with a regular DVD-Writer.

The Dell Latitude D820 manages to cram in the same 2 GHz processor, 1 GB of memory, and the NVIDIA Quadro NVS 120, with 256 MB of dedicated memory and a 100 GB hard drive. The base configuration bundles just a combo drive—a ludicrous decision, but you can opt for a DVD-Writer when configuring the machine online.

HP's DV8216 TX is slightly underpowered when compared to these giants, but still manages to hold its ground. This laptop came with two 80 GB drives.

## The Frills

Apart from the on-paper specifications, the Sony VAIO AR18GP comes with a 1.3 megapixel Web camera, instant media player capabilities, and inbuilt Bluetooth. The camera's feed can also be used as a screensaver—quite interesting!

The HP dv8216TX comes with a full-fledged keyboard, a dedicated "calc" button, and media buttons for quick play. The ASUS F3JM and MSI MegaBook M660 were the other notebooks that came with 1.3 megapixel Web cameras built into the top lid. Toshiba's Qosimo was the only one with an inbuilt TV-Tuner and media playing capabilities without booting into the OS. Memory card readers seem to have percolated into all notebooks, and these performance champions are no exception.

## Performance

The Sony AR18GP delivered unusually high performance—the scores it returned matched some of the best scores we've seen on Desktop PCs. Its score of 27 in Business Winstone is simply great—very few laptops ever make beyond the 25 mark. The Dell D820 did come within striking distance of the Sony, with a score of 26.2, but it lacks the critical fire power—the RAID hard drive. The ASUS F3JM also came pretty close to the Sony.

The Business Winstone benchmark consists of regularly-used applications, and it's a perfect benchmark to judge the real-life performance of laptops. Sony scoring high on this benchmark clearly indicates its performance benefits in a normal usage scenario.

In the video encoding test, the Sony completed the job in just 112 seconds—that's seriously fast, and speaks about the processor's number-crunching abilities. The Dell D820 wasn't far behind, taking 118

Contact Sheet		Laptops	
Brand	Company	Phone	E-Mail
Asus	ASUSTeK Computer Inc	022-40058888	media_india@asus.com
MSI Megabook	Micro Star International (MSI)	011-41758808 / 09	sanyam@msi-india.com
Gigabyte	Gigabyte Technology India Ltd	022-26526696 / 30616666	laptops@gigabyte.in
LG	LG Electronics India Pvt Ltd	0120-2560900 / 9899302234	Shopping2@lgindia.com, Shopping3@lgindia.com
TCL	TCL India Holdings Pvt Ltd	022-40080786	nick.ma@ttecorp.com
Acer	Acer India Pvt Ltd	080-25219520	sivakumar_n@acer.co.in
Toshiba	HCL Infosystems Ltd	0120-2520977	bharatd@hcl.in
ACI	ACI (Asia) Ltd	022-66407000	sales@aci-asia.com
Zenith	Zenith Computers Ltd	022-28377300 / 28366030	info@zenith-india.com
Sony	Sony India	1800-11-11-88	sonyindia.care@ap.sony.com
Fujitsu	Fujisan Technologies Ltd	022-30213388	sales@fujisan.co.in
Hp Compaq	Hewlett-Packard India Sales Pvt Ltd	0124-2566111	ruchika.seth@hp.com
Dell	Dell India Pvt Ltd	1800-425-8026	Belgundi.Indrajit@Dell.com



## Scoreboard

## Kings Of The Ring

BRAND	ACi	ASUS	Dell	HP	LG
MODEL	Matrix 1400	F3JM	Latitude D820	Pavilion dv8216TX	LW60 Express
<b>Features</b>					
Processor Type / GHz	Core Duo T2300/1.66	Core Duo T2500/2	Core Duo T2500/2	Core Duo T2300/1.66	Pentium M 740/1.73
Chipset	Intel 945PM	Intel 945PM	Intel 945PM	Intel 945PM	Intel 945GM
Memory Type / Speed / Amount	DDR2/667MHz/512MB	DDR2/667MHz/2GB	DDR2/533MHz/1GB	DDR2/667MHz/1GB	DDR2/533MHz/512MB
<b>Graphics</b>					
Integrated / Dedicated	Dedicated	Dedicated	Dedicated	Dedicated	Integrated
Graphics system/Max. memory allocated	GeForce Go 7300/128MB	GeForce Go 7600/512MB	Quadro NVS 120M/256MB	GeForce Go 7400/512MB	Intel 82915GM/128MB
<b>TFT Display</b>					
Screen Size / Native resolution	14 Wide/1280x800	15.4 Wide/1680x1050	15.4 / 1920x1200	17 Wide/1440x900	15.4 Wide/1280x800
<b>Storage</b>					
Hard disk (capacity, speed)	80 GB, 5400 rpm	120 GB, 5400 rpm	100 GB, 5400 rpm	2 x 80 GB, 5400 rpm	60 GB, 5400 rpm
Optical drive type	DVD-Writer	DVD-Writer	Combo drive	DVD-Writer	DVD-Writer
<b>Ports</b>					
USB (nos.) / FireWire (nos.)	4/1	4/1	5/1	4/1	4/1
Expansion slot type PCMCIA (Type I/II)	Type II	Type II	Type II	Type II	Type II
<b>Connectivity</b>					
IrDA/Wi-Fi/Bluetooth/Ethernet	✗/a,b,g/✗/Gigabit	✗/a,b,g /✓/Gigabit	✓/a,b,g /✗/Gigabit	✗/a,b,g /✓/10/100	✓/b,g /✗/10/100
<b>Audio-Video Out options</b>					
S-video out / Monitor D-sub	✓/✓	✓/✓	✗/✓	✓/✓	✓/✓
<b>Memory Card Reader</b>					
Type of cards that can be read	SD, MMC, MS/Pro	MMC, SD, MS/Pro/Duo	✗	SD, MMC, SM, MS/Pro, XD	SD, MMC, MS/Pro
Miscellaneous Features	✗	1.3 MP camera and DVI connector	Wi-Fi control switch and control stub	Media and calculator buttons, numberpad, and Wi-Fi button	AV out and number-pad
<b>Usability</b>					
Dimensions (L x B x H) (cm)	33.5 x 25 x 3.8	36.5 x 28 x 3.5	36 x 26.5 x 4	39.6 x 28.2 x 4.6	35.5 x 26.4 x 3.05
Weight (kg)	2.6	3.1	3.7	4.1	2.8
Overall ergonomics (So5)	3.625	3.88	4	3.5	3.5
Built-in speaker quality test (So5)	3	3	4	3.5	3.5
<b>Package Contents</b>					
Preloaded OS	Windows XP Pro SP2	DOS	Windows XP Pro SP2	Windows XP Home SP2	Windows XP Home SP2
Driver / Recovery CDs	✓	✗	✓	✗	✓
Miscellaneous	NTI CD DVD maker	✗	WinDVD	NIS 2006 (trial) and Sonic	Nero Burning ROM
Carry case	✓	✗	✗	✗	✗
<b>Performance</b>					
<b>Overall system benchmarks</b>					
ZD-Bench Business Winstone 2004	23.3	24.8	26.2	22.3	19.3
Video Encoding Test	143	120	118	141	147
<b>SiSoft Sandra 2007 Engineer's edition</b>					
CPU - Dhrystone / Whetstone	11355/8372	13709/10107	13618/10040	11272/8319	5639/4209
Multimedia - CPU Integer / FPU SSE	26007/35406	31162/42382	31194/42459	25824/35163	16117/18221
Int bandwidth / Float bandwidth (MB/s)	3519/3521	4004/3987	3979/3981	3573/3574	2473/2495
Drive Index MB/s / Random access (ms)	24/10	35/10	43/9	30/11	29/11
Call of Duty (800x600 / 1024x768) fps	183.7/133.9	216/208	192.9/131.2	198/137.1	43.1/42.2
<b>PCMark 2004 (Build 1.3.0)</b>					
CPU/Memory	4898/3551	5822/4057	5850/4030	4899/3517	5078/3328
Graphics/HDD	2222/2861	5021/3530	2157/3956	2510/3367	931/2805
Overall	4721	5924	5415	4864	4537
<b>DisplayMate</b>					
Viewing angle	3.8	4	4.6	3.9	4.1
Average DisplayMate score	155	155	165	160	155
Battery life (Hours:Minutes)	2:46	2:10	1:48	2:40	1:55
<b>Final Score</b>					
Features (Out of 30)	19.98	21.39	20.05	21.38	20.27
Performance (Out of 50)	40.30	45.30	44.24	40.43	32.90
Price Index (Out of 20)	9.70	5.91	5.59	6.67	5.93
Grand Total	69.99	72.60	69.88	68.48	59.10
Price (Rs)	54,990	90,300	95,470	79,990	89,990



+ Value for money  
- Looks dated



+ Feature-rich  
- Looks bulky



+ Good performance  
- Bulky



+ Very ergonomic  
- Too heavy



+ Multimedia features  
- Relatively slower CPU



MSI Megabook M660	Sony VAIO AR18GP	Toshiba Qosimo F20
Core Duo T2300/1.66 Intel 945GM DDR2/533MHz/512MB	Core Duo T2600/2.16 Intel 945PM DDR2/533MHz/1GB	Pentium M 750/1.86 Intel 915PM DDR2/533MHz/512MB
Integrated Intel 82945GM/128MB	Dedicated GeForce Go 7600GT/256MB	Dedicated GeForce Go 6600/128MB
15.4 Wide/1280x800	17 Wide/1920x1200	15.4 Wide/1280x800
60 GB, 4200 rpm Combo drive	160 GB (Raid 0), 5400 rpm Blue-ray writer	80 GB, 5400 rpm DVD-Writer
4/1 Type II	3/0 Express	3/1 Type II
✗/a,b,g / ✗/Gigabit	✗/a,b,g / ✓/10/100	✗/b,g / ✗/10/100
✓/✓	✗/✗	✓/✓
MMC, SD, MS/Pro 1.3 MP camera	SD, MS/Pro/Duo Wi-Fi switch, media buttons, and 1.3MP camera	SD, MS, XD TV-Tuner, Wi-Fi switch, AV out, and media buttons
35.5 x 25.5 x 3.5 2.5 3.63 3	41.6 x 29.95 x 3.35 3.8 4 3.5	37 x 27 x 5 4.5 3.5 3
Windows XP Pro SP2 ✓ ✗ ✗	Windows XP Pro SP2 ✗ NIS and Ulead DiscRecorder ✗	Windows XP Home SP2 ✓ NAV 2005 ✗
19.8 142	27.8 112	16.2 285
11396/8404 26095/35545 3167/3164 22/13 42/41	14730/10860 33738/45913 3952/3959 56/20 297.1/295.7	6078/4537 17370/19638 2519/2536 32/10 128.4/126.5
4800/3284 738/2148 4261	6220/4073 6417/4607 6008	3650/3380 2801/3255 3711
3.9 160 2:05	4.8 160 2:04	4.1 160 2:25
19.69 35.12 8.60 63.42 62,000	20.70 51.91 2.67 75.27 1,99,900	19.48 32.63 6.28 58.38 84,990



+ Looks great  
- Needs more RAM



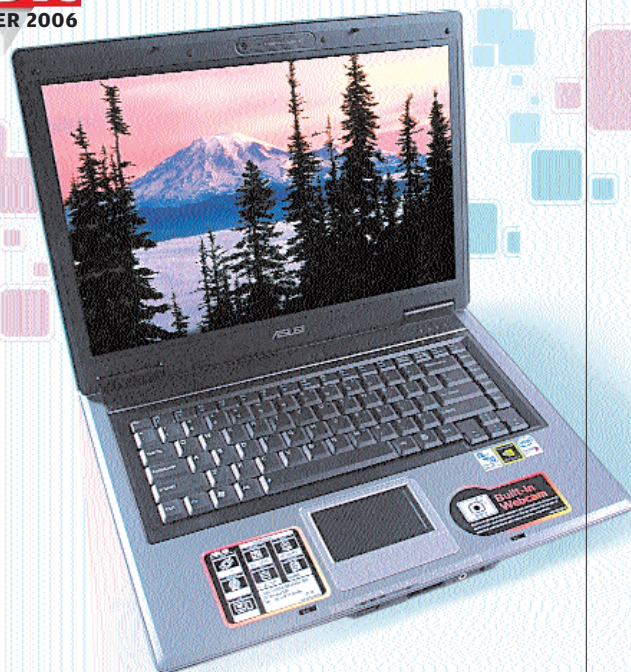
+ RAID 0  
- Very expensive!



+ TV-Tuner  
- Slower CPU

seconds. Both these laptops are excellent for audio/video encoding.

PC Mark gives you the scores of individual sub-systems like the CPU, graphics, memory, and hard disk. The quality and performance of these sub-systems is reflected in the overall scores. The VAIO AR18GP left the competition biting the dust with an overall score of 6008 units in PC Mark 2004, while the Asus F3JM was close, with a score of 5924 units. What's interesting is that the hard drive score: the Sony laptop returned nearly 1000 points more than the rest. The RAID config-



ASUS F3JM—A Desktop basher

uration is indeed working in Sony's favour.

The HP Pavilion dv8216TX has a battery life of 160 minutes. This is great taking into consideration the screen size and high-volume speakers on the unit. The Sony VAIO AR18GP lasted for 124 minutes on the battery. This figures are a clear indicator that these powerful machines are not as power-hungry as we thought.

## Our Conclusion

Sony's AR18GP was the winner because of its blazing performance and future-proof features like the HD-capable screen and the Blu-Ray disc drive. Priced at Rs 1,99,900, Sony does expect you to pay for the performance and features on offer. Raw performance has always demanded atrocious prices, but it never came bundled in such a beautiful-looking machine.

The ASUS F3JM came in second thanks to its superb overall performance and a configuration that would put a regular Desktop to shame. The sensible pricing ensured a secure place on the podium. The Dell Latitude D820 was as impressive as the Sony VAIO or the ASUS F3JM, but the pricing left it a bit behind the ASUS. ■

vishal\_kansagra@thinkdigit.com



**124** Down To Earth



**126** Face Off

# Digital Business

How Technology Can Help Your Organisation

Tech Careers

## Slash And Burn

**What does it take to make a blockbuster out of raw footage? The answer is, quite simply, post-production techniques**

**Samir Makwana**

**I**t's the special effects in movies such as *The Matrix*, *Terminator 3*, *Lord of the Rings*, the *Star Wars* trilogy, and many more that are responsible for much of their appeal and, as you probably know, those effects are made possible with the assistance of computer-generated imagery. In fact, a good home-grown example would be the 90 minutes of special-effects scenes in the recently-released movie *Krrish*. Yes, the scenes were designed entirely in India!

Though it is still in the developmental stage, television as a communication medium is getting more powerful. New channels are coming in, and some are falling by the wayside. The competition is intense. But it is for this very reason, and because television needs a minimum of 20 to 25 programmes per week per channel, that the scope for growth of the television medium is immense.

The production process of a movie or TV programme can be broadly divided into pre-production, production, and post-production. The first of these involves the planning of all the activities to be undertaken in the next two stages. Production is where actions are performed according to the script and are recorded. The process after the shoot is

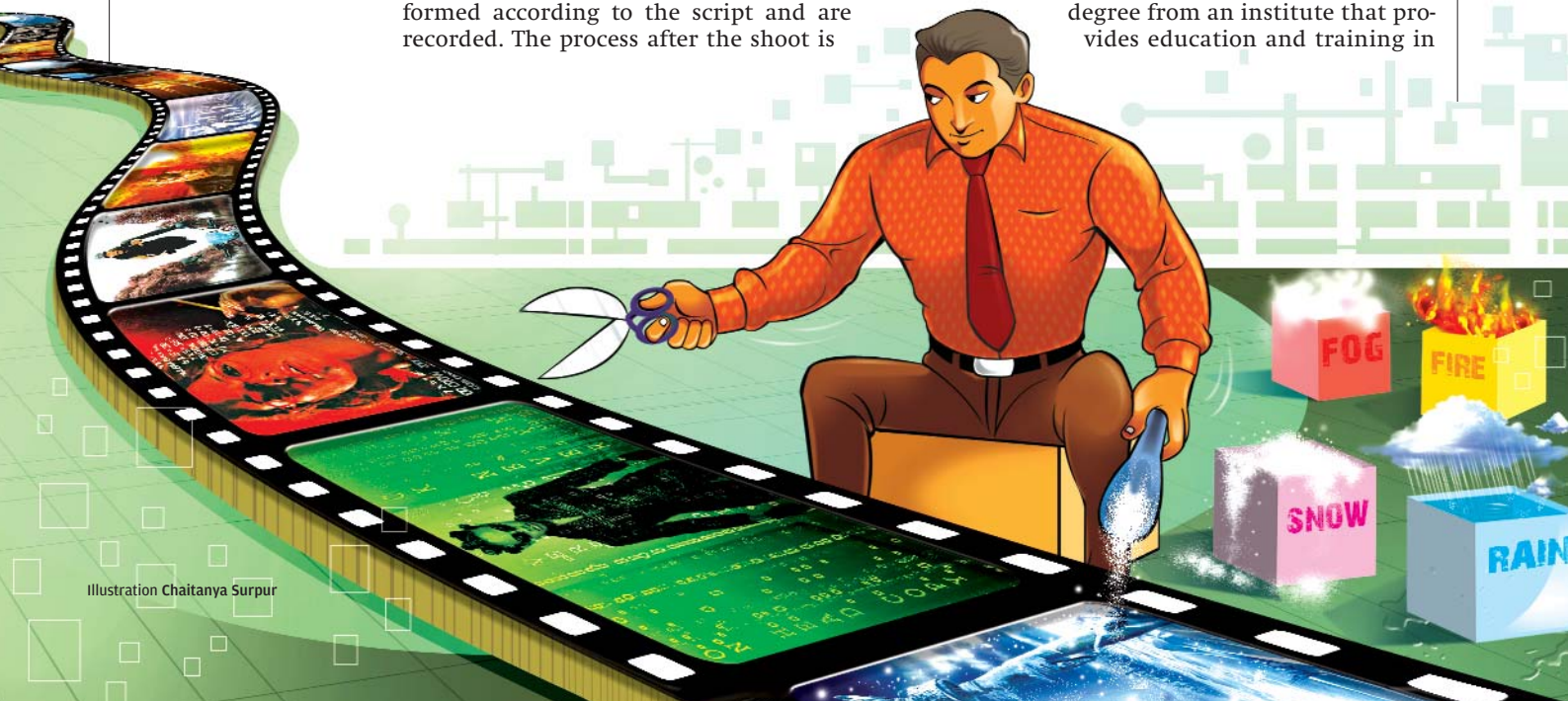
recorded is known as post-production, which involves putting together of the whole programme and giving it a final shape, replete with animation, graphics, and special effects.

"The Indian entertainment industry is on a high growth path, and now enjoys a respectable position on the global map. The industry, earlier referred to as unorganised, is now moving towards compartmentalisation of each task involved in the post-production process. Awareness amongst people about opportunities in post-production still falls short," says Raman Madan, regional manager, Animation and Desktop Video, South East Asia and India, Autodesk Media and Entertainment Solutions.

The post-production crew, naturally, plays an important role in turning the raw footage into a polished entertainment package. It's the art of transforming imagination or concepts into scenes with help of technical excellence and multimedia graphics. Ask yourself if "Graphical Imagery," "Special Effects," "Visual Effects," and "Editing" excite you—and you'd have the answer to whether you'd like to get into post-production.

### The How And The What

A comfortable way would be to get a degree from an institute that provides education and training in





film making and TV production. The courses available provide an overview of the film and television production process, where you can learn the arts and aesthetics of video production. The limited number of seats at such institutes means fierce competition. One of the advantages of joining such an institute is that you can get an internship, or assist with a project, which can be beneficial during or after the academic schedule. The basic requirement to gain admission into these institutes is a graduate degree; the good news is that it could be in any field.

The post-production process is exciting as well as challenging. It involves the correction of or improvement upon scene mistakes, and visual manipulation as well as enhancement of filmed shots. Pre-visualised concepts can be presented on the screen with the help of Computer Generated Imagery (CGI) or what is commonly called Visual Effects (Vfx). Professionals and artists from the animation field are very much in demand in post-production.

"This field is very broad, and the skill sets can be divided into two broad parts—Technical and Arts. A person should possess artistic grace as well as technical knowledge, besides other basic skills—drawing and sketching, visualising, painting, and storyboarding," says Prof Shashikant Pandey, Head of Department—Post Production at the Asian Academy of Film and Television, Noida (an institute that gives education and training in the art and craft of film and television production).

Aspirants planning to take up post-production as a career should begin grooming basic skills such as drawing, modelling, and visualising, and also acquire knowledge about the various tools and technologies used in post-production. Work hours are never fixed in this field, especially with news channels, which work round the clock. Those not willing to work at odd hours—or even, sometimes, all day—need to do some serious re-thinking about the field they're getting into!

"No specific qualification is required for entering this field. However, this is a service



**The Indian entertainment industry is slowly and gradually pacing up towards using cutting-edge technologies for better output"**

**Raman Madan**  
Regional manager,  
Animation and Desktop  
Video  
South East Asia & India  
AutoDesk

### Get The Training

**S**ome prominent institutes providing education and training on film and television production:

Film and Television Institute of India, Pune  
National Institute of Design, Ahmedabad  
Whistling Woods International, Mumbai  
Asian Academy of Film and Television, Noida  
Film and Television Institute of Tamil Nadu, Chennai  
Xavier's Institute of Communication, Mumbai  
Satyajit Ray Film & Television Institute, Kolkata  
Foundation Institute of Learning Media, Delhi  
Symbiosis Institute of Mass Communication, Pune  
L.V. Prasad Film & TV Academy, Chennai

sector, and the industry looks at hands-on experience, training received, and projects worked upon. Technical and artistic proficiency is only achieved after years of experience and positive attitude. Patience is a necessary virtue for any fresher joining the industry," says Naresh Malik, CEO, Pixion—a post-production house.

### Going Digital

Post-production has now been widely impacted by the digital revolution. Software and conversion techniques are incorporated as and when they are available, and are now being adopted in India in the entertainment industry. Education and training upon software that have the features used in post-production can be availed from private institutions.

These institutions include such names as Arena Multimedia, Maya Academy for Advanced Cinematics, Zee Institute of Media Arts, and Real Image Media Technologies Pvt Ltd, to name a few. These provide the latest career, professional, and short-term courses on editing, animation, graphics design, compositing, and Vfx. India has a large number of big, medium, and small private education and training Institutes, but only a few of them are certified by the multinational entities—Autodesk, Avid, Apple, Pinnacle, Adobe, Edius et al—who provide a wide range of software for specific purposes in post-production.

"The biggest problem in India is the lack of trained artists. Few students today are aware of the opportunities in this field, and that's why a lot of artists fumble when it comes to this as a career. But the trend is changing rapidly: some training institutes are doing a good job by imparting software training and education. At Prime Focus, we train our own crew members to make them better artists and provide a growth path for them," says Merzin Tavarra, creative director—Prime Focus Ltd (a post-production and Vfx service house).

Software makers are now moving towards providing education and training courses on the products they supply, which are accepted as standards in the industry for particular tasks such as editing, compositing, finishing etc. Their basic goal is to provide software education and training to meet the demands and requirements of the media and entertainment industry.

### Post-production Software Used By Professionals

#### Visual Effects

- ❑ Autodesk Lustre (Color Grading)
- ❑ Autodesk Maya, 3ds Max (animation)
- ❑ Mental Ray, VIZ
- ❑ Adobe AfterEffects
- ❑ Adobe Photoshop
- ❑ Autodesk Flame
- ❑ Character Studio
- ❑ Softimage XSI
- ❑ Avid 3D

#### Digital Compositing Softwares

- ❑ Autodesk Inferno, Flame, Fire and Combustion systems
- ❑ Adobe AfterEffects (Windows)
- ❑ Eyeon Digital Fusion/Fusion 5
- ❑ D2's Nuke

#### Editing and Finishing

- ❑ Adobe Premiere (Windows)
- ❑ Autodesk Smoke and Fire
- ❑ Avid Xpress Pro (Windows and Mac)
- ❑ Avid Media Composer (Windows)
- ❑ Avid Liquid (Windows)
- ❑ Avid Symphony Nitris (Windows)
- ❑ Avid DS Nitris (Microsoft Windows)
- ❑ Cinelerra (Linux)
- ❑ EditStudio Pro (Windows)
- ❑ Final Cut Pro (Mac OS X)
- ❑ Kino (Linux)
- ❑ Leitch's DPS Velocity (Windows)
- ❑ Magix Movie Edit Pro (Windows)
- ❑ Magix Video Deluxe (Windows)
- ❑ Pinnacle Studio (Windows)
- ❑ Ulead Video Studio (Windows)

Their efforts are in execution: they have training programmes at authorised training centres for products such as Smoke, Final Cut Pro, Maya, After Effects, and others. These are used for different purposes in post-production. At the end of the programme, candidates are awarded certificates by the companies (such as Autodesk, Avid, Apple, and Pinnacle), which are recognised as the certified students and instructors of their particular software.

"Today, a lot of work is done on the Smoke system, which has slowly started being identified as an industry standard for compositing and editing. I feel this course on Smoke has helped me enhance my career prospects," says Tilak Chari, a Smoke Artist employed with Famous Studios, and one of those who passed out in the first batch of the Autodesk Smoke course in collaboration with Zee Institute of Media Arts.

### Opportunities In India

As in many other areas, a fresher could face a chicken-and-egg situation: post-production houses, TV channels, and advertising agencies all want to hire those with experience. But how does one get experience without having gotten a job in the first place? However, there seems to be not too much cause for worry,



**The main challenge for professionals in this industry is to create a niche and get their work noticed. Only that can mark the beginning of a successful career"**

**Atul Vohra**  
Country head -  
Domestic Retail  
Arena Multimedia

because right now, opportunities in the field are unlimited. The television and film industries want to absorb young, talented freshers willing to work hard and acquire knowledge of the applicable technologies. Demand exceeds supply here.

The Indian entertainment industry has been proving its potential with movies such as *Black*, *Wah! Life Ho To Aisi*, *Rang De Basanti* and others, using international-standard post-production facilities.

"Today, many film makers and TV programme producers are outsourcing their work to production houses involved exclusively in post-production. There is plenty of work available in the market, but the industry is facing a shortage of talented and creative professionals," says Mohan Krishnan, head of corporate communications, Prasad EFX, a pre- and post-production house specialising in Vfx.

### The Figures

The Indian media and entertainment industry is expected to grow at a compound annual growth rate of 19 per cent to reach Rs 83,740 crore by 2010 from Rs 35,300 crore at present, according to a 2005 annual report by FICCI (Federation of Indian Chambers of Commerce and Industry) and PriceWaterhouseCoopers on the industry.

According to NASSCOM (the National Association of Software and Services Companies), post-production work of US and European film studios being outsourced to India could grow to an amazing Rs 44,650 crore by 2009.

### Summing It Up

The post-production industry is now incorporating the infrastructure to meet international standards. With the increase in expectations from clients and filmmakers, efforts are being applied for better output. The availability here of creative, skilled, English-speaking professionals, as well as cheaper ways to generate special effects with the use of the latest equipment and facilities has attracted many clients to outsource their post-production work from the US and Europe.

The process of post-production is getting broader and more compartmentalised. The need and opportunities for freshers and professionals will always be there. Unleash your latent creativity on-screen—with a little help from technology—and the world can be yours! ■

samir\_makwana@thinkdigit.com

## The Long And Winding Road

**P**lacements are possible at Television Channels, Post-Production Houses, Advertising Agencies, and NGOs. You could also freelance or even start a post-production house!

### A Broad Categories Of Career Profiles

**Post Production Executive/Project Manager:** Plans, handles and co-ordinates every activity of post-production

**Video Editor/Assistant Editors:** Editing of footage, cutting of scenes, making a final logical sequence of the footage

**Visual Mixer (Online Editor):** Receives a signal from the director to cut from one picture source to another, producing a smooth sequence of images.

**Visual Effects Supervisor:** A person with the experience and knowledge to generate visual graphics. He should also be able to work with natural phenomena like smoke, fire, flames, and particles

**Graphics Designer:** Creates, handles and co-ordinates still and motion graphics generation from the team of animators, modellers, designers, and such

**Visualiser:** An artist who conceptualises or visualises a particular scene or shot of a movie / program and pens it down in the form of words and storyboards and/or sketches

**Special Effects Artist:** An artist who plans or arranges for special-effect stunts and scenes

**Compositor:** Adds multiple layers and combines various elements such as live footage, still action, animation, and so on



REWIND



STOP



FAST FORWARD



for technology knowledge



To get speedy access to the best source of knowledge and insight in technology, fast forward to [www.zdnetindia.com](http://www.zdnetindia.com)





# Down To Earth

**Tremendous opportunities lie with every new technology—one only needs to know where and how to implement it to use exploit its full potential**

**Prakash Ballakoor**

**G**oogle Earth has never been far from controversy. Concerns of national security and breach of privacy have kept Google Earth in the limelight.

But it is easy to look at the dark side of technology, forgetting what it was intended for. Those who have felt the need for those terabytes of data from satellite imagery, aerial photography and GIS have made it a part of their business arsenal.

Google Earth comes in four versions (see box *The Flavours Of Google Earth*), each meant for a different kind of user. We will not talk about the Basic and Plus versions here—they are only meant for personal use, and are not intended for businesses.

## Earthly Professions

Google Earth Pro is being used in many businesses in the United States—insurance agencies, real estate developers and agents, NGOs and government organisations, the media, and asset tracking and security systems, among others. In each of these segments, Google Earth has helped businesses save millions of dollars, reduce their downtime, and increase efficiency.

Insurance companies are using software from companies such as Farallon Geographics, who use Google Earth to identify lands prone to earthquakes and flooding in areas in California. The identified hazard areas are then superimposed onto Google Earth. The data is so accurate that insurance companies are now able to tell if a building in an area is sitting on a fault line, and accordingly fix the premiums.

Car insurance companies such as GE Financial Insurance, Mercury Insurance, and Amica Insurance are now using Ensera's automated process for accident claims and repairs. Ensera is a technology company that develops automation processes for the automotive claims industry. Amica Insurance has fitted their claim agents' cars with digital cameras and laptops, which have software that uses Google earth with GPS tracking and mapping.

Real estate developers are a major target audience for Google Earth. In India, they, like their US counterparts such as Point2 and Earth Point ([www.earthpoint.us](http://www.earthpoint.us)) have started to use Google Earth. Real estate developers such as the Prestige Group and Goel Ganga Group, both based in Pune, have been using Google Earth in their businesses to show their clients plots they have for sale, or lock in on plots—through images—that their clients have to sell.

With the use of Google SketchUp, Real estate developers can make wireframes of their plans or create 3D buildings to place on Google Earth, allowing their clients to see how the plot is going to be developed. Roads, footpaths and fountains can be superimposed onto Google Earth. Rooms, windows, stairs, and balconies can be designed for the building, and the entire building can be built and modifications to the design done in hours.

Thousands of Realty Agents in the US, such as Just Real Estate Listings ([www.justrealestatelistings.com](http://www.justrealestatelistings.com)) and For Sale By Owner ([www.forsalebyownercenter.com](http://www.forsalebyownercenter.com)) have created Web sites with Google Earth images woven in, so that clients don't even have to come to a real estate agent's office to buy a house!

We didn't come across any Indian real estate developers using this on their Web site, but it will not be long before they do.

NGOs such as Abbott Laboratories and UNICEF are using Google Earth to identify disaster prone areas, and for disaster management services to identify their coverage and reach. It helps them strategise rescue and relief efforts in the event of natural calamities, co-ordinating

## Media persons or media crew members don't need to know each and every corner of a city to reach a location where news is breaking

with other NGOs to avoid duplicating the relief effort. NGOs in the US are using Google Earth to map out areas where bird flu outbreaks have taken place. They claim that with its help, they have been able to contain and sanitise areas where outbreaks were reported.

When Hurricane Katrina hit New Orleans, Google added a Katrina filter to Google Maps to show flood damage, which helped rescue and relief operations. Google Earth is said to have used over 100 map overlays in 24 hours of the hurricane to show the damage Katrina left behind. The reach and effectiveness of an NGO program can have a tremendous impact at the ground level when a tool such as Google Earth is effectively implemented.

Google Earth is now helping NGOs find alternative routes for traffic management at peak hours, saving commuting time and increasing business productivity.

Media houses such as BBC and CNN are using Google Earth to direct TV crews to the spot where the news is unfolding. CNN and *The New York Times* used Google Earth extensively to show places in Iraq when the war was going on and to explain what was happening—this gave viewers a better understanding of the story. Google Earth also showed media houses the topography of regions they otherwise could not access by air or road.

Google Earth is also used by security agencies like US Coastguard and US Army to plan and analyse the security of buildings, VIPs' movements, and the security of institutions. The maps have been helpful both to strategise and remove weak spots from a security cordon.

### Reaping The Benefits

Insurance companies have now reduced the number of staff visits to make surveys of buildings or land in the US if they have previous records of the building and if Google Earth images are continuously updated there. In the US, Google Earth images are frequently updated, except for sites of security installations. In most cases where previous records are available, the process of calculating the premium can now be done in couple of hours.

## The Flavours Of Google Earth

### Google Earth

This basic version is free for download. You can zoom in on any location on earth; the data is constantly being updated, and more and more areas are being covered in more detail. One can use it for entertainment as well as educational purposes. The best part is, it's free!

### Google Earth Plus

This is much like the basic version, and is for personal use. The premium features include tracking through GPS waypoints and high-resolution printouts.

### Google Earth Pro

This version is for business use, and includes the ability to add polygons of structures on Google Earth images. Additional add-ons include a movie maker, premium printing, and a GIS (Geographical Information Systems) importer.

### Google Earth Enterprise

Google Earth Enterprise allows the merging of enterprise data with ASP-based Google Earth data, and publishing this data throughout an organisation. It also has additional tools such as vectors and moving objects fused with Google maps.

Car insurance agencies are saving time by using GPS systems on Google Earth—they can send an agent who is closest to the accident spot, who then points the insurer to the nearest authorised service centre where the claim can be filed. Amica Insurance claims to have reduced the turnaround for a claim from eight days to one!

Media persons or media crew members don't need to know each and every corner of a city to reach a location where news is breaking. This is a good thing, since catching news as it unfolds is a huge advantage.

Rajesh Choudhary, real estate developer at Prestige Group, Pune, says, "We have a new type of customer thanks to this technology. We send our overseas clients images of plots taken from Google Earth, according to the dimensions or preferred location of our clients. After finalising the plot and the price, the client flies down only to sign the final documents. In addition, for customers who are new to the city or locality, it is much easier to make a decision with pin-ups of the locations of railway stations, parks, water bodies, shopping malls, entertainment centres, and so on."

Real-time tracking of their fleet allows transporters to reduce downtimes, manage fleet efficiently, and meet deadlines. If a transporter's truck takes a deviation or wrong path, it can be found in real-time and be corrected before it's too late. A truck can be found even if it is stationary. All this can save thousands of rupees.

### Indian Cultivation

Google Earth's low popularity in India is because computer penetration in the SoHo and small business sector is comparatively low, and broadband penetration even lower. Also, the initial cost of Rs 18,400 per year for Google Earth Pro is too much for a SoHo user. But once users understand and maximise its use as a major tool for business, it's just a matter of time before businesses in India, like their counterparts in the US, start using it.

Choudhary adds, "I got my return on investment with my first customer itself. Added to this are the tremendous savings for our company, both in time and money—our agent doesn't have to take the customer to the plot, because the customer already knows it. This saves manpower and travelling time. Hiring surveyors and their men, too, is eliminated, as land can be measured to the last centimetre using Google Earth."

### Harvesting It All

Google Earth is a promising and powerful tool, and we will know its usefulness once we start imbibing it in our businesses. Other potential businesses where Google Earth would be used extensively include locating and tapping wind energy, planning agricultural land, and designating relief centres. With the advent of cheaper computers and increasing broadband penetration, we should see Google Earth being a very useful tool in many more businesses. ■

*prakash\_ballakoor@thinkdigit.com*



# Accessing Social Networking Sites At The Workplace

Could such sites be useful for client relationships, or are they just productivity busters?

## The risk of employee productivity being affected is high

*Man Financial-Sify Securities India Pvt. Ltd., headquartered in Mumbai, offers online and offline equity and derivatives trading for retail customers, as well as execution and clearing services for financial institutions.*

“Social networking sites are cropping up into the work environment a lot these days. As far as my knowledge goes, a majority of people access them at the workplace for reasons other than maintaining relationships with business contacts and clients. Such sites are more social and informal connectivity junctures rather than strategic productivity tools for business contacts.



**Manojkumar Chandiramani**  
Vice President - IT  
MAN Financial Sify Securities

“A lot of man-hours and company resources get wasted by access to such sites”

“These sites have been in the news for varied reasons, whereas their use for employee recruitment or retention might be a rare case in India. A point to be noted is that these sites carry malicious code and adware, which increases the risk to the computers and the entire network of the company. Also, a lot of man-hours and company resources get wasted by access to such sites.

“Honestly, we’d prefer to be on the safe side, so our company has formulated a policy to restrict any access to social networking sites at the workplace. And to enforce this policy, our technical team has blocked access.

“We would definitely not recommend allowing access to the sites, for the simple reason that the risk of employee productivity being affected is high. Speaking personally, these sites are meant for keeping personal contacts, and at the workplace, should be used for maintaining relationships with clients.

“In the future, we might consider opening access to sites specifically for business networking and maintaining business relationships and contacts, if we feel that they could compliment our operations.”

## It is likely they can be more useful for nascent businesses

*Conceived in 2000, BillDesk is a service bureau that offers billers, banks and customers a comprehensive bill presentment, payment and management service.*

“We know our employees access social networking Web sites at our company. We do allow our employees access to networking sites at our office, but only selective sites.

“The reason for selective access is that a few of these sites are loaded with malicious code and explicit content. By restricting access to them, possible harm to the company network or computing systems can be avoided.

“Furthermore, such access is allowed only to specific



**M N Shrinivasu**  
Director  
BillDesk

“Hopefully, over a period of time, these sites will evolve to a level where networking can aid business”

employees of departments or functions of the organisation. As such, currently, we are not seeing any major translated advantage of such access for the organisation as a whole. Hopefully, over a period of time, these sites will evolve to a level where networking can aid business.

“These sites, particularly those that have a business orientation, are relevant today for two key reasons—these are global and have participation from varying stakeholders who have specific objectives: for example, vendors, clients, the competition, potential recruits and so on. Second, they have the network impact. It is also likely they will be more useful for nascent and growing businesses as opposed to well-established businesses.

“From an organisational perspective, the policy of selective access would be based on the concerned network in some sense being able to aid business / organisational goals. A site that is focused primarily on encouraging social dating, if allowed unhindered access, would perhaps result in substantial diversion of employee time. Hence, we have based our decision purely on a perception of those sites that have organisational relevance and that can aid either knowledge sharing or employee performance.”

*As told to Samir Makwana  
(samir\_makwana@thinkdigit.com)*



**129** Game On



**133** The Bit Defender



**148** What's With Tape?

# Digital Leisure

Technology Beyond Work

## Lead Feature

# Of Brands And Brawn

The best aren't necessarily the most popular, and vice versa...

Agent001

**"Let me just Xerox my passport, then we can leave!"**  
**"Dammit, my new Discman skips at the tiniest jerk!"**  
**"I'm fed up of Googling, I can't find anything!"**

Every italicised word in the sentences above is a technology misnomer (an incorrect usage of a word). Xerox, once, was the biggest photocopier brand; and since *photocopy* wasn't as convenient as saying *Xerox*, it stuck. The Discman was Sony's invention, but the name stuck for every "portable CD player". Google, or *Googling*, as we all know, has become synonymous with searching the Net. Recently, Google objected to the use of their name as a verb, but most people will probably continue to use the phrase out of print.

Anyway, I'm not here to tell you about misnomers, or generalized technology trademarks. If you're interested in such things, you should visit [http://en.wikipedia.org/wiki/List\\_of\\_generic\\_and\\_genericized\\_trademarks](http://en.wikipedia.org/wiki/List_of_generic_and_genericized_trademarks)

for a nice big list. The point is that, such terms became popular because of a brand, generally the biggest (or the pioneers) in that field. And that is the power of...

## Marketing

What I'm here to talk about is the difference between a great product, and great marketing. Most of us wear blinders when we go out to buy something—we just opt for what's most popular. At *Digit*, we try and provide you with the market reality, and test everything we can—even previously unheard-of brands. But we can't test everything, and we only exist in the technology domain; what about everything else?

## It's All Good

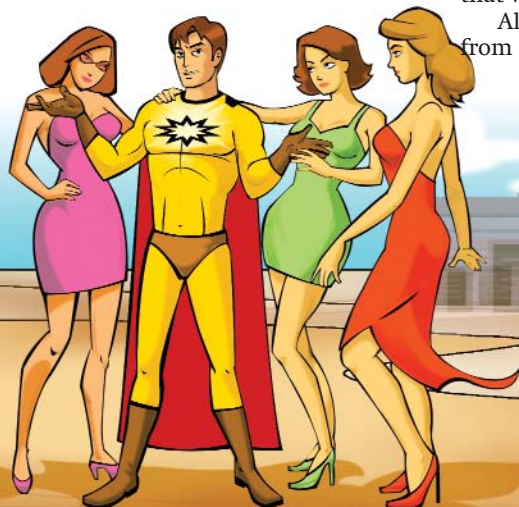
Before I go any further, I'd like to make sure that manufacturers and big brand executives don't show up at my office, with straws, to drink my freshly shed blood! I'm not here to say that the biggest brands make sub-standard products, because that would just be stupid!

Almost every product, from the most expensive

graphics card to the really, really cheap pen drives that are jumping across the border from China, have something about them that makes them a worthy buy—if it's not a good feature set, it's an unbeatable price. But needs differ, and there is enough of a choice of products for every need—all thanks to competition, which makes brands come up with better products at better price points. Some brands will sacrifice certain features, if they feel that the majority of buyers do not need it, and drop prices; others might pack a device to the brim with features, which many of us might never need, and charge a premium for it. The point is that we need to understand the difference between...

## "I Need" and "I Want"

I have a particularly peculiar predicament. (*Try repeating that really fast!*) I am constantly torn between advising people to buy what's good, or buy what's popular. Sometimes, what's good can actually be bad!





Let me give you an example to explain further:

A friend of the female persuasion wanted to buy an MP3 player. She wanted something cool and easy to use... something that could hold her entire 4 GB song collection and some videos/movies, and that offered decent battery life. Now I happen to know that this damsel in distress has a really slow computer, with USB 1.1 connectors, so if I suggested an iPod, she'd be cursing me every time she wanted to transfer music to her player. I'm sure you'll agree that Apple's pushing of QuickTime as the only way to transfer music to and from your iPod is irritating.

So I suggested a Creative Zen Vision:M. It's got a nice 262K colour screen, which makes the iPod's 65K screen look pale. She bought one, and was thrilled...for exactly four days and five hours. She went to one of her socialite gatherings, where all her colleagues were showing off their new iPod Video players. Exactly 12 minutes after she walked into the party, I got a call from her. She was disappointed with me, and refused to take my calls for five days! If only she'd asked me what was a good buy to show off with, instead of asking me for an MP3 player with good video support and decent battery life—how was I to know that her biggest need was that the gadgeter...

### Should Be Popular

I made up for my folly. After spending half-an-hour with her husband, listing the feature-set of the Vision:M, he was only too happy to take that *dreadful* Zen Vision:M off his wife's hands, in exchange for buying her an iPod Video. Now, he's happily pretending to be a techie at work, citing the superior features of his Vision:M, while she's been forgiven by her friends, and has happily joined the legions of the iPeople!

I learnt the hard way that most people just do not want to start trends, they'd rather follow existing ones. Only a handful few are happy to buy a device that is powerful, has great features, is easy to use *and* is good looking. They'd rather show off with something that everyone expects them to buy, or, more importantly, something that everyone else *aspires* to buy.

Of course, what's popular isn't always bad, and as the next example will show you, sometimes...

### It Just Doesn't Make Sense!

When I decided I needed a new phone, not only did I know what I would buy, but I also knew what I wouldn't. I knew the functionality I needed: basically a good GPRS phone with a great camera and music capabilities. If I was to go *only* by the advertisements on TV, I would have ended up with a Sony Ericsson W800i Walkman phone. Instead, I went out and bought the Sony Ericsson K750i... The price difference, then, between the two was about Rs 5,000. There is no hardware difference between the two models, the W800i just ships with a 512 MB memory card, as opposed to 64 MB with the K750i, and the W800i has a hands-free cable that allows you to connect any pair of headphones to it. Apart from this, they are identical—and honestly, I prefer the K750i's colour and sliding lens cover.

Even today, the W800i is available for about Rs 15,000, about Rs 4,000 more than the K750i. For the difference, you can buy a 2 GB memory card *and* the W800i's hands-free connector—and if you really want, you can flash your K750i with the W800i's firmware. You'll still end up saving about Rs. 2000!

Thankfully, buyers seem to have seen this very obvious flaw in product positioning and pricing, and the K750i seems to have become the popular choice. However, I wonder how many people went out and bought the W800i, based solely on the TV ads, instead of checking specifications and reading reviews? And remember, this was not two competing brands, just two models of the same brand—no wonder people are so confused.

Another bad thing that marketing does, is cause...

### Misconceptions

I can't count the number of people who think Windows Media Center PCs are the best thing since the invention of denim!

"Wow, I want one! I want to be able to pause TV and skip past ads!", seems to be the popular desire. And, sadly, a lot of people think that this cannot be done unless they buy a Media Center PC. We can thank Microsoft's big ad budgets for that!



**If only my friend had asked me for a good buy to show off with instead of a good MP3 Player!**

What people don't realise is that this little peripheral called a TV tuner card has been around for ages, and has allowed us to do all the same things, and more. And you don't need to go out and buy a new PC or laptop; your existing hardware will do just fine! In fact, most mid- to high-end TV tuner cards come bundled with software that will let you do a *lot* more than what Media Center can do—such as edit the videos you've saved using the bundled editing software. You still get a remote, a programming guide, the ability to "pause live TV", record while you're out, fast forward ads when watching recorded material, burn DVDs, etc.

At least we can thank Microsoft for popularising the usefulness of TV tuners! Which brings me to the end of this...

### Ranting

The point is simple. Assess your needs and look around at options before you buy, and don't let things such as the popularity of a product sway your buying decision. This is especially true for personal devices, which need to be... well... personal; they should give you everything you need, and not just be eye-candy for your friends.

My friend, the iPerson I mentioned earlier, tells me that she still hasn't been able to transfer any video to her iPod—QuickTime and USB 1.1 are killing her joy. She also *moved* her music collection from her PC to the iPod, and now cannot transfer it to her laptop! She can thank Apple's paranoia of piracy for that! Needless to say, I have started avoiding her calls... thank God she doesn't read Digit! ■

agent001@thinkdigit.com



# PREY

## Oh, The Humanity

**P**rey is the story of Tommy, a Cherokee Indian who's all but rejecting his culture, when bigger problems hit him—aliens abduct him, his grandfather and his girlfriend, and take them all aboard the Sphere to be turned into food. Tommy miraculously escapes the assembly line, his girlfriend gets unlucky as she's turned into the Sphere's own plaything, and the grandfather gets even more unlucky in the Sphere's digestive tracts. Now Tommy must save his girlfriend, and while he's at it, the rest of the planet. Yawn. So on goes our little Tommy, blasting away at the alien army, walking on walls, and taking spiritual journeys with ol' grandpa. Soon enough, his abilities grow to include the "Spirit Walk", which lets him leave his physical self and walk around as a spirit. What strange creatures will he encounter? Why is the Sphere here? And why is it playing with his girlfriend? Gripping stuff, I tell you.

Right from the outset, *Prey* looks good, and the environment design is impressive. One fun feature is gravity flipping, where you change the direction of gravity by shooting at the...well...gravity flipper. This gets you pretty disoriented and has been known to cause motion sickness—if that isn't motivation to try it out, I don't know what is. There, sadly, ends the good part. The game's weird level design and bells and whistles like gravity flipping and wall-walking, while fun for a bit, seem to be there to disorient you into believing that this is a good game, but at its heart, it isn't.

The story is stupid when it starts out, and provides little motivation to continue. It picks up later, but that's a relative term. The Spirit Walk is pointless—you'd expect to be floating around through walls—at the very least, floating around. Surprise, surprise—your spirit is only slightly less limited than your body—it passes through forcefields and can walk on special spirit walkways, but *it obeys gravity!*

If you're looking for a challenge, you should turn your attention elsewhere. Apart from the few puzzles, *Prey* has little to offer. When you die, you're sent to a spirit realm, where you must shoot down spirits to gain health points to return to the real world, right where you left off. Neat concept—no more quicksaving!

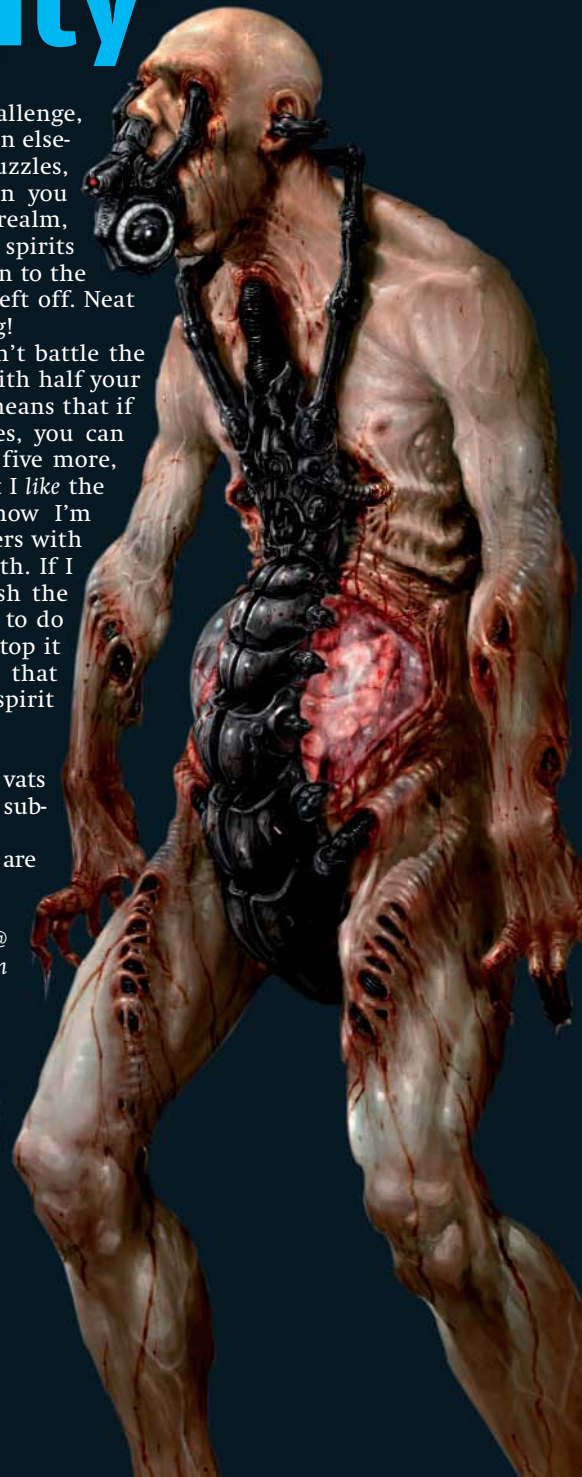
Of course, even if you don't battle the spirits, you still come back with half your health—you *never* die. Which means that if you're faced with twenty foes, you can kill ten, die, come back, kill five more, die again... Call me crazy, but I like the challenge of figuring out how I'm going to eliminate fifty soldiers with just forty percent of my health. If I can just come back and finish the job, why waste energy trying to do it right in the first place? To top it off, there are even markers that tell you when to use the spirit walk. Genius.

*Prey* is the game for you if:

1. You are easily satisfied by vats of blood, miscellaneous gooey substances, and pretty graphics
2. You are brain-dead, and are looking to stay that way

nimish\_chandiramani@  
thinkdigit.com

Rating: **5/10**  
Developer: **3D Realms**  
Publisher: **2K Games**  
Distributor: **E-Xpress Interactive**  
Contact: **022-28850245**  
Price: **Rs 1299**  
Minimum System Requirements: **Pentium 4 2.0 GHz or AMD Athlon XP 2000+ processor, 512 MB RAM, DirectX 9.0c compatible 64 MB video card**







# CALL OF JUAREZ



## Draw... Yer Yella Dawg!

A classic western theme to a traditional FPS isn't oft-trodden territory. Thankfully, this game testifies to the fact that sometimes the off-beat road can be better—and uncommon isn't always un-cool!

*Call of Juarez* starts off with you playing Billy Candle, a half-breed about to revisit his old town and his parent's ranch. He's been somewhat of a black sheep in spite of his wee years, and it doesn't help when he finds his mother and stepfather murdered, and he's accused of doing it—by none other than Reverend Ray, Billy's uncle and padre-turned-gunfighter.

What follows is a run for the border (well not quite), as Billy makes his way out of town with his girlfriend Molly's ranch in mind as a next stop, and a posse dogging his heels. Upon arrival at the ranch, the story takes a real twist, and things heat up even more.

Throughout the game, and some well-told storytelling cutscenes, you'll play alternately as Billy and Reverend Ray, as you adventure along, using stealth and your whip (Billy), and your Bible and colts (Ray). You'll battle Red Indians, crooked lawmen, thieves, and even members of the Juarez gang (I'm not saying a word more about Juarez—play the game!). The story is pretty engrossing if not epic, and I

must say it's been implemented rather well.

Playing *Call of Juarez* is a pleasure—you'll just love Ray's shoot 'em style, especially the gunfights, where everything slows down as Ray's hands blur downwards unholstering his lead spitters. The game looks awesome, if you have the hardware to crank the visuals up (I do!), and it supports parallax mapping, HDR, and goodly doses of specular lighting effects.

Some amazing Wild West scenery comes to vibrant life—rolling hills dotted with startlingly realistic greenery, deserts complete with rock outcroppings, and the ever-swirling dust all add up to a very immersive and believable environment.

The levels are huge, and you'll frequently have to travel by horseback to get around. Sound effects are superb, well in keeping with the game's visuals.

All in all, regardless of whether you know Clint Eastwood from John Wayne, hark the *Call of Juarez*—you won't be disappointed!

michael\_browne@thinkdigit.com

Rating: **8/10**  
Developer: **Techland**  
Publisher: **Ubisoft**  
Minimum System Requirements: **1.8 GHz Pentium 4, 512 MB RAM, 128 MB video card, 4 GB free hard disk space**





# DARKSTAR ONE

## A Near-Perfect Blend

In the drought that followed *Freespace 2*, we'd given up hope of seeing even a half-decent space combat game, and *Darkstar One's* (DS1) emergence from the Shadows can only signal good things for the genre.

### The Story

DS1 is about Kayron Jarvis, a young pilot who inherits a mysterious ship from his father—the Darkstar One. The ship has the unique ability to upgrade itself when the time comes, making it even more powerful as time goes by. In this ship, Kayron must now travel the galaxy in search of his father's murderer. He will encounter the whole spectrum of galactic species, notably the vile Thul. Of course, he'll also have to earn money to upgrade the ship, for which he needs to take on assignments ranging from simple escort missions to hunting down pirates. The game's story is a long one, and while it's hardly gripping, it does generate enough curiosity to find out what happens next. You're not really confined to the story—you can take on side missions aplenty, raking in the moolah for each assignment. You can also indulge in trade and smuggling, and the principle behind making money thus is quite simple—buy low, sell high.

### The Ship

Where other games would start you off on a ship with an eggshell for a hull, the Darkstar One is a ship that starts out very powerful, and when fully kitted out is nigh-on invincible. You control the ship with the mouse—quite twitchy, one might mention. There's also no option to tweak mouse sensitivity, so either get a joystick or get used to it. However, the initial training missions are well-done, and get you familiar with the ship's other controls in a snap. To upgrade the Darkstar One, you'll

need to find artefacts to absorb. They're all located inside asteroids, and flying into them down the mining tunnels is a heady, disorienting experience, and plenty of fun. There are more than a hundred things you can buy for your ship apart from these “natural” upgrades, so the number of combinations you can come up with boggles the mind.

### The Graphics

DS1 has a huge array of ship models, each exquisitely detailed. In addition, it brings to outer space a beauty that hasn't been touched by other games. The settings are sadly repetitive—one planet, one trading station, one or more research stations, and a nearby asteroid field optional. Still, textures and lighting is brilliant, and you can't take your eyes off it. There is a graphics bug in this though—if you turn off anti-aliasing (we did it to speed up the game), the display goes all wonky. Aberrations ranged from shaky screens to everything becoming a set of glowing edges on a black background. You'll need a patch to fix this.

### The Verdict

Unlike games like *X3: Reunion*, which focused more on trade and economy and rendered themselves boring, *Darkstar One* knows where its heart is—combat. Even the seemingly harmless assignments often end in skirmishes with pirates, keeping the fun alive. Trade is simple and no-nonsense, and the Time Acceleration feature ensures you don't need to travel long, boring distances. The game is open-ended enough to keep you happy, but following the very complex storyline is entertaining enough for anyone. Voice acting is inconsistent—sometimes good, but sometimes bordering on the level of school plays. We also encountered some issues with the copy-protection—the game would just freeze and send the hard disk into a spinning frenzy every once in a while. Definitely one title you want to check out—make sure you patch it though.

*nimish\_chandiramani@thinkdigit.com*



Rating: **8/10**

Developer: **Ascaron**

Publisher: **CDV**

Minimum System Requirements:

**Intel/AMD 1.6 GHz, Windows XP (32-bit),**

**512 MB RAM, DX9-compatible 128 MB**

**graphics card**



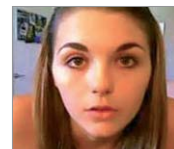
### Some People...

A man on trial, in a Californian court, decided to steal computers from the court house itself. Jon Eipp, 39, claimed he wanted help with his drug problems and sanity, and stole to attract attention. Incidentally, he was on trial for computer theft!



### Lonelygirl15

[www.lonelygirl15.com](http://www.lonelygirl15.com), an Internet-TV reality show, says that it will use only Open Source software to power its project. People were buzzing about this site, but we really didn't see the point of it. So she's lonely, and on the Internet. How original!



# Escape

## THE DEATH OF AN IPOD

# Here Come The iKillers!

Oh, so many people and huge corporations would jump for joy; if that ever happened! Products are like Arab dictators, and if they get too loud and popular, chances are there will be coups and attempts to be overthrown, and attacks from the bushes!

The iPod may have sparked a revolution, started a religion, united the masses and spawned a whole new segment of products... but it's going down, baby! Or so the following products are hoping you will believe...

SanDisk, a well known Flash memory manufacturer, recently launched the Sansa e200 series of portable media devices. The series will have 2, 4, 6 and 8 GB variants, will play music, display pictures, and also play movie clips, apart from having an FM tuner. They're being pitted against the iPod nano, and will tie up with Real

Networks' Rhapsody service to take on Apple's iTunes.

The Sansa e200 series players come with one major difference from the nano: they have a microSD card slot, so you can add to the existing memory—as much as 2 GB more!

Another contender is Microsoft's soon-to-be-released Zune player, which has 30 GB of space, plays everything, and also throws in Wi-Fi connectivity so users can share media!

Seems everyone is jumping onto this wagon, and Apple's got a fight on its hands. However, considering that iPod alternatives have been around longer than the iPod itself, and no-one has dethroned it yet, perhaps the millions of happy iPeople won't even notice that their coolness is under threat!

Will Apple lose to any of the challengers? Is it mean for us, the media, to be

pitting every new personal audio device against the almighty iPod? Should we stop? Hell no! Stay tuned to this space for updates on World War III!

## ALL TIED-UP

# What's With All The Tie-Ups?

If you believe in Big Brother, this is not a good time to be alive! The biggest corporations seem to have lost that competitive edge, and are adopting the "share the spoils" attitude! Conspiracy theories abound, and everyone is "partnering" with everyone else to take over the world! First it was the Yahoo! + MSN Messenger service tie-up, which was good,

## Whatever Happened To...

### BeOS?

In the wave of alternative OSes—which eventually boiled down to just Linux and the BSDs—BeOS was much-touted as the golden boy for multimedia, whether it involved creating it or viewing it.

Unfortunately, it turned out that that was *all* that BeOS was good at. It had no native video drivers, and at a time when even Linux didn't support most peripherals, expecting a nondescript, off-beat OS to have them was a stretch of optimism. BeOS was built for specific machines, and ran well on them—few others were so lucky.

Another thing that did BeOS in, probably as a result of its small audience, was poor application support. Very little software was developed for the platform, as is the case today. So did the OS just die? BeOS eventually sold out to Palm, those people are now involved in the development of Palm's OS.

Still, the fire remains. As in many such cases, BeOS still remains supported by a healthy community, which keeps developing new applications for the system and even ports new applications to it. You will find them at [www.bebits.com](http://www.bebits.com), and you can even download the BeOS 5 Personal Edition—the last officially-released version. For all intents and purposes, BeOS is now, more than ever, the enthusiast's OS.

## Win! My Desktop

Last month's winner is Kailash from Bangalore. His Desktop was a tad gaudy, but Kailash's age (14) worked in his favour—and he seems to have done some fiddling around! Kailash used Alpha Xp, icons from CrystalXp.net, the Clear Clock .dxdpack, and the Silica MP3 Player Widget.

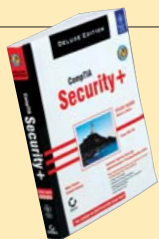
**Congratulations!**

Participate in this contest and win next month

**CompTIA Security +**

by Mike Pastore & Emmett Dulaney  
Published by

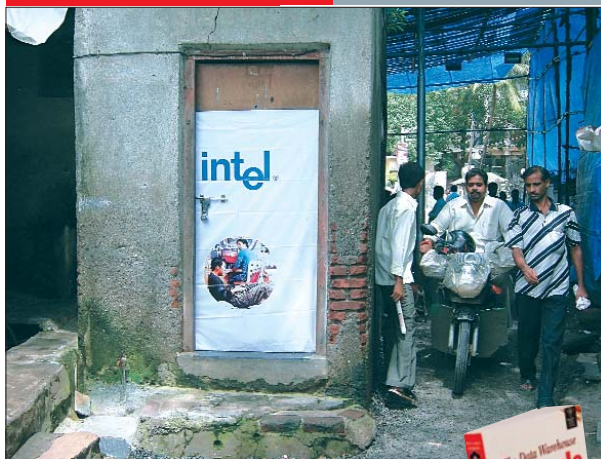
 **WILEY-INDIA**



Send your Desktop with a description of how you made it to [mydesktop@thinkdigit.com](mailto:mydesktop@thinkdigit.com) with the subject "My Desktop", and tell us your postal address, too.

## DigiPick of the month

"Intel Outside?"



Last month's winner is **Bhavik Panchal** Mumbai

Participate and win next month **Lifecycle Toolkit** by Ralph Kimball, Laura Reeves Margy Ross & Warren Thornthwaite

**WILEY-INDIA**

### WIN!

Send in your entry and you could win an exciting gift just by sharing an amusing picture with a tech angle to it. The picture should have been shot by you, and should not have been published anywhere earlier. E-mail your picture with the subject **'DigiPick'** and your postal address **on or before the 20th of this month** to [digipick@thinkdigit.com](mailto:digipick@thinkdigit.com). One prize-winning picture will be published each month.

because now everyone can have just one IM client. Of course, promptly after this, it was rumoured that AOL would tie-up with Google!

Now, Google and Apple are supposedly in talks to merge Google Video content with Apple's iTV set-top box service. The rumours are based on the news that Google CEO Eric Schmidt joined the board of directors at Apple in August.

Of course, it's not just Google Video that might have Apple interested; there's also Gmail and search, Google's forte. Gmail can take care of the login/authentication aspect and bring millions of existing subscribers to iTV-land, and, let's face it, having Google's search expertise on your side just cannot be a bad thing!

Apple's iTV box and service is expected to launch in Q1 of 2007, so it will be a while before we know for sure. One thing we can predict is that no single

corporation seems to want to do it all alone, not even Microsoft! So expect to see many more reports of "tie-ups" happening in the news.

### STOP BEING SO BORING

## Cooler Apps For Vista Please!

**J**im Allchin, President of the Platform Products and Services Group at Microsoft (read: big boss of Vista), has written an open letter to MSDN that asks developers to start building "cool" applications for Windows Vista.

Apart from the obvious changes in application programming, such as not requiring administrator privileges, using the new graphics API and DotNET 3.0, it seems that Microsoft are hoping that developers will harness the power of

Vista's graphics core and DirectX 10 to make "better-looking" applications as well.

It's a valid point, too; we've all seen the RC1 release of Vista, and have noticed that though the OS is cool, everything else looks exactly like Windows XP. A little transparency here and a sidebar there is all that hints at a brand new OS. Only techies understand why it's taken five years to build.

Perhaps this is why Microsoft might be interested in asking MSDN members to build "cooler" programs—to show the non-techies amongst us why it took so long to develop!

On another note, is it really "cool apps" we need? A poster on a message board has summed it up nicely for us: "No, Jim, Vista doesn't need 'cool' apps. It needs practically-conceived and well-executed applications that easily and quickly accomplish a task. After you've built that, then you can add the eye-candy."

### OOPS!

## Data Recovery Gems

**U**K data recovery specialists Disklabs, recently released a list of weird data disasters, in an article by *The Register* ([www.theregister.co.uk](http://www.theregister.co.uk)). From the over 50,000 data recovery cases a year that Disklabs attends to, the weirdest requests were a cat urinating on a laptop; a salesman leaving his laptop

## People Who Changed Computing

### The Bit Defender

Prof Fred Cohen, on the 3rd of November 1983, created the first documented computer virus. He "injected" this virus into a graphical program called VD that was written for the Vax mini-computer. In his



Fred Cohen

demonstration, the virus paralysed the operation of the computer.

The term "virus" was only coined the next year. More than 110,000 viruses exist today. Cohen spent the next five years working on defences against viruses.

Cohen started theoretical research in the early 1980s; he set up practical experiments involving viral programs to demonstrate data theft and to show how a virus could seize the functioning of computer by virtue of its ability to replicate. In 1989, Cohen won the International Information Technology award for his work on data integrity protection.

Cohen has designed network protocols for secure transfer of voice, video, and data. He helped to develop a cash-watch, which we now know as the electronic wallet. His recommendations for good practices in data protection are now used the world over, including the idea that only trained system administrators should have complete access to critical components of a system like file servers, and that other users should have only limited access. The ideas of regular backups and audit trails to be maintained regularly are also due to Cohen.



# Bluff

YOUR WAY THROUGH

## Web 2.0 Gibberish

If you ever want to pass yourself off as a technology analyst, Web 2.0 is your best friend—nobody knows what it even means! All we *really* know is that it's about social surfing and other such touchy-feely nonsense. Surf with your friends! Tell them what you liked, and make them like it! Create new buzzwords!

### Folksonomy

The new Taxonomy—while organisations decided categories for content in Web 1.0, the task is now offloaded onto the masses. Better known as: “You filed that picture under *what???*”

### Tagging

The act of contributing to a folksonomy. Better known as “I think I’ll categorise this Web page as ‘l33t’, ‘uber-cool’ and ‘hot stuff!’”

### Mashup

A collection of services, all “mashed up” into one. Better known as “I have a Web site that lets you view YouTube videos when you click the places I vacationed in, on Google Maps!”

### Rich Internet Application (RIA)

A pretty, more user-friendly version of the same sites you see today, so more people will visit them. Better known as “Ooooh! Did you see the way that menu came down?”

### AJAX

Asynchronous JavaScript and XML—the Great Enabler of the RIA. No Web 2.0 conversation should pass without at least 20 mentions, one of which should be “I’ve put AJAX on my site”, even if all that AJAX does is print “Hello World” on the page.

Finally, the best way to get them to believe you is to string these words together in random order. For a handy guide, refer to the Web 2.0 Bullshit Generator—bullshit—at <http://emptybottle.org/bullshit>

Now go out there and share dynamic ad-delivery!

## Wild Wild Web

### London Burning

We learnt about this one late—it happened on the 16th of August: London had hit an all-time-high temperature of a titanium-melting 1,777 degrees C on that fateful day. Funny thing: we never heard about people dying, or about Tower Bridge melting, or anything of the sort.

So now we *know* they should have elected Gore: he had a lot to say about global warming and such, while Bush is pretty happy hacking down forests in Alaska. If you’ve heard about the butterfly effect (we told you about it in the August issue), you’ll know that such things can have worldwide repercussions.

Or was there a hole in the ozone layer *just* above London, through which the sun shone, umm, a little brighter? Or perhaps the thermometer just went kaput at the time of the reading? Or perhaps the BBC just screwed up on its Internet ticker? No, that can’t be. If the BBC said it, it must be true. Refer ticker below.

### Irwin Dead, But Up For Sale

This isn’t about an eBay auction, but rather about a gaffe on the part of Google’s bots. These bots have a tendency to make interesting little goof-ups, some of which you might have noticed: go a site that has information on spam,



and you’ll see “Best deals on spam! Click here!” (Now it’s got to be one seriously lobotomised individual that’ll *pay* for spam.) Anyway, the gaffe in question was this: someone in the UK typed in “irwin steve dead” into the Google search bar, and was presented with the following ad, as in the screenshot above: [www.ebay.co.uk](http://www.ebay.co.uk)

*Find Steve Irwin Dead! Buy Steve Irwin Dead on eBay*

Bots do bungle, but this bit is too much for anyone to, umm, digest. Still, it’s the same bots that give us the Web—so let’s shut up and not complain.

### As S\*\*\*ty As It Gets

Not literally. We’re talking about a bronze cast of poop. It’s not any old poop, mind you: it’s the first-produced poop of the baby of Tom Cruise and Katie Holmes. Basic sensibilities pre-

vent us from reproducing a picture of the bronze cast, which went for sale on eBay.

Actually, baby poop isn’t that disgusting, especially for doting mothers. (For those of us who can’t be doting mothers, especially the men amongst us, it *is* disgusting.)

You can’t buy it, though. The auction ended September 9. Bummer.

**BBC WEATHER 16 August 2006 • London: 1777C • Paris: 21C • Moscow: 24C**

on top of his car, and then driving off, dropping it in the process; a freshly-fired IT manager kicking a server; the dropping of 120 barrels of crude oil on a laptop; and our favourite—the wife who chucked her husband’s laptop down a well!

We wonder how Disklabs’ employees ever get any work done with all these gems floating around. One thing’s for sure—we’d all love to be on their mailing lists!

### TERRORISTS BEWARE

## The War Against Terror

In the past few years, major terrorist attacks around the world have

changed us into a paranoid bunch. It’s not just on airplanes, trains and buses that we’re apprehensive, and being security checked by policemen is pretty much standard. But getting into your mobile and PC? Now that’s unacceptable!

Just how paranoid are we? Let’s find out:

Gentag, a mobile hardware developer, has been awarded a patent for sensors in mobile devices that warn the owner about toxic fumes in the vicinity. This is how Gentag hopes to warn people of an impending chemical weapon attack.

Of course, this is just a patent, and not a product, so there’s time before your watch, mobile or PDA will start going crazy if someone left the gas on in the house!

Then there’s the study

that discovered that a certain type of sunfish, mainly found in North America, is very sensitive to toxins in the water. So what they’re doing over there in the US is keeping a tank of these fish, and constantly changing the water in the tank using the municipal’s water supply. This way, if there’s an attack that involves poisoning or polluting drinking water, the fish will show the symptoms. And you thought that fish were only good for food...

You would think that, by now, there would be some cool gadget that did the same thing, more accurately, and without harming innocent fish! It seems we’re going backwards in time to the days when miners carried canaries in cages down

with them... we're still wondering whether those fish would survive our clean municipal water here in India!

#### PATCHING AWAY

## Windows Media DRM Patch Needed

There's a little application called FreeUse4WM that is causing quite a stir. Basically, what this utility does is remove the copy-protection of files that use Windows Media Digital Rights Management (DRM), in protest of Microsoft's "big brother" behaviour.

At the time of writing, no patch had been released, and a lot of services had been disrupted. Most notably, British Sky Broadcasting (BSkyB), a large player in satellite TV and broadband in the UK, had to stop their broadband movie service

## Of Bitchfests, Beanbags, And Bums

There is a beanbag in our office. Ed, who is a potato, had ordered it for himself, but Vishal, being new here, innocently thought he had equal rights to it. He's been roaming the aisles lugging it around, and plonks it down ever so often so as to sit upon it. The thing has now taken on the ungainly contours of his bum.

Meanwhile, Agent 001 was bitching about brands, and the designers and layout chaps were bitching about too much work. (65 graphics cards and 43 laptops, for God's sake!) All courtesy you, our readers—you've come to expect too much from us. We're pretty much sick of Shivilal bitching about product tables, and Pillaiji bitching about Ed's "Are we there yet?", so we're requesting you to stop asking us for more and more reviews. It's just too much work.

So that's us bitching right here about you guys—see, at least we don't lie and say we love you. (Heh—just kidding! Really!)

Priorities vary. Ed wants things finished the day before, so there is some bitching going on there—Ed wouldn't mind defenestrating some cards if it helped his cause. Michael, much to Sanket's dismay, wants to play *all* games on *all* cards before pronouncing a verdict:

**Sanket:** Write out the table already!

**Mike:** But I haven't even finished the second lev...

**Sanket:** But the bloody mag has to get out there on the bloody stands!

So that's the way it went, this whole bloody issue. Ed shot Vishal and reclaimed his beanbag, and is hoping Vishal hadn't f\*\*ted too much.

**DIGIT DIARY**

because of FreeUse4WM.

A notice on their site proclaimed, "In order to make an essential update to the Sky by Broadband security system, we are sorry that access to all movies and some sports content has been temporarily suspended."

Microsoft said they were

working on a fix, and all service providers need not worry about patching, because Windows Media DRM comes with an inbuilt upgrade facility that would patch the security system once the patch was available.

We don't know about you, but we could have sworn we heard Steve Jobs

chuckling, all the way here in India. Apple, which uses the FairPlay DRM for its content, is sitting pretty for the moment. However, FairPlay has had it's share of problems and patches in the past, and, we suspect, will do so in the future as well! ☒

## Blog WATCH

**Leopard vs. Vista is the topic of many blog posts—as we'd expected. And everyone's talking about Apple's new offerings and Nintendo's Wii, of course**

**Mark Cuban**

<http://snipurl.com/oct01>  
(<http://www.blogmaverick.com/2006/09/12/new-apple-announcement/>)

### New Apple Announcement

...the iPod interface is now viewable on your HDTV. Cable and Satellite companies are working hard, spending tens of millions of dollars to optimize their Programming Guides to incorporate Video On Demand, DVR ability, Internet Content, Purchase of content and TV Programming Guides... I think that the Apple interface, because it already has tens of millions of consumers trained to buy content on impulse, has to have the edge.

**Chris Pirillo**

<http://snipurl.com/oct02>  
(<http://chris.pirillo.com/2006/09/08/leopard-vs-windows-vista/>)

### Leopard vs. Windows Vista

"I challenge you to name what in Leopard justifies \$149. Because I sure can't think of none." Apparently, you're not thinking hard enough—or you haven't done your homework. ...Apple issues security updates constantly. This isn't a service pack, dude. These are not trivial upgrades. You combine the features of this list with better parental control, seamless 64-bit compatibilities, wider accessibility, and...

**Ben Kuchera**

<http://snipurl.com/oct08>  
(<http://arstechnica.com/journals/thumbs.ars/2006/9/15/5302>)

### Are Nintendo's price and... a wise move?

So Nintendo has surprised most of us by announcing the launch date for the Wii as November 19, at \$250. They won't be beating Sony to launch, and the price is a little higher than most people were hoping for. Of course prices are always higher than we'd like, but \$200 was considered the sweet spot for making the system almost an impulse buy for early adopters. They're bundling Wii Sports, but will that help to sell?

**Trent Lapinski**

<http://snipurl.com/rsp1>  
(<http://www.valleywag.com/tech/myspace/what-news-corp-doesnt-want-you-to-know-about-myspace-condensed-edition-199668.php>)

### What News Corp. doesn't want you to know about MySpace

1. MySpace is NOT a viral success. 2. MySpace.com is Spam 2.0. MySpace has spawned an incredibly successful twist on the age-old art of self-promotion. 3. Tom Anderson did NOT create MySpace. 4. MySpace's CEO Chris DeWolfe is connected to a past of spam and shady business associates...





September 2006

## Engineering The Future

In your September issue, the information you gave about anti-viruses in the complementary booklet was very useful. Also, the free software you gave was valuable for engineering students. The magazine has proved to be very useful to me.

Sumit Khandelwal

## Supermodel Digit?

Are you on a diet? Your mag is getting slimmer and slimmer. I finish it in a week. Please make it healthy. Why don't you give soft copies of the *Fast Track* and spend that money in other things like two DVDs or a dual-layer DVD? Why don't you give pictures on a regular basis on your CD/DVD?

Souparna

Dear Souparna,  
We certainly have not reduced the number of pages of editorial content in our issues—we have a constant number fixed, from which the only way to go is up. As far as soft copies of *Fast Track* are concerned, well, we do plan to give out previous issues in PDF format with our December DVD—so make sure you get it!

Nothing can replace the convenience of holding a *Fast Track* issue in print and reading it comfortably on the train or bus, reading it on a window ledge, or even in the loo. And you'd be surprised to know that many of our readers do not even have a

computer, but still pick up a copy of *Digit* to update their tech knowledge!

— Executive Editor

## Digitized!

I am totally enticed by your magazine. It has so much to offer to professionals, businessmen, students, and regular people. Even my brother, who is in the 8<sup>th</sup> standard, and my dad, are fans of yours. It has DIGITIZED my family. I was interested in computers from my childhood. And DIGIT has helped me update my knowledge. It also helped me get my dream PC, thanks to your regular articles (*Bazaar*) regarding the processor-motherboard combos and other hardware configurations.

I have a request. I would like you to publish a *Fast Track* on 3ds Max and Combustion.

Salil Sebastian  
Ahmedabad

Dear Salil,  
Thanks for your appreciation. Regarding a *Fast Track* on 3D, well, we are indeed planning to work on it—just give us a little more time. It'll be a tough job for us because we need to guide our readers and tutor them in the simplest manner.

— Executive Editor

## Digit Made Me Dance!

During ragging at my B. Tech., my seniors asked me about my hobbies, and I said it is reading *Digit*. They immediately threw a volley of questions, and me being a loyal *Digit* reader, I faced all the tech questions like Lara Croft. They got jealous; I ended up doing a pole dance and had to play cricket without a bat and ball—all alone.

The moral is, don't ever tell your seniors that reading *Digit* is your hobby!

Prashant Tewari

Dear Prashant,  
That is certainly the funniest anecdote I've ever heard related to our magazine! It's disconcerting to hear that you had to do a pole dance, but you must have enjoyed the jaw-dropping faces of your seniors when they were dumbstruck by your techie answers. Way to go!

— Executive Editor

## You're Wrong!

Refer page 58 of your September issue (*Jargon Buster*)—CCD And CMOS. The last line indicates that CMOS is found only on some high-end cameras. In contrast, in your *Fast Track to Digital Photography* in March 2005, on page 26: "CCD or CMOS" indicates that CMOS image quality is poor, is cheaper, and that CCD is recommended. Now my personal experience: all Web cameras are with CMOS; CMOS image quality is poor, and so far, most good-quality digital cameras are CCD-based—CMOS-based digicams do not have optical zoom. Why the anomaly? Do you agree with the experience expressed? Your clarification will help.

G Rajagopal  
Chennai

Dear Rajagopal,  
CMOS has always been a technology that is very difficult to perfect, which is why some of the top-end CMOS-based digital cameras are very expensive. However low-quality CMOS-based cameras are very cheap—such as the ones typically found on Web cameras. CCD, in contrast, is very easy to integrate, and the quality is far superior (for the price). CCD doesn't scale price-wise like CMOS does: the variance in price with a really low-end CCD and a high-end CCD is fairly small in comparison. Lastly, Web cameras and digital cameras are two different product classes (and never the twain shall meet).

— Executive Editor

## Do I Have A Future

I want to know, what is the future of Networking and Certifications such as N+, MCSE 2003, CISCO, etc. in the IT field? What qualification is required with such certifications? Please e-mail me an answer, or include this letter (and a reply) in your magazine.

Sharath S  
Tumkur District, Karnataka

Dear Sharath,  
First of all, I'm sorry to say this, but we just cannot reply to such subjective questions in this space—it needs a proper article to explain careers in networking and its scope and future. But we do plan to explore this in our November issue. And as far as answering via e-mail, we hope you understand that it is just not feasible

## Write to the Editor

E-mail: editor@thinkdigit.com

Snail Mail: The Editor, Digit, D-222/2, Om Sagar Building, MIDC, TTC Industrial Estate, Nerul  
Navi Mumbai 400 706

Digit will publish the best letters on these pages. Letters may be edited for clarity. Please include your complete address in all communication.

For subscription queries, call the help desk at 022-27629191/9200, fax 022-27629224, or send an e-mail to help@jasubhai.com

# Inbox

to answer all readers' letters by e-mail: we simply do not have the time and career experts-on-call to reply to almost 100 such mails a day we get from our readers!

— Executive Editor

## Free!

Instead of lot of trial versions, if you give only one full-version software with a license key, it would be absolutely useful for us *Digit* readers. Like ZoneAlarm, WinZip, Nero, etc., are useful to everyone. If you bought a multi-user license, and gave it to your readers, it would not amount to piracy. It will at least reduce 10 per cent of piracy!

**S Narayanan**  
Chennai

Dear Mr Narayanan,  
If only we could give you many more full-version software! But all software companies have their commercial interests to look after, and they do not let us give full versions. We do constantly try and secure deals with new and upcoming software companies to give their latest products on our CD/DVD, and let our readers test and try out their new creations. While some do agree to it, others prefer to sell every single copy of it in the market.

— Executive Editor

## Shoot Those Boards

It seems you are off track: I was expecting a motherboard test for the past six months, but I guess you are now a multi-purpose magazine for everyone. I like that you cover all areas of IT, but I request you to add special pages on motherboards. Or, you can give us a *Fast Track* on motherboards plus BIOS. I also want to tell you that till date, you have not answered my letters in the magazine!

**Sukhwinder Singh Sandhu**  
Muktsar, Punjab

Dear Sukhwinder,  
Our Test Centre annual calendar always slots a particular category of computer components or gadgets once a year, and tests them thoroughly. Since there are so many products to test, we do not repeat them in one calendar year, but yes—new models are tested throughout the year in our *Bazaar* section. For instance, this month we have reviewed a motherboard, while next month, we plan to carry a big, long motherboard shoot-out.

## Age-no-bar!

I am over fifty and a self-taught hobbyist

programmer. I know some C/C++, VB6, and am now trying my hand at Web programming with PHP & ASP.NET (this one is really tough!). Too ambitious at this age, you might wonder, but believe me, I simply love it. EasyPHP is really great. I had to download it though, because of the DVD not working. Thanks again for your wonderful magazine and those lovely *Fast Track* booklets.

**Ranjan Mitra**

Dear Mr Mitra,  
It is indeed remarkable that at age 50 you have taken up the challenge of learning so much about computing and programming. In the past, too, we've received some letters from senior citizens who are charmed by *Digit* and are educating themselves in the technology realm. Age is, as we can see, no barrier to learning, and our country's IT potential will, for sure, leave the world behind.

We're glad to be able to assist you in a small manner and to have fuelled your passion. Keep it going!

— Executive Editor

## Reliving The Past

Your September Edition was very useful: your review of digital cameras helped me pick one for myself. The *Fast Track* to Security was superb, and I am now able to secure my PC from hacking, viruses, spyware, and adware. Security on the network was awesome as well. If possible, give a *Fast Track* to Windows XP in the next edition.



**Yash Aryan**

Dear Yash,  
We have already given a *Fast Track* to Windows XP with our February 2006 issue, but don't fret if you've missed it. Just wait for a few months—we plan to give our previous *Fast Tracks* as PDFs on our December 2006 DVD.

— Executive Editor

## More About Piracy...

A lot of people have expressed their thoughts about piracy through past few issues of *Digit*. We have heard almost everything about so called piracy. While it was pleasing to know that most of *Digit's* readers are going for either paid software or freeware rather than pirated software. Still, it was just ridiculous to learn that some people still support the use of pirated software open-heartedly and the excuse given by them is mostly "Everybody is doing it, so why shouldn't I?" Just think of a day when rules are going to be strict and people supporting piracy are penalised, then how many of those great guys are going to say "Everyone is being punished so why shouldn't I?"

This is not a joke. We all know differences between original and pirated software. I know each and everyone cannot afford paid software, but we all can use free software and honestly most of them are as good as paid ones.

As far as the comment "Piracy creates potential customers" is concerned, I think that is just an excuse. Almost all software companies provide fully functional trial versions of their software, for a specified time, and the trial period is long enough for people to decide whether they want to buy or not.

The reason behind this piracy problem is the price of paid software. Software that costs an American double figures costs us in three figures. Whatever may be the cause, one thing we all know is that we cannot stop anyone from use pirated software against his/her own will. So what is the solution? Maybe it is the duty of software companies to fix their prices according to economy of a country.

**Neeraj Singh**

Your annoyance about this issue is quite justifiable. While there's really no cure for people who get their thrills using software worth lakhs for no money at all, the other camp still suffers the mental block that (1) Open Source is for the geek, and (2) Anything free just can't be good. As for expecting that software companies will set pricing according to the economy of the country, join us in dreaming on.

— Executive Editor

LETTER  
OF THE  
MONTH



# Bionics, Bollywood, And Scott McNealy

**1** What "bionic" device(s) has/have been recently in the news?



- a) An arm attached to a woman, who can control it via thought
- b) A pair of legs on a man that can do the waltz
- c) A bionic ear on a 100-year-old man
- d) A bionic eye that sees everything in shades of grey

**2** What is neural network pioneer Stephen Thaler currently doing?

- a) Building a network that can detect poor grammar
- b) Helping create an army of little military robots
- c) Trying to spread the idea that we'll never have true AI
- d) Modelling the area of the brain that causes fear of cockroaches

**3** What was the standard procedure to eject floppies from Macs?

- a) Using a pair of pliers and a screwdriver
- b) Dragging the icon to the trash can
- c) Pressing the Eject button
- d) Saying "Eject" into the inbuilt microphone

**4** What's interesting about Bollywood and search?

- a) In 2003, it was the second-most Yahoo-ed term in Denmark
- b) In 2005, it was the most-Googled term in the US
- c) It's very often misspelled as "Bolywood" in searches
- d) It has almost never been searched for in Russia

**5** What kind of software has the Chinese government recently tested?

- a) Something that can figure "when lawyers are lying"
- b) Software to help decide prison sentences
- c) AI programs that detect democratic leanings in writings
- d) Search spiders that block individual sites for content deemed inappropriate

**6** Two Moroccan men have recently been sentenced to prison terms for...

- a) Helping write the Zotob virus
- b) Downloading three songs off KaZaA
- c) Downloading 85 TB of data from torrent sites
- d) Stealing 220 credit card numbers

**7** What turned 50 last month?

- a) Floppy drives
- b) CD-ROMs
- c) Hard disks
- d) Mice

**8** What is ex-Sun-CEO Scott McNealy's most quoted phrase?

- a) "10 GB ought to be enough for anyone"
- b) "In our lifetime, we'll see robotic house-helpers"
- c) "You have zero privacy anyway—get over it"
- d) "Google will never rule—just wait and watch"

**9** Which company was in the news last month for its new efforts towards "green computing"?

- a) Intel
- b) Transmeta
- c) ATI
- d) Via

A googol is a 1 followed by a hundred zeroes. Google founders Brin and Page originally intended to call Google "googol", but ended up with "Google" because of a spelling mistake on a cheque that investors wrote them!

Did You Know?

Got an interesting question? Send it in with the answer to **TQ@thinkdigit.com** Mark "TQ" in the subject area.

## Answers

1. a) An arm attached to a woman, who can control it via thought	5. b) Software to help decide prison sentences
2. b) Helping create an army of little military robots	6. a) Helping write the Zotob virus
3. b) Dragging the icon to the trash can	7. c) The hard disk
4. a) In 2003, it was the second-most Yahoo-ed term in Denmark	8. c) "You have zero privacy anyway—get over it!"
9. d) Via	

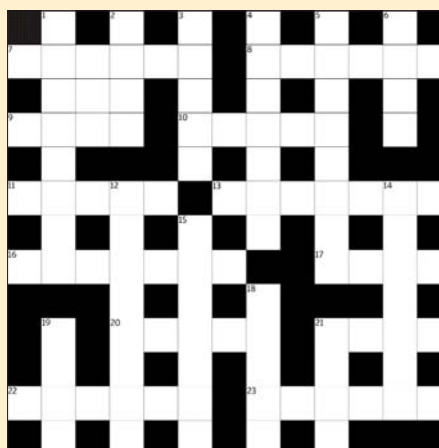
## Crossword

### ACROSS

- 7. '\_\_\_ All' — highlight text or graphic in a software application (6)
- 8. Cosmo ----- graphics language(abbr) developed by Silicon Graphics(4,2)
- 9. Atomicity, Consistency, Isolation, Durability (abbr)(4)
- 10. Transistor(5)
- 11. \_\_\_ and white ink cartridge(5)
- 13. Community-based BBS, usually in a public library on a non-profit basis(7)
- 16. A million binary pulses(7)
- 17. \_\_\_ Or internet cafe(5)
- 20. Aspect \_\_\_ - proportion of width to the height of a TV ratio(5)
- 21. Software setting to completely disable the sound(4)
- 22. Black & white or \_\_\_ screen(6)
- 23. Text \_\_\_ application that can be used to create, view and prepare text files(6)

### DOWN

- 1. Bob \_\_\_ developer/inventor of 'Ethernet'(8)
- 2. \_\_\_ Or receive messages(4)
- 3. \_\_\_ button-allows users to access their computer system(5)
- 4. 'Directories' in DOS and UNIX worlds(7)
- 5. Copying backup files from secondary storage to hard disk in data management(8)
- 6. Interior Gateway Routing Protocol(abbr) (4)
- 12. A real-time electronic forum on the internet where people can communicate(4,4)
- 14. Negatively charged subatomic particle(8)



- 15. In a web browser the detailed list of web sites the computer has visited(7)
- 18. \_\_\_ Draw- vector graphics editor(5)
- 19. To enable/disable the Internet Monitor use the Start or - option(4)
- 21. Hot \_\_\_ or e \_\_\_ (4)

## September's Winner

Anurag Nagpal  
Faridabad

Win!

Send in your entries with complete contact details to **TQ@thinkdigit.com** on or before **September 20**. One lucky participant will win

**AutoCAD2007 and AutoCAD LT 2007** by David Frey

WILEY-INDIA

## Solution For September 2006



Crossword by Nitta Jaggi



# Tabloid TECH

People And Events That Grabbed Headlines—For Better Or For Worse

## What's With Tape?



Paris Hilton of caught-on-tape fame has been caught on tape. She was arrested for doing two incompatible things at one time, namely, drinking alcohol and driving. Unfortunately, no-one caught any drunken slurs of hers—footage posted on celebrity Web site TMZ.com showed her arriving home after her release in a Mercedes-Benz with a cell phone to her ear and saying something inaudible.

That could have included drunken slurs, but we can't be too sure.

Paris Hilton was caught on tape in another incident: billing and cooing with drummer Travis Barker in a NY nightclub, though she insists he's just a friend. TMZ.com posted a video of the drummer and the gets-caught-on-tape girl doing it at the club Marquee.

We swear we won't mention Ms Hilton again when she next gets caught on tape. But then, we do break our promises.

## Slow On The Uptake

OK, so we lied. We said some months ago we'd never mention Britney here, and here we are again, and all because one member of our team still has a crush on the ex-cute blonde. So sue us.

Sutton Pierce Federline is the latest addition to the Spears-Federline family, and though he's about a few weeks old and can't lip-sync yet, suttonpiercefederline.com has already been registered. Just after he was born, in fact.

Britney and Kevin Federline weren't prudent enough to emulate Brad Pitt and Angelina Jolie, who, too, recently had a baby, as we exclusively reported a couple of months ago. Their lawyers registered several permutations of their baby's name as domains.

Britney can take comfort in the fact that there's lipsync.com out there, but it's taken—first take some tips off the karaoke site, then make an offer, is what we'd suggest.



## Rude Ringtones

Allow us to repeat our favourite stock phrase here: What is the world coming to? Mel Gibson was tipsy behind the wheel sometime in July, and some police officers didn't take

kindly to it—upon which Gibson turned to profanity. Paris Hilton was pulled up for the same thing in September, and she said a DUI “was nothing.” Now a company called Oasys has come up with

ScandalTones which are—you almost guessed it—ringtones, available for free at [www.oasysmobile.com](http://www.oasysmobile.com). The tones mock Gibson's tirade and do a spoof on whatever it was Hilton said. Celebs now have more reason to beware the paparazzi.

Don't expect any commentary here: ringtones based on celebs taking offence to DUI charges. What is the world coming to?

### 3-Easy-Steps to Freebies!

- 1 Log on to [www.thinkdigit.com/digitpatron](http://www.thinkdigit.com/digitpatron) to register.
- 2 Enter this 16-digit code and score points (you will find your code at this place every issue)
- 3 Your points get added every month and can be redeemed for exciting gifts!



## Odyssey Pen Drives.... Small In Size, Big On Capacity.

Go Red



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